ATLANTIC58

SEI Volume 1

Spaceport 1

EIA Report - Supplementary Environmental Information

SEI Addendum Report

January 2023

SPACE PORT 1

This study was completed for:

Comhairle nan Eilean Siar
Sandwick Road
Stornoway
Isle of Lewis
HS1 2BW

This study was completed by:

Atlantic58
F 042
UHI Outer Hebrides
Stornoway
Isle of Lewis
HS2 0XR

Contact: Sarah Murray / Laura Carse
Tel: 01851 770 281
Email: office@atlantic58.co.uk

Issue record

Version	Date	Details
V2.2	24/01/2023	Final version to client

CONTENTS

IMAGES

TABLES

GLOSSARY

Project term	Definition
Exclusion Zone	An Exclusion Zone is an area of sea space in (or over) which hazardous activities dangerous to the passage of surface vessels can occur, and to which access is controlled to manage risk to life. This area is identified by a Notice to Mariners (NtM) and publicised over a range of notification platforms. The Exclusion Zone required to support a launch will be defined by the safety case of the Launch Vehicle (LV) (as defined by the Space Industry Regulations 2021).
Launch campaign	All on-site rehearsals, activities and operations undertaken before, during and after a launch.
Launch Operator	The key responsibility associated with the launch lies with the Launch Operator (LO). The LO usually represents the organisation that has designed the launch vehicle and subsequently has a duty to demonstrate the technical and operational capability for undertaking launch events.
Launch Operator Licence	Launch operator licence means an operator licence which authorises a person or organisation to carry out spaceflight activities that include launching a launch vehicle or launching a carrier aircraft and a launch vehicle.
Launch vehicle (guided or unguided)	A launch vehicle or carrier rocket is a rocket-propelled vehicle used to carry a payload from Earth's surface to height, space, Earth orbit or beyond. Guided vehicles are those where the fins and/or rocket nozzles move to manoeuvre the LV into the correct trajectory during the powered and cruise phases of flight. Unguided vehicles have no method for changing the flight path, with the trajectory and azimuth dependent on the position and orientation of the launch. A LV typically comprises a series of stages and the payload. The first, or 'booster' stage is ignited at launch and burns through powered ascent until its propellants are exhausted. The jettisoned stages of each LV generally include engines, fuel tanks, batteries and electrical components. At the point of jettison, each stage is designed to consume all the fuel located within the tanks. The nature and composition of the payload can be variable and is based on the client requirements of the LO. For sub-orbital launches at the site, these are expected to comprise of atmospheric monitoring instrumentation, imaging systems, security equipment and communication technology.
Payload	The carrying capacity of a launch vehicle, usually measured in terms of weight and volume, and can include instrumentation or equipment
Payload fairing	The payload fairing protects the payload against pressure and heating during launch. It is typically a cone shaped object which is jettisoned into the sea during a launch event.
Restricted zone	Restricted zone means part of a hazard area to which entry is restricted to authorised individuals whose presence is necessary for the carrying out of spaceflight activities or for the performance of duties in connection with such activities (as defined by the Space Industry Regulations 2021).
Safety case	A structured body of evidence, providing a demonstrable argument that a system, process or equipment is safe for use. The safety case is key to ensuring that risks are ALARP (as low as reasonably practicable). A Safety Case is a legal requirement for a spaceport under the Space Industry Regulations 2020, which defines the prescribed content.
Space Launch Hazard Area	The Space Launch Hazard Area is the area where the licensee's range control services consist of or include identifying a volume of airspace or an area or areas of land or sea falling within the designated range (a "hazard area") which require to be made subject to restrictions, exclusions or warnings for keeping the area clear at relevant times of: (a) persons or things that might pose a hazard to the operator's spaceflight activities; and (b) persons or things to which the operator's spaceflight activities might pose a hazard (as defined by the Space Industry Regulations 2021).

Project term	Definition
Spaceport Licence	Spaceport licence means a licence granted under section 3 of the Act authorising a person or organisation to operate a spaceport (i.e. a site from which spacecraft or carrier aircraft can be launched or a site at which controlled and planned landings of spacecraft can take place). Spaceports can be licensed for vertical or horizontal launches (or potentially both). A horizontal spaceport must be located at an aerodrome that is already either CAA licensed or European Aviation Safety Agency (EASA) certified, and National Aviation Security Programme (NASP) directed. A person or organisation holding a spaceport licence is referred to as a spaceport licensee.
Spaceport Operator	The organisation or organisations that operate a licensed spaceport. Under the Space Industry Act 2018, facilities supporting the launch of sub-orbital and orbital Launch Vehicles (LVs) require a Spaceport Operator (SO) to obtain a Spaceport Licence.
Splashdown area	Splashdown area – is the predicted area in which the debris or components or payload contact with the sea surface.
Sub-orbital launch Vehicles / launches	The Space Industry 2018 Act defines a sub-orbital craft as capable of operating above the stratosphere i.e., the vehicle will fly into space but will not enter orbit.
Warning Area/Zone	An area of sea space in (or over) which activities can occur; however, risk is considered to be below the level that would require it to be a Sea Danger Area. Access to Sea Notification Areas is not controlled, but a Notice to Mariners (NtM) is published to inform all stakeholders that activity is to take place. A Warning Zone may encompass one or more Exclusion Zone to support wider awareness of the overall implications of the launch operations activity (as defined by the Space Industry Regulations 2021).

ACRONYMS

ACP	Airspace Change Proposal
ADMS	Atmospheric Dispersion Modelling System
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
AEE	Assessment of Environmental Effects
ALARP	As Low As Reasonably Practical
ANO	Air Navigation Order
AOD	Above Ordnance Datum
BGS	British Geological Survey
CAA	Civil Aviation Authority
CAR	Controlled Activities Regulations
CDG	Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations
CIC	Community Interest Company
CIEEM	Chartered Institute of Ecology and Environmental Management
CnES	Comhairle nan Eilean Siar
COMAH	Control of Major Accident Hazards Regulations
DFT	Department for Transport
DIO	Defence Infrastructure Organisation
DSEAR	Dangerous Substances Explosive Atmosphere Regulations
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EPS	European Protected Species
FRA	Flood Risk Assessment
FTE	Full-Time Equivalent
GBR	General Binding Rules
GES	Good Environmental Status
GVA	Gross Value Added
GWDTE	Groundwater Dependent Terrestrial Ecosystems
HAMP	Habitat and Amenity Management Plan
HDPE	High Density Polyethylene
HES	Historic Environment Scotland
HIAL	Highlands and Islands Airports Limited
HIE	Highlands and Islands Enterprise
HRA	Habitats Regulations Appraisal
HSE	Health and Safety Executive
HTP	High Test Peroxide
HTPB	Hydroxyl Terminated Polybutadiene
IEF	Important Ecological Feature
LBAP	Local Biodiversity Action Plan
LO	Launch Operator
LV	Launch Vehicle
LVIA	Landscape and Visual Impact Assessment
MCA	Maritime Coastguard Agency
MOD	Ministry of Defence
MPA	Marine Protected Area
MSLOT	Marine Scotland - Licensing Operations Team

NATS	National Air Traffic Services Ltd
NLB	National Lighthouse Board
NMP	National Marine Plan
NOTAM	Notice to Airmen
NRA	Navigational Risk Assessment
NTM	Notice to Mariners
NVC	National Vegetation Classification
OH IFG	Outer Hebrides Inshore Fisheries Group
OHLDP	Outer Hebrides Local Development Plan
OPMP	Otter Protection and Monitoring Plan
PWS	Private Water Supplies
RO	Range Operator
RSPB	Royal Society for the Protection of Birds
SAC	Special Areas of Conservation
SBL	Scottish Biodiversity List
SCZ	Safety Clear Zone
SEPA	Scottish Environment Protection Agency
SLHA	Space Launch Hazard Area
SMWWC	Scottish Marine Wildlife Watching Code
SNH	Scottish Natural Heritage (now NatureScot)
SPA	Special Protection Area
SPP	Scottish Planning Policy
SSSI	Site of Special Scientific Interest
TDA	Temporary Danger Areas
UKHO	UK Hydrographic Office
UKSA	UK Space Agency
WFD	Water Framework Directive
WICAS	Western Isles Council Archaeology Service
WIEPCG	Western Isles Emergency Planning and Coordinating Group
WIFA	Western Isles Fisheries Association
ZTV	Zone of Theoretical Visibility

1 INTRODUCTION

In December 2021, Comhairle nan Eilean Siar ('the Developer') (CnES), submitted a planning application under the Town and Country Planning (Scotland) Act 1997 (as amended) for permission to construct and operate a sub-orbital sounding or research rocket launch facility in North Uist Outer Hebrides, Spaceport 1 ('the Project') (Ref: 21/00646/PPD)[1]. An EIA Report ("2021 EIA Report") was prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 (the 'EIA Regulations') to support the planning application for the development.

This documentation represents an Addendum to the 2021 planning application to satisfy the requirement for additional information, set out as a Request for Supplementary Environmental Information (SEI) under Regulation 26 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, issued by CnES Planning and Development ("CnES Planning") on 1 September 2022. All other information provided in relation to project technical parameters and environmental topic assessments, remain in line with the information submitted within the 2021 EIA Report.

1.1 PROJECT BACKGROUND

The Developer previously submitted a request for scoping opinion for a spaceport facility at Scolpaig in 2018 (Ref: 18/00234/SCO_L). A "Scoping Opinion" from CnES Planning and a range of statutory and non-statutory consultees was received on 2 August 2018. Following a review of the emerging market and opportunities and interaction with other potential space launch infrastructure, the Developer revised the development proposals to substantially reduce the overall site footprint and submitted a planning application in June 2019 for a smaller sub-orbital spaceport development (Ref: 19/00311/PPD). In response to regulatory, stakeholder and public responses, centred around the need for additional information in the form of an EIA, the Developer withdrew this application. A new planning application - supported by an EIA Report - was submitted on 27 December 2021 for the proposed sub-orbital launching facility (Ref: 21/00646/PPD). Following examination of the 2021 EIA Report by CnES Planning, which also considered externally commissioned reviews[2] and representations by the public, a request for Supplementary Environmental Information (SEI) was issued to the Developer on 1 September 2022. This document updates and modifies aspects of the 2021 EIA Report (and supporting information) in light of the SEI Request, and stakeholder and public responses to the planning application (Ref: 21/00646/PPD).

1.2 STRUCTURE OF THE ADDENDUM

This Addendum updates the findings of the 2021 EIA Report in response to the request for Supplementary Environmental Information (SEI) under Regulation 26 of the EIA Regulations. The findings of the assessments are presented in Sections 7 to 23 of the SEI Addendum (SEI Volume 1), with accompanying figures, drawings, and visualisations in SEI Volume 2. All supporting studies are provided as Appendices in SEI Volume 3 and the Non-Technical Summary and Schedule of Mitigation are provided in SEI Volume 4. The structure of the SEI Addendum is detailed below in Table 1-1.

A Contents and Amendments Reference Sheet for the Spaceport 1 EIA Report and SEI Addendum is provided for cross-reference to all original documents, confirming where additional information has been provided, documents have been superseded and where original documents remain unchanged with relevant SEI Addendum reference, where applicable.

The changes and supplementary information provided are summarised as follows:

[1] Planning Application Reference 21/00646/PD, application was validated on 3 February 2021.

[2] Commissioned by CnES Planning to undertake an independent peer review on the robustness and completeness of the EIA Report.

Volume 1: EIA Report

The SEI Addendum replaces the original, or provides new EIA chapters for the following topics:

- Chapter 4. Project Description
- Chapter 7. Community, Recreation and Tourism (Socio-Economics)
- Chapter 8. Landscape and Visual Amenity
- Chapter 11. Traffic and Transport
- Chapter 22. Summary of Effects
- Chapter 23. Cumulative and In-combination Effects

The SEI Addendum provides further information or clarifications for the following topics and should be read in conjunction with the original EIA chapters:

- Chapter 2. Legislation and Policy
- Chapter 10. Archaeology and Cultural Heritage
- Chapter 14. Ornithology
- Chapter 15. Terrestrial Ecology
- Chapter 17. Hydrology, Hydrogeology and Geology
- Chapter 19. Noise and Vibration
- Chapter 21. Environmental Management and Monitoring

There are no substantive changes to the EIA chapters for the following topics, the SEI Addendum provides additional contextual information only:

- Chapter 3. Site Selection and Alternatives
- Chapter 5. Consultation Process
- Chapter 6. Approach to EIA
- Chapter 9. Land Use and Utilities
- Chapter 12. Aviation, Radar and Telecommunications
- Chapter 13. Marine Users and Assets
- Chapter 18. Air Quality and Heat
- Chapter 20. Climate Change

Volume 2: Drawings and Figures

Amendments to site drawings and plans, and figures relating to the EIA Report are detailed in the SEI Drawing Issue Sheet and SEI Figure Issue Sheet, respectively.

The SEI Addendum replaces the Visualisation Pack with SEI Volume 2C Landscape Visualisations.

A new pack for cultural heritage visualisations is provided with SEI Volume 2D Cultural Heritage Visualisations.

Volume 3: Appendices and Volume 4: Annexes

The SEI Addendum replaces the following appendices and annexes to the EIA Report:

- Appendix 7.1 Socio-Economic Analysis
- Appendix 10.1 Archaeology Gazetteer
- Appendix 17.3 Test Excavations and Soil Profiles
- Appendix 21.1 Risk Register

- Annex A. Non-Technical Summary
- Annex C. Schedule of Mitigation

The SEI Addendum includes the following new appendices to the EIA Report:

- SEI Appendix 4.1 Topographic Survey
- SEI Appendix 5.2. Collated Public Representations 2022
- SEI Appendix 8.1 Landscape and Visual Appraisal
- SEI Appendix 10.2 Stage 1 Setting Assessment
- SEI Appendix 10.3 Structural Survey
- SEI Appendix 17.4 Water Supply Options
- SEI Appendix 17.5 Sediment Management
- SEI Appendix 19.2 Vibration Technical Note

All other appendices and annexes to the EIA Report remain unchanged.

Table 1-1 Structure of the SEI Addendum

SEI VOLUME 1	Addendum	SEI VOLUME 2	Figures and Drawings
Section 1	Introduction	SEI Volume 2A	Site Drawings and Plans
Section 2	Legislation and Policy	SEI Volume 2B	Figure Pack
Section 3	Site Selection and Alternatives	SEI Volume 2C	Landscape Visualisations
Section 4	Project Description	SEI Volume 2D	Cultural Heritage Visualisations
Section 5	Consultation Process		
Section 6	Approach to EIA	**SEI VOLUME 3**	**Appendices**
Section 7	Socio-Economics[3]	SEI Appendix 4-1	Topographic Survey
Section 8	Landscape and Visual Amenity	SEI Appendix 5-2	Collated Public Representations
Section 9	Land Use and Utilities	SEI Appendix 7-1	Socio-Economic Analysis
Section 10	Archaeology and Cultural Heritage	SEI Appendix 8-1	Landscape and Visual Appraisal
Section 11	Traffic and Transport	SEI Appendix 10-1	Archaeology Gazetteer
Section 12	Aviation, Radar, and Telecommunications	SEI Appendix 10-2	Stage 1 Setting Assessment
Section 13	Marine Users and Assets	SEI Appendix 10-3	Structural Survey
Section 14	Ornithology	SEI Appendix 17-3	Test Excavations and Soil Profiles
Section 15	Terrestrial Ecology	SEI Appendix 17-4	Water Supply Options
Section 16	Marine Ecology	SEI Appendix 17-5	Sediment Management
Section 17	Hydrology, Hydrogeology and Geology	SEI Appendix 19-2	Vibration Technical Note
Section 18	Air Quality and Heat	SEI Appendix 21-1	Risk Register
Section 19	Noise and Vibration		
Section 20	Climate Change	**Volume 4**	**Annexes**
Section 21	Environmental Management and Monitoring	SEI Annex A	Non-Technical Summary
Section 22	Summary of Effects	SEI Annex C	Schedule of Mitigation
Section 23	Cumulative and In-Combination Effects		

[3] Previously titled “Community, Recreation and Tourism” in the 2021 EIA Report.

1.3 ADVERTISING AND CONSULTATION

Following submission of the SEI Addendum, the 2021 EIA Report and supporting documents will be available for public view online and to download from:

CnES planning portal at: https://planning.cne-siar.gov.uk/PublicAccess/

A paper copy of the SEI Addendum and 2021 EIA Report will be available to view during normal opening hours at:

CnES Council Offices
Balivanich Office
Isle of Benbecula
H57 5LA

A copy will also be available to view during opening hours at (details of access to the hall will be published locally):

Hosta Hall
North Uist
HS6 5DF

Digital copies of the SEI Addendum and EIA Report in electronic format (USB) are available for £5, paper copies of the SEI Addendum are available for £100, and paper copies of the EIA Report are available for £250 on request from:

Alison MacCorquodale, Economic Development Officer, CnES: AlisonMacCorquodale@cne-siar.gov.uk

1.4 CONTRIBUTERS TO THE SEI ADDENDUM

The SEI Addendum was coordinated by Atlantic58 Ltd. Additional contributors to the Addendum include organisations with specialist and competent expertise, presented below. The diverse team ensured assessments were undertaken by the appropriate consultants with extensive knowledge and expertise in their field. Details on the individuals contributing to the SEI Addendum are provided in Table 1-2.

Atlantic58

Atlantic58 Limited is an environmental consultancy based on the Isle of Lewis, providing a range of locally based services through its small team and network of subcontractors. Since its incorporation in 2018 the company has provided support for a range of organisations from local community trusts to global multinational firms across several disciplines including archaeological assessments, ecological surveys, ornithological surveys, project development, planning and EIA support. Atlantic58 (under former company name WI Marine and Environment) previously supported the delivery of the Spaceport 1 2021 EIA Report and has managed the submission of the SEI Addendum.

Fraser Architecture

Fraser Architecture is a North Uist based, award winning practice established in 2008 and is founded upon 29 years of experience of design and procurement across the Outer Hebrides. The practice has developed a diverse project portfolio which reflects the collective skills of their team. As well as private and community projects the practice has delivered specialised commercial and defence projects including infrastructure for the Terrier Orion launch from RA Range Hebrides in 2015, the first launch into space from UK soil. Fraser Architecture previously supported the delivery of the Spaceport 1 EIA Report.

Atlantic Ecology

Atlantic Ecology Limited is a consultancy based in Scotland that specialises in ornithological consultancy services, for both offshore and onshore projects. Atlantic Ecology works alongside larger consultancies, meeting their requirements for specialist independent advisory,

impact assessment and survey services. Although Atlantic Ecology works across the UK and overseas, it focusses on projects in Scotland especially those that have an emphasis on seabirds, breeding waders and birds of prey. Recent projects have included survey and impact assessment studies for onshore and offshore windfarms, tidal stream arrays, marine fish farms, hydro-electricity projects, and undertaking site condition monitoring surveys of nature conservation sites designated to protect important bird populations. Atlantic Ecology previously supported the delivery of the Spaceport 1 EIA Report, including the ornithology assessment.

Headland Archaeology

Headland Archaeology is a Registered Organisation with the Chartered Institute for Archaeologists, an audited status which ensures that it operates to the highest professional standards in the historic environment. Since 2000, Headland Archaeology has developed substantial expertise in EIA and related work covering a wide range of sectors. Headland Archaeology has been involved in producing EIAs for over 150 wind farms, as well as quarries, power stations, transport, housing developments, linear energy projects, solar, biomass and energy-from-waste plants. Headland Archaeology provides a complete integrated service from initial feasibility studies to design, impact assessment and implementation of mitigation. Their approach is informed by the knowledge that many projects will be subject to forensic examination, and therefore ensured that their assessments are carried out to the highest professional standard.

RSK Acoustics

RSK has a team of over thirty-five professional acoustics and vibration specialists from a wide range of backgrounds, based at offices throughout the UK and Ireland, providing clients worldwide with a comprehensive range of acoustic services. The team has substantial experience of managing and delivering projects ranging from architectural acoustic design, planning support, environmental permitting through to large-scale EIAs and compliance monitoring. Their considerable experience provides the team with the knowledge of interpreting and working with UK and international guidance, and standards and legislation relevant to the project.

MKA Economics

MKA Economics support projects by appraising their economic viability, socio-economic value and advising on their delivery. The company works across sectors and geographies and has a particular specialism in arts and culture, events, food and drink, renewables, sport and tourism. MKA Economics is currently retained by Highlands and Islands Enterprise (HIE) and Scottish and Southern Energy (SSE) on their Economic Impact Frameworks. MKA Economics is also a member of the Economic Development Association Scotland (EDAS) and Aberdeen and Grampian Chamber of Commerce (AGCC). MKA Economics previously supported the socio-economic appraisal for the Spaceport 1 2021 EIA Report.

Harley Haddow

Harley Haddow is an award-winning mechanical, electrical, civil, structural, sustainability & net zero engineering consultancy. Staff are experienced across all sectors of the construction industry from condition and acquisition surveys and the design of the refurbished or new-build commercial buildings, to complex refurbishments of hotels and retail buildings. Teams are led by experienced Engineers with over 30 years' experience, with Director involvement from start to finish. The company has offices in London, Edinburgh, Glasgow, Fort William and Manchester, and have over 100 employees including chartered engineers, graduate engineers and technicians. Projects cover all construction sectors throughout the UK and overseas, from individual dwellings to city master planning projects.

NMK

NMK Limited is a survey company based on the Isle of Barra in the Outer Hebrides. Founded in 2003 the company's main areas of business are land surveying, construction site setting out and site supervision. The company operates up to date GNSS survey equipment including radio linked base and rover instruments and high precision robotic total stations. The company uses specialised survey software, a key component of modern land measurement. Experienced in surveying for clients including QinetiQ, SSEN, CnES and Scottish Water. NMK has carried out work for Fraser Architecture for over five years. The business operates throughout the Hebrides and is familiar with the terrain and the challenges of the weather.

Table 1-2 Individuals contributing to the Addendum

Company	Role	Qualifications and Experience	Contribution
Atlantic58	Project Manager	The project manager is a Chartered Environmentalist and full member of the Institute of Environmental Management and Assessment (IEMA). Has an MSc in Marine Resource Development and Protection and a BSc (Hons) in Tropical Environmental Science. Has accumulated over 18 years' experience across onshore renewables, offshore renewables, aquaculture and project development, including developing projects involving novel technologies.	Joint coordination of the delivery of the EIA Report and SEI Addendum, provided a technical review and advisory role, updated Socio-Economic assessment, in addition to managing archaeology and other assessments.
Atlantic58	Project Management, Senior Consultant	MSc Marine Resource Management and BSc (Hons) Sustainable Environmental Management with nine years EIA consultancy experience. Project management, EIA coordination and topic assessment roles for range of sectors including wave and tidal energy, floating wind, onshore wind and marine aquaculture throughout Scotland. Wider experience in site selection and optioneering, development of environmental management and monitoring plans, stakeholder engagement, baseline survey planning, and involved in a number of national and European strategic environmental research programmes relating to environmental impacts of marine renewables.	Joint coordination of the delivery of the EIA Report and SEI Addendum, technical review and advisory role, management of supporting assessments.
Fraser Architecture	Architect (Partner)	The project designer has been a practising Architect for 35 years. Studied at Robert Gordon's Institute of Technology in Aberdeen and has practiced in Shetland and the central belt of Scotland. With diverse experience in the private and public sector throughout the Western Isles, has an understanding of cultural and environmental context, the challenges of climate, the local building industry and the statutory considerations which impact upon design. Experience includes other vertical launch infrastructure works.	Project design and drawings, production of visualisations.
Atlantic Ecology	Ornithologist	The project ornithologist and has a PhD in Zoology and BSc Joint Honours in Zoology & Botany and is Managing Director of Atlantic Ecology Limited, a Scottish-based ornithological consultancy setup in 2016. Has 32 years' work experience, initially as a research biologist working for universities and RSPB Scotland and since 2005 as an ornithological consultant. Has wide experience with impact assessments and surveys for onshore projects including large wind farms (e.g., Viking Wind farm on Shetland), hydro-electric schemes, transmission line projects, and site condition monitoring surveys of designated sites. Has a particular knowledge relating to the wildlife of the Outer Hebrides gained principally through long-term studies into the breeding waders of the Uist machair (PhD study followed ten years later by five further years of study for RSPB), and also through diver surveys.	Supporting consultations and agreement of appropriate mitigations for ornithological receptors.

Company	Role	Qualifications and Experience	Contribution
Headland Archaeology	Heritage Consultant	M.A (Hons) Archaeology/Classics, MLitt Professional Archaeology. Over 11 years' experience in the heritage sector in a variety of rural and urban contexts including major renewable energy and transport infrastructure projects in Scotland, England and Northern Ireland. Highly experienced in production of EIAs and setting assessments and experience of agreeing scopes of archaeological mitigation with consultees and managing fieldwork.	Project management, liaison with local authority archaeologist, carrying out site visit and setting assessment, review of existing baseline and production of SEI Addendum.
RSK Acoustics	Vibration Consultant and Graduate Acoustic Consultant	BSc (Hons) Audio Technology. Wider experience in environmental noise consultancy and impact assessments across Scotland and UK. Involved in a number of commercial and industrial development with a focus on assessing future developments for the improvement of energy infrastructure and sustainable energy project wind farm development.	Production of technical information document assessing and predicting the potential vibration impact from construction traffic and launch vibration on heritage assets.
MKA Economics	Socio-economic Consultant	The Socio-economics Consultant has over 20 years post-qualifying experience and brings high level experience in economic development projects. Core strengths include economic development, market appraisal, public/private funding, economic and financial appraisal of projects, including, commercial developments, residential schemes, renewable energy, transport and infrastructure, SME support programmes and labour market initiatives. Full Member of the Economic Development Association Scotland (EDAS) and the Institute for Economic Development (MIED). Was a Board Director with Forth Valley Social Enterprise (FVSE) from 2015 to 2018 and is a Planning Aid Scotland (PAS) Volunteer.	MKA economics undertook and reported the socio-economic analysis and supported the collation of the update in the Addendum.
Harley Haddow	Consultant Engineer	The Consultant Engineer has been with Harley Haddow for over a decade and is a Director within the Edinburgh office. With industry experience stretching to three decades, his career has included local authorities, multinational consultancies, academia and with contractors.	Harley Haddow provided consulting engineering expertise to the Project Architect and undertook building structural surveys.
NMK	Land Surveyor	Surveying for over thirty years, studying at Lews Castle College and Inverness College then gaining experience working on large civil engineering projects in and around London, Manchester and Liverpool. Has worked on many projects throughout the Hebrides including water infrastructure, roads, harbours, sea defences, schools, and military installations. In 2020, was responsible for managing the construction of the new FS21 missile launch pad at RA Range Hebrides.	NMK undertook the topographical surveys.

1.5 SUPPLEMENTARY ENVIRONMENTAL INFORMATION (SEI) REQUEST

Information is prepared to address a Request for Supplementary Environmental Information (SEI) under 26 of the EIA Regulations. The points set out in Table 1-3 reflect the comments outlined in the SEI request and the location of the relevant information in the SEI Addendum. Each chapter contains a detailed breakdown of the relevant information requested and the specific location for each information query.

Table 1-3 Requests set out in the SEI issued by CnES Planning on 1 September 2022

Topic	SEI Request	Response	Section
Project Description	Updated drawings: access width, visibility splay, swept path analysis (construction and operation) and the capacity of the water storage tank.	Updated drawings provided.	SEI Volume 2A. Site Drawings and Plans
	Incorporate detail on temporary blast deflectors, security fencing for compound, lightening conductor and external lighting requirements, including security lighting with indicative design, size and appearance details.	Updated Project Description includes further detail and clarifications.	SEI Section 4. Project Description
Community and Recreation	Clarify scoring methodology for the significant effects of impacts.	Chapter 7 Community and Recreation, fully reworked with new EIA methodology.	SEI Section 7. Socio-Economics
	Clarify level and type of access during site construction and operations, including launch event preparations, the launch and demobilisation. Confirm whether the use of the access track from the public road to the farmhouse will be available during these times.	Access during construction and operation clarified across four 'tiers'' of operational status. Access to the site during construction clarified. Access to the site during operation clarified.	SEI Section 7. Socio-Economics
	Clarify how housing demand likely to arise from the levels of employment likely to be generated is intended to be addressed.	Updated assessment provides estimations of new personnel requirements and adopts inward migration predictions as a result of the project as a basis for housing impacts.	SEI Section 7. Socio-Economics
Landscape and Visual	Assessment of potential impact on landscape character (including nonvisual), NSA, construction and intermittent operational impacts, fencing, lighting and blast deflectors.	Coastal/Landscape and Visual Appraisal undertaken in line with the Guidelines for Landscape and Visual Impact Assessment (GLVIA) produced by the Landscape Institute and the Institute of Environmental Management and Assessment.	SEI Section 8, SEI Appendix 8.1 Landscape and Visual Appraisal

Topic	SEI Request	Response	Section
Land Use and Utilities	Provide confirmation of the existing water supply to site and clarify whether further works or infrastructure may be necessary in this regard.	Proposals have been modified. Drawings updated to remove mains connection. Assessment of options for water supply. Description of water supply proposals.	SEI Drawing (00)21.13 SEI Appendix 17.4. Water Supply Options SEI Section 17
Archaeology and Cultural Heritage	Assessment of setting, including non-visual impacts (nature of use, tranquillity) further assessment on the range non designated heritage assets.	Expanded assessment of setting included in updated chapter. Assessment and screening of all heritage receptors (including non-designated receptors) provided.	SEI Section 10 SEI Appendix 10.2
Archaeology and Cultural Heritage	Confirm that use of land as a Spaceport would not preclude non-residential uses of the farmhouse and complex.	The use of land as a Spaceport would not preclude non-residential uses of the farmhouse.	SEI Section 10
Archaeology and Cultural Heritage	Further evidence of noise and vibration impacts on designated and non-designated heritage assets during construction and operation, including HGVs and launch operations.	New and updated assessment of vibration provided to support assessment of cultural heritage features.	SEI Section 10 SEI Appendix 19.2 Vibration Technical Note
Traffic and Transport	Clarify the level of operational traffic likely to be generated during launch events and max no of personnel.	Estimated operational traffic profiles for the range of LV size (smallest, typical and largest) is presented in the Addendum.	SEI Section 11
Traffic and Transport	Updated assessment of the number / type construction vehicles, clarify HGV routing for both construction and operation.	Construction traffic movements have been recalculated to account for the increased material required to accommodate the access widening. HGV routes are providing in accompanying figures.	SEI Section 11
Project description	Confirm design of riprap embankment.	Site plans and project description updated with further details around the riprap embankment. Slope of riprap embankment included in Drawing (00)24.9, with slope 1:1.5, and is submitted as part of the Addendum.	SEI Drawing (00)24.9

Topic	SEI Request	Response	Section
Ornithology	Update details for exclusion zone for corncrake and clarify seasonal restrictions on launches to avoid corncrake breeding season.	Corncrake disturbance prevention zones extended to 170 m. Rationale for no seasonal restrictions on launches provided.	SEI Section 14.3.4 SEI Section 14.3.2
Ornithology	Additional information in relation to impacts on black guillemot.	Additional information in relation to black guillemot provided.	SEI Section 14.3.6
Hydrology and Hydrogeology	Clarification of the impact on peat in terms of construction compound.	Additional trial pit evaluation undertaken at the construction compound. No peat recorded in the trial pits.	SEI Section 17. SEI Appendix 17.3. Trial Excavations and Soil Profiles
Noise and Vibration	Provide further information on noise and vibration from construction traffic, if not considered significant, further clarification on the reasoning.	New and updated assessment of vibration provided to support assessment of cultural heritage features.	SEI Appendix 19.2. Vibration Technical Report
Noise and Vibration	Details of proposed vibration monitoring locations (requiring landowner agreements).	Recommended monitoring locations provided, with supporting rationale.	SEI Appendix 19.2 Vibration Technical Report
Human Health	Collated response of potential impacts on human health (air quality, noise, vibration).	In-combination effects on human health assessed.	SEI Section 23. Cumulative and In-combination Effects
Risk Register	Review scoring methodology and greater clarify on the assessed level of risk after control, particularly in relation to impact (maximum consequence).	Revised risk register provided.	SEI Appendix 21.1. Risk Register
Risk Register	Include the potential for a catastrophic failure resulting in damage to heritage assets from debris.	Revised risk register provided.	SEI Appendix 21.1. Risk Register
Schedule of Mitigation	Confirm how mitigation is intended to be secured and who would be responsible for delivering the mitigation	Updated in line with request.	SEI Annex C. Schedule of Mitigation
NTS	Updated in line with changes	Updated in line with changes.	SEI Annex A. NTS
Cumulative Impacts	Review cumulative impacts and in combination for noise, visual and transport impacts.	Clarification on approach to cumulative and in-combination impacts provided. In-combination assessment provided, considering updated impacts assessments.	SEI Section 23. Cumulative and In-combination Effects

Topic	SEI Request	Response	Section
Cumulative Impacts	Ensure consistent approach to EIA on planned and permitted development.	Clarification on approach to cumulative and in combination impacts provided. In combination assessment provided, considering updated impacts assessments.	SEI Section 23. Cumulative and In-combination Effects
Hydrology and Hydrogeology	Confirm arrangements for holding and disposal of waste liquids from post launch cleaning / spillages, the management of residual fuel and contingency plans, assuming off island disposal.	Further clarifications on disposal and fate of waste liquids.	Section 17. Hydrology, Hydrogeology and Geology

Representations were provided by the public. Responses have been collated and broadly described in each chapter, with detailed feedback to representations provided in SEI Appendix 5.2.

2 LEGISLATION AND POLICY

2.1 INTRODUCTION

The SEI request did not identify any required updates or clarifications on Chapter 2, Legislation and Policy. No feedback was provided on this topic from an externally commissioned review of the EIA Report. No statutory or non-statutory consultee responses requested additional information on this assessment; however, representations from the public raised queries in relation to this topic. SEI Appendix 5.2 provides the collated responses of the representations and the response of the Spaceport 1 Consortium and EIA Contributors.

A review of the latest policies was undertaken during preparation of the SEI Addendum and the National Planning Framework 4 (NPF4) was identified as a new policy framework, due to be adopted before the Spaceport 1 development is likely to be determined. A revised draft of NPF4 was submitted by Scottish Government to the Scottish Parliament on 8 November 2022 for approval following consultation. The revised framework is anticipated to be adopted by Scottish Ministers in February 2023, which will make the framework a material consideration of any planning application under the Town and Country Planning (Scotland) Act 1997. The existing National Planning Framework 3 and Scottish Planning Policy remain in place until NPF4 has been adopted by Scottish Ministers. The SEI Addendum considers new or updated policies in NPF4 that are relevant and are likely to be material to the proposed Spaceport 1 development.

2.2 NATIONAL PLANNING FRAMEWORK 4 (NPF4)

The Revised Draft National Planning Framework 4 (NPF4) sets out the long-term national spatial strategy for Scotland. The strategy aims to support the planning and delivery of:

- sustainable places, where we reduce emissions, restore and better connect biodiversity.
- liveable places, where we can all live better, healthier lives.
- productive places, where we have a greener, fairer and more inclusive wellbeing economy.

The strategy sets out Spatial Planning Priorities, which are intended to guide preparation of Regional Spatial Strategies and Local Development Plans. Priorities are identified for North and West Coast and Islands, which includes the Outer Hebrides. NPF4 identifies development of spaceports in these regions as having potential to support the Scottish Government's wider aims to grow the space sector:

> *"Proposed space ports, which make use of the area's relatively remote location and free airspace, could support our national ambitions to grow this sector. This includes plans for an Outer Hebrides Spaceport 1 in Scolpaig, North Uist"*

NPF4 sets out 33 policies within National Planning Policy under *Sustainable Places*, *Liveable Places* and *Productive Places*. The following policies have been identified as directly relevant to the Spaceport 1 development: Policy 3. Biodiversity, Policy 4. Natural Places and Policy 7. Historic Assets and Places. These are assessed against the development proposals in the following sections.

NPF4 Policy 3: Biodiversity

Development proposals will be expected to protect biodiversity, contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them.

- Development proposals will contribute to the enhancement of biodiversity, including where relevant, restoring degraded habitats and building and strengthening nature networks and the connections between them. Proposals should also integrate nature-based solutions, where possible.
- Development proposals for national or major development, or for development that requires an Environmental Impact Assessment will only be supported where it can be demonstrated that the proposal will conserve, restore, and enhance biodiversity, including nature networks so they are in a demonstrably better state than without intervention. This will include future management:

i. the proposal is based on an understanding of the existing characteristics of the site and its local, regional, and national ecological context prior to development, including the presence of any irreplaceable habitats.
ii. wherever feasible, nature-based solutions have been integrated and made best use of.
iii. an assessment of potential negative effects which should be fully mitigated in line with the mitigation hierarchy prior to identifying enhancements.
iv. significant biodiversity enhancements are provided, in addition to any proposed mitigation. This should include nature networks, linking to and strengthening habitat connectivity within and beyond the development, secured within a reasonable timescale and with reasonable certainty. Management arrangements for their long-term retention and monitoring should be included, wherever appropriate.
v. local community benefits of the biodiversity and/or nature networks have been considered.

- Proposals for local development will include appropriate measures to conserve, restore and enhance biodiversity, in accordance with national and local guidance. Measures should be proportionate to the nature and scale of development.
- Any potential adverse impacts, including cumulative impacts, of development proposals on biodiversity, nature networks and the natural environment will be minimised through careful planning and design.

Habitats

Construction will avoid peatland (an irreplaceable habitat), much of the habitats directly impacted are already developed or partially degraded. No resting areas used by otter will be directly lost to the footprint, and good practice construction mitigation will be implemented and monitored to minimise adverse impacts, ensuing no likely significant effects. As operational activity will generally be very localised in extent, occasional and small in scale, and will be operated in compliance with good practice to minimise adverse impacts, all residual effects on Important Ecological Features from operational phase impacts are expected to be negligible and **not significant**.

Prior to securing ownership of the site, Scolpaig was extensively grazed, with degraded water quality in Scolpaig Loch, thought to be from diffuse pollution from livestock. Provisions introduced via a tenancy agreement developed in conjunction with the RSPB is focused on providing wader habitat, corncrake habitat and species rich grasslands. An outline Habitat and Amenity Management Plan (HAMP) outlining key commitments and principals is provided in Appendix 7-2 of the EIA Report and will be developed post consent. Coordination and management of the HAMP will be delivered by an Environmental Officer contracted by Spaceport 1. The HAMP will expand the current habitat enhancement proposals and integrate these with commitments arising from the EIA / planning process in conjunction with a consultative Advisory Group. Under CnES ownership, the site is currently managed to allow access for recreational use, community grazing opportunities, and enhancement of habitats for biodiversity.

Breeding birds

The 2021 EIA Report set out several mitigation measures that are designed to avoid or reduce adverse impacts on birds from the Project. These include measures to minimise habitat loss/change, to manage disturbance and to minimise the potential hazard to birds from launch vehicle deposits. With a series of proposed mitigation measures, the assessment concludes that for all ornithological receptors the potential residual impacts arising from the Project are zero, negligible or low magnitude and **not significant**.

A Breeding Bird Protection Plan will be implemented which will include measures to ensure that no breeding Schedule 1 species are disturbed during construction. Species-specific mitigation measures will be implemented for corncrake to ensure that in advance of the breeding season, vegetation within 10 m of the area potentially directly affected by construction activities will be kept short (<10 cm) by regular mowing, thus making it unattractive for breeding corncrakes.

During operation of the spaceport, vegetation sward height within approximately 170 m of the launch platform will be kept short (<10 cm) during the breeding season (April – August, inclusive) to deter breeding corncrake. Tall grass habitat will be created elsewhere at Scolpaig Farm to ensure there continues to be suitable habitat for corncrake locally available. The assessment concludes that there will be no significant adverse effects.

Otter

Otter is a European Protected Species (EPS). A detailed assessment of the potential impacts on otter has been carried out, and construction phase protection and post-consent monitoring measures have been recommended to safeguard the species and ensure legal compliance of development construction and operation, ensuring no likely significant effects on otter.

Otter mitigation proposals have been agreed and incorporated into the development of the Otter Monitoring Area and the Otter Protection and Monitoring Plan (OPMP), which includes the requirement for operational monitoring for otter to safeguard the species and ensure the legal compliance of launches with EPS legislation.

Marine mammals and fish

All cetacean species (whales, dolphins and porpoises) occurring in Scottish waters are EPS. Jettisoned stages entering the sea as deposits will be relatively small in size, and many of the LV stages will deploy a parachute system which will reduce the force of impact with the sea surface and facilitate their intended recovery. The area affected by a splashdown event would be very localised in extent and the likelihood of direct strike to mobile, transitory animals such as cetaceans, basking shark and Atlantic blue fin tuna, or seals given their at-sea densities, is considered very low. The safety/recovery vessel will follow good practice by adhering to the SMWWC if any cetaceans or basking sharks are encountered during operations. The assessment therefore concludes that adverse residual effects on marine mammals (cetaceans and seals) and fish will be negligible and not significant.

Potential impacts from non-recovered LV components that may deposit on the seabed will be highly localised and limited in scale due to the small sizes of the components. Each LV is designed for maximum and efficient fuel use; therefore, the potential loss of small amounts of residual fuel and oxidiser is not anticipated to result in toxicological effects to nearby marine ecological receptors. Launches will be spread spatially and temporally throughout the year which will greatly reduce the likelihood of an area being repeatedly affected by LV deposits. Therefore, the assessment concludes that any adverse residual effects from non-recovered jettisoned deposits on benthic habitats and species, fish, marine mammals and associated designated site IEFs will be negligible and not significant.

Any noise and disturbance effects due to launch events and flight paths passing overhead would be transient and, with up to 10 launches per year, spread temporally such that any adverse residual effects on seals and associated designated site IEFs will be negligible and not significant. No pathways for likely significant effects on cetaceans were identified from noise associated with LV launches and therefore was scoped out of the EIA.

NPF4 Policy 4: Natural Places

The aim of this policy is to ensuring natural places are protected and restored, and natural assets are managed in a sustainable way that maintains and grows their essential benefits and services.

Development proposals which, by virtue of type, location or scale will have an unacceptable impact on the natural environment, will not be supported.

- Development proposals that are likely to have a significant effect on an existing or proposed European site (Special Area of Conservation or Special Protection Areas) and are not directly connected with or necessary to their conservation management are required to be subject to an “appropriate assessment” of the implications for the conservation objectives.
- Development proposals that will affect a National Park, National Scenic Area, Site of Special Scientific Interest or a National Nature Reserve will only be supported where:
    i. The objectives of designation and the overall integrity of the areas will not be compromised; or
    ii. Any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by social, environmental or economic benefits of national importance.

Protected habitats

A Habitats Regulations Appraisal (HRA) has been undertaken for the Project and concludes that there will be no adverse effects on the site integrity of any SACs or SPAs (see Annex B: Information to Inform HRA). North Uist Machair and Islands Ramsar site has the same boundary as North Uist Machair and Islands SPA; both sites were considered in the assessment.

The Project is not within a SSSI or NNR although there are several SSSIs in the wider vicinity, the nearest of which is Vallay SSSI designated for habitat features. Vallay SSSI is located 2.75 km from the Project on the Isle of Vallay and as such there is no connectivity between the SSSI and the Project therefore there are no likely significant effects anticipated.

The islands of Causamul and Haskeir, located off the west coast of North Uist, 8 km and 13 km, respectively from the proposed launch site are designated along with the islands of Gasker, Coppay, Shillay and Flodday as part of the Small Seal Islands SSSI, a group of six islands that collectively support one of the largest grey seal pupping sites in the Western Isles. No significant effects on grey seals are anticipated. The Space Launch Hazard Area overlaps with two MPAs these are: West of Scotland MPA and Geikle Slide and Hebridean Slope MPA. The assessment determines that the Project will not hinder the aim to achieve favourable condition of qualifying features within overlapping or nearby designated sites.

Protected landscapes

The Project boundary is outwith but adjacent to the South Lewis, Harris and North Uist National Scenic Area (NSA). However, the effects of the proposed Project on the NSA are considered in the appraisal, as irrespective of whether it lies in the designated area or not, there is potential for significant effects to arise directly or indirectly on some of its special qualities. The proposed Project would have significant adverse effects on some aspects of three special qualities of the South Lewis, Harris and North Uist NSA described in NS Commissioned Report 374. The assessment concluded that the integrity of the NSA would not be compromised given the relatively limited extent and duration of these effects. The Proposed Development would not compromise the objectives of designation or overall integrity of the South Lewis, Harris and North Uist NSA.

NPF4 Policy 7: Historic assets and places

The aim of this policy is to protect and enhance historic environment assets and places, and to enable positive change as a catalyst for the regeneration of places.

Development proposals with a potentially significant impact on historic assets or places should be accompanied by an assessment which is based on an understanding of the cultural significance of the historic asset and/or place. The assessment should identify the likely visual or physical impact of any proposals for change, including cumulative effects and provide a basis for managing the impacts of change. Proposals should also be informed by national policy and guidance on managing change in the historic environment, and information held within Historic Environment Records.

Development proposals affecting Scheduled Monuments will only be supported where:

i. direct impacts on the Scheduled Monument are avoided.
ii. significant adverse impacts on the integrity of the setting of a Scheduled Monument are avoided.
iii. exceptional circumstances have been demonstrated to justify the impact on a Scheduled Monument and its setting and impacts on the monument or its setting have been minimised.

Non-designated historic environment assets, places and their setting should be protected and preserved *in situ* wherever feasible. Where there is potential for non-designated buried archaeological remains to exist below a site, developers will provide an evaluation of the

archaeological resource at an early stage so that planning authorities can assess impacts. Historic buildings may also have archaeological significance which is not understood and may require assessment.

Scheduled Monuments

There are no direct impacts on Scheduled Monuments, including vibration impacts from construction and operational activities. However, the assessment identified the potential for significant adverse effects on Dun Scolpaig/ Scolpaig Tower, a 19th century structure built on top of a prehistoric dun site, designated as a Scheduled Monument. The most visually apparent elements of the proposed development in views from and to Scolpaig Tower, would be the temporary rocket launch tower and the launch vehicle. Whilst these elements of the proposed development would temporarily introduce modern infrastructure into the wider post-medieval landscape, any impact on the setting of Scolpaig Tower would be temporary and would be reversed following the rocket launches.

Impacts on the setting of the tower through noise and vibration would also introduce temporary changes to the wider setting of the feature, however it is considered that the factors of setting that contribute to its significance would be retained. The infrastructure and noise associated with the rocket launches would be temporary and the assessment concludes no significant effects on the cultural significance of the tower.

3 SITE SELECTION AND ALTERNATIVES

3.1 INTRODUCTION

The SEI request did not identify any further updates or clarifications on Chapter 3. Site Selection of the 2021 EIA Report. However, a summary of further design changes made, following feedback from stakeholders on the planning application (Ref: 21/00646/PPD), is provided in Section 3.2 and detailed in full in Section 4.Project description.

No statutory or non-statutory consultee responses requested additional information on this assessment. An external review raised one issue in relation to the EIA, set out in Table 3-1.

Table 3-1 Feedback from CnES Planning (External Review) relating to Site Selection and Alternatives

Consultee	Comment	Response	Section
CnES Planning (External Review)	There is no consideration of the environmental implications of a 'no development' scenario. Extend the assessment of alternatives to include a 'no development' scenario.	The 'do-nothing' or 'no development' scenario was not explicitly assessed as a dedicated topic in the report. However, where there were trends or land use changes occurring at the site e.g., the Short Duration Tenancy Agreement, these were integrated into the future baseline assessment, where relevant. Similarly, other trends or changes were outlined as part of the relevant baseline assessments e.g., depopulation. Whilst it is acknowledged that the assessment did not assess this scenario separately, it is not a regulatory requirement of EIA.	N/A

Representations from the public raised queries in relation to this assessment relating to the following topics:

- Alternative locations for the project – queries relating to use of the existing MoD Hebrides Range for the project activities.
- Justification and need for a spaceport – questioned the need for a spaceport facility within Scotland, and the proposal for sub-orbital launching facilities.
- Viability of the site – economic viability of the site and need for space tourism.
- Alternative site uses – suggestions for alternative uses of the site.
- Potential expansion of the site – concerns were raised regarding the potential phased growth of the site to a larger orbital development.
- Planning policy context – representations highlighted the absence of the proposal form local development policies.

SEI Appendix 5.2 provides the collated representations and response of the Spaceport 1 Consortium and EIA Contributors to planning application 21/00646/PPD (all other responses prior to submission of the planning application are presented in Appendix 5.1 of the EIA Report).

3.2 DESIGN EVOLUTION

The Site Selection and Alternatives assessment demonstrates the evolution of project design in response to environmental information and the justification for the changes. Design changes as part of the SEI Addendum are fully described, with the accompanying rationale in Section 4.3, and are summarised below:

- Corner radius at entrance point increased with tapered road widening on west of junction.
- Access track widened from 3.0 m to 3.7 m.
- Site entrance parking and adjacent access track reprofiled, with an upgraded finish.
- Hardstanding area surrounding the launch pad extended to the southeast.

4 PROJECT DESCRIPTION

4.1 INTRODUCTION

This section supersedes and updates Chapter 4. Project Description of the 2021 EIA Report, which describes the site location, project infrastructure, the construction phase, and the range of proposed operational activities anticipated at the site. This chapter is supported by the following documents submitted as part of the addendum:

- SEI Appendix 17-4. Water Supply Options
- SEI Appendix 17-5. Sediment Management
- SEI Appendix 21-1. Risk Register
- SEI Annex C: Schedule of Mitigation (updated)

In addition, this chapter is supported by the following documents issued as part of the 2021 EIA Report:

- Appendix 13-1. Maritime Management Procedures.
- Chapter 17: Hydrology, Hydrogeology and Geology.
- Appendix 17-1. Outline Hazardous Materials Management Plan.
- Appendix 17-2. Water Management
- Chapter 21: Environmental Management and Monitoring.

4.2 KEY UPDATES

The Project Description has been fully presented with structural changes in the assessment, in line with the SEI request and consultee responses described in Table 4-1.

Table 4-1 SEI Request and consultee responses.

Consultee	Request	Response	Section
Scottish Fire and Rescue Service (SFRS) 14/02/2022	Scottish Fire & Rescue Service require at least a 45,000 litres water tank, either on hardstanding or buried, with hardstanding accessibility at all times, located within a 60m distance of proposed build.	The above ground water storage tank has 58,100 litre capacity. The water tank is located approximately 85 m from the launch pad and is designed to be at a sufficient distance to protect the tank from damage due to explosion on the pad.	Volume 2 Drawing (00)21.13, (00)27.2 and (00)39.3.
SFRS 14/02/2022	The access route would require improving to meet regulation BST 2.12, the minimum road width being 3.7 m from kerb to kerb, with any gateways etc being a minimum of 3.5 m, with suitable turning area for vehicles.	The access track through Scolpaig farm has been widened to 3.7 m to meet the regulations. Site plans have been updated, construction material volumes have been re-calculated, and HGV loads revised. These changes are presented in the SEI Addendum. No material change to the construction timetable is anticipated. Vehicle tracking based on worst-case scenario HGV size undertaken.	Volume 2 Drawing (00)21.13

Consultee	Request	Response	Section
HSE Licensed Explosive Sites 05/04/2022	Potential requirement for explosives licence.	Consultation with HSE was undertaken on 17 July 2022. Discussions clarified the nature of the Spaceport Facility, as a venue to support a range of individual launch operators. The HSE confirmed the licensing requirement lay with the body in control of the explosives and confirmed that this is likely to be the launch operator. A 'Screening' process for potential launch operators wishing to use the site will be implemented into client management systems.	Section 21.3 Updates to the screening process have been implemented into SEI Annex C. Schedule of Mitigation (GM10)
CnES Environmental Health 08/03/2022	Further details of proposed water supply to be submitted.	Water supply solutions for construction and operation are provided in detailed appendix and summarised in this chapter.	Section 17, SEI Appendix 17.4. Water Supply Options
SEPA 16/03/2022	Request clarification on whether the water on site is coming from a) an existing abstraction, b) a new abstraction or c) mains water supply.	Water supply options solutions for construction and operation are provided in detailed appendix and summarised in this chapter.	Section 17, SEI Appendix 17.4. Water Supply Options
CnES Roads 16/03/2022	Visibility and HGV access could be further improved by raising the road at the dip and/or reducing the high verge to the east of the road at the summit north of the dip.	Visibility splay at the Scolpaig farm entrance extended based on updated topographical survey to improve visibility for vehicles.	Drawings (00)21.13, (00)22.13 and (00)24.9. SEI Appendix 4.1. Topography Survey (N369_Topo 2 of 4)
	Requirement to confirm maximum number of personnel on site and vehicles required. Statement of the provision of parking would assist review.	The type and maximum number of vehicles on site during launch operations is detailed in the project description. Sufficient parking is available to accommodate the worst-case (largest) launch vehicle campaign between the site entrance, laybys, hardstanding and launch pad area.	Operational traffic detailed in Section 4.8.10, parking provision detailed in Section 4.10.1
	The proposed type 1 finish could become mobile and leave pitted areas. Suggest that consideration be given to surfacing the car parking area or using aggregate filled paviours and marked out.	Carparking finish has been upgraded to Bodpave 85 grid finished with clean stone and kerbing.	Section 4.11.2 Drawing (00)24.9

Consultee	Request	Response	Section
	The slope of the revetment rip rap isn't defined on the cross sections provided. A shallow rip rap embankment slope recommended ideally no steeper than 1 in 1.5 gradient.	Slope of rip rap embankment included in Drawing (00)24.9, with slope 1:1.5, and is submitted as part of the SEI Addendum.	Drawing (00)24.9
SEPA 16/03/2022	Further clarification is required on what disposal via 'inert materials' consists of and where, once tankered off site, is this disposed of.	The nature of inert materials is clarified as part of the description of pollution control and management. Any liquid waste generated would be disposed of via specialist tanker haulage company to an off-island location. Note that each launch will be individually licensed and will include proposals for the detailed management of each launch, including waste disposal.	Section 4.10.5
	Any areas that will have deliveries/ loading/ unloading/ movement of high-risk pollutants (e.g. fuels or chemicals) are required to have an impermeable surface and directed towards containment in the event of a spill. Clarification is therefore sought on where these activities will be taking place (i.e. Pad loading area and vehicle turning area near the shipping containers) and the mitigation proposed to manage risk of spills/accidents.	Loading/unloading of fuels will be undertaken on launch pad, which has been designed to accommodate containers / fuelling infrastructure during fuelling processes. The surrounding gravel area is for turning and alignment of vehicles with integrated tower systems Fuelling activities will take place on the launch pad only. Residual fuels (following a launch will be retained within a specifically designed container designed to retain spillages).	Drawing (00)22.13 Drawing (00)23.4
	Requested updated drawings showing access width & visibility splay, swept path analysis (construction and operation) and capacity of the water storage tank.	All drawings updated.	Drawing (00)22.13 Drawing (00)47.01 – 49.01 Drawing (00)22.13

Consultee	Request	Response	Section
CnES Planning SEI Request 1/09/2022	Incorporate detail on temporary blast deflectors, security fencing for compound, lightening conductor and external lighting requirements, including security lighting with indicative design, size and appearance details.	Clarifications of infrastructure proposals provided in updated sections.	Blast deflectors – Section 4.7.1 Security Fencing – Section 4.7.3 and general approach to security in Section 4.9.9 Lightening Protection – Section 4.7.3 Lighting - Section 4.7.3

4.3 DESIGN CHANGES

A number of design changes have been introduced to the original design submitted as part of the 2021 EIA Report and accompanying planning application. Design changes and rationale are set out in Table 4-2.

Table 4-2 Design modifications from 2021 Planning Application and accompanying EIA Report.

Infrastructure	Modification	Justification	Impact
Corner radius at junction with A856	Corner radius increased with tapered road widening on west of junction.	To ensure that articulated vehicles can easily enter and leave the site.	Increased project footprint. Increase contained within planning boundary of planning application.
Access track	Widened from 3.0 m to 3.7 m.	Widened to meet Scottish Fire and Rescue Services requirements for emergency vehicle access.	Increased project footprint. Increase contained within planning boundary of planning application.
Site entrance parking and adjacent track access.	Parking reprofiled slightly and finish upgraded to permeable grid paving infilled with clean stone and bounded by concrete kerbs, with parking bay markings.	Modification following feedback from CnES Roads to reduce maintenance requirements.	Improved grade of surface access, clearer marking of parking bays and reduced maintenance requirements.
Hardstanding area surrounding launch pad (pad loading area)	Hardstanding area extended to the southeast	To provide greater turning area for HGVs.	Area has increased from 452 m^2 to 576 m^2. Additional habitat footprint loss assessed in Section 15.1. Increase contained within planning boundary of planning application.

4.4 SITE LOCATION

4.4.1 Development Site

The development site, which is located on part of the former Scolpaig Farm, is situated northwest of the A865 in the northwest corner of North Uist on the Atlantic coast (SEI Figure 4.1). The site is located approximately 20 km from the ferry port of Lochmaddy and 20 km from Benbecula Airport. The proposed launch pad grid reference is NF 729 753.

Scolpaig Farm and surrounding area is predominantly rough grazing land with small areas of machair. The coastline is rugged with steep cliffs and occasional white sandy bays. The land is dominated by three small hills: Beinn Scolpaig (88 m), to the north of the A865, and Beinn Riabhach (117 m) and Carra-crom (120 m), to the south. The area is popular with walkers, both visitors and locals, throughout the year.

The existing track runs over rough moorland from the A865 in a northwest direction until it reaches a short causeway, which incorporates a culvert over Loch Scolpaig. The track then runs northwest over farmland to the existing Scolpaig Farm buildings which - except for one byre, are largely derelict. The total land area of Scolpaig Farm is approximately 276 ha and the total application site area is 1.82 ha.

The proposed project (SEI Figure 4.2) is located within part of the former Scolpaig Farm, which was purchased by CnES on 6 June 2019 having formerly been under private ownership. Prior to the purchase of Scolpaig Farm, and until October 2019, the site was under a relatively intensive and continual grazing regime. Following the transition of ownership to CnES, a 'kissing gate' was installed at the site entrance, facilitating public (pedestrian) access to the site. In addition to the open recreational use and following requests from the local community to have access to the site for grazing, a Short-Limited Duration Tenancy for agricultural purposes was implemented in 2022. The grazing and cutting regime currently incorporate habitat enhancement measures developed in conjunction with the RSPB including species rich grassland, wader wetlands and corncrake habitat. The implementation of the grazing and cutting regime is expected to modify the baseline environment from 2022.

4.4.2 Space Launch Hazard Area

Separate stages of individual LVs will fall to the sea to the west and north of the development site in pre-designated Exclusion Zones ranging up to 250 km from the site (the nature of these deposits is detailed in section 4.7.1, Table 4-3). This area is illustrated in Figure 4.5 of the 2021 EIA Report and is termed the Space Launch Hazard Area (SLHA). Notification and marine management procedures have been developed to manage maritime safety within the SLHA[4], which are described further in Appendix 13.1 Maritime Management Procedures in the 2021 EIA Report.

The SLHA is fully characterised in Chapter 13, Marine Users and Assets and Chapter 16 Marine Ecology of the 2021 EIA Report. Key features within the SLHA include an MOD Firing Area, an International Maritime Organisation (IMO) deep water shipping route and offshore fishing grounds. The NLB has one asset within the study area. There are a range of nature conservation designations within the SLHA including four MPAs, three SPAs, four SACs and three seal haul out sites.

4.5 CONSENTING AND REGULATION

The Space Industry Act 2018 regulates all spaceflight activities taking place in the UK. The Act is supported by the Space Industry Regulations 2021, which came into force in July 2021. Each launch will be regulated via a launch licence issued to the Launch Operator

[4]The area where the licensee's range control services consist of, or include identifying a volume of airspace or an area or areas of land or sea falling within the designated range (a "hazard area") that require to be made subject to restrictions, exclusions or warnings for keeping the area clear at relevant times of: (a) persons or things that might pose a hazard to the operator's spaceflight activities; and (b) persons or things to which the operator's spaceflight activities might pose a hazard (as defined by the Space Industry Regulations 2021.

(LO) from the Civil Aviation Authority (CAA) (under the Space Industry Regulations 2021) or, alternatively, a permission granted under the Air Navigation Order 2016 (Air Navigation (Amendment) Order 2021), and a marine licence from Marine Scotland under the Marine (Scotland) Act 2010.

Under the Space Industry Act 2018, facilities supporting the launch of sub-orbital and orbital Launch Vehicles (LVs) require a Spaceport Operator (SO) to obtain a Spaceport Licence. The primary regulatory authority is the CAA, who - in addition to authorising the operation of a Spaceport - will also require a licence for the Launch Operator (LO) for each launch, and the Range Operator (RO) for management of the range.

The Air Navigation Order (ANO) is an alternative permission for a launch. The process for an ANO is similar to the SIA in that a LO is compelled to submit a Safety Case, and a marine licence under the Marine (Scotland) Act 2010 is required for launches with a marine launch trajectory. The spaceport is currently in the process of securing a spaceport licence to undertake launches under the SIA 2018[5], although some launches will be hosted under the ANO system. A summary of the key consents and regulatory frameworks associated with the development are presented in Chapter 2: Legislation and Policy of the EIA Report.

4.5.1 Spaceport Licence

Safety Case

The Safety Case is the main way in which an applicant for a Spaceport Licence identifies potential hazards and risks and demonstrates how these risks will be managed. It forms the core part of the Spaceport Licence application and is supported by evidence demonstrating the necessary steps to manage all risks to both public safety and the environment. The focus of the Safety Case is in managing potentially catastrophic events rather than minor risks (Department of Transport, 2020).

The assessment made in the Safety Case will determine the actions to take in an emergency, the level and type of rescue, and emergency support required in the form of an Emergency Response Plan, which also forms part of the licence, as do security arrangements. Once the licence is granted, the Safety Case will be used as the basis for ongoing monitoring and assessment. Licence conditions will also be set by the CAA requiring environmental effects to be continually considered during the lifetime of the licence with the Spaceport Operator (SO) (DfT, 2020).

Assessment of Environmental Effects

An Assessment of Environmental Effects (AEE) also forms part of the licence application for the Spaceport and is considered by the CAA when deciding whether or not to grant a licence, and what conditions may be attached to this. The main requirements for the AEE are likely to be met by the contents of the EIA Report[6]. Guidance for the AEE acknowledges the uncertainty around the type and characteristics of launch vehicles, as the technology is varied and continually evolving, and indicates that a reasonable worst-case scenario based on a representative launch vehicle can be adopted for the assessment (DfT, 2020).

Review and Enforcement

Under Section 3 of the Space Industry Act 2018, it is a criminal offence to operate a spaceport in the UK without a licence for launches under the Space Industry Act 2018, it is also an offence to make a false statement for the purpose of obtaining a licence. For a licensed spaceport, both the SO's licence and the accompanying Safety Case are reviewed by the CAA as regulator, to ensure compliance with relevant statutory requirements. Reviews of the Safety Case can be triggered by a range of events including a change to the operations or infrastructure, or if new information relating to safety matters arises.

---

[5]The SIA is only relevant to vehicles that have specific apogee thresholds.

[6] Guidance for the Assessment of Environmental Effects (DfT, 2020) accompanying the Space Industry Regulations 2021 indicates that an EIA Report is likely to be sufficient to meet this requirement.

4.6 PROJECT SUMMARY

The purpose of the Project is to provide permanent infrastructure for the sub-orbital launch of sounding or research LVs. A summary of the site selection process and rationale for the development is provided in Chapter 3 of the 2021 EIA Report (Site Selection and Alternatives).

Permanent infrastructure is illustrated on SEI Figure 4.2 and comprises new parking at the site entrance, upgraded access tracks (3.7 m width) to the existing farm buildings with four new laybys. The existing culvert across Loch Scolpaig will be replaced and a new turning / parking area is proposed adjacent to the existing farm buildings. One existing building ('byre 2') will be upgraded to form a workshop, communications room, and storage. A new access track is proposed to run from the turning area to a concrete launch pad, surrounding by a hardstanding pad loading area. New pollution management infrastructure comprises an integrated launch pad sump and drainage system, a water storage tank, containment (liquid storage) tank and soakaway. Design changes integrated since the original EIA are set out fully in Section 4.3, with accompanying justification and comprise:

- Reprofiled visibility splay.
- Widened access tracks.
- Upgraded parking area surface and marking.
- Extension of launch pad loading area surrounding the launch pad.

A maximum of ten launch events a year will be undertaken by a range of LOs with LVs of varying specifications. LOs may use the site for the static testing of rocket systems or alternatively, each LV will be launched on a predesignated trajectory limited to orientations to the west, and northwest of Scolpaig (Figure 4.4 of the 2021 EIA Report). Separate stages of the LV will fall to the sea in pre-designated Exclusion Zones ranging up to 250 km from the site (the nature of these deposits is detailed in section 4.7.1, Table 4-3). Notification and marine management procedures have been developed to manage maritime safety based on launch specific 'Exclusion Areas', 'Warning Areas' and 'Restricted Zones' within the Space Launch Hazard Area[7] (Figure 4.5 of the 2021 EIA Report, and Appendix 13.1 Maritime Management Procedures of the 2021 EIA Report).

The nature and specification of LVs will vary, and the site is designed to provide a generic infrastructure venue to meet a range of LO requirements. Launches will be supported by the MoD Hebrides Range[8], which has existing capability and protocols in place for range management services, equipment, and personnel. A detailed description of the following project components is provided in section 4.7, below:

- Launch Vehicles.
- Materials and Storage.
- Permanent Infrastructure; and
- Temporary (Launch Event) Infrastructure.

[7]The area where the licensee's range control services consist of, or include identifying a volume of airspace or an area or areas of land or sea falling within the designated range (a "hazard area") which require to be made subject to restrictions, exclusions or warnings for keeping the area clear at relevant times of: (a) persons or things that might pose a hazard to the operator's spaceflight activities; and (b) persons or things to which the operator's spaceflight activities might pose a hazard (as defined by the Space Industry Regulations 2021).

[8] The MoD Hebrides Range is located in South Uist, off the northwest coast of Scotland and consists of a deep range for complex weapons trials and in-service firings, and an inner range for ground-based air defence Test and Evaluation (LTPA, 2020).

4.7 KEY PROJECT COMPONENTS

4.7.1 Launch Vehicles

The Project will provide generic infrastructure that will be available for use to a range of LOs with LVs of differing specifications. LVs anticipated at the site will represent the smallest class of LV, termed micro-lift[9], for the purposes of deploying testing equipment or instrumentation to sub-orbital positions, with payloads weights ranging from 2 kg to 100 kg. The range of representative LV specifications expected at the site is provided below and example LVs within that range are presented in Image 4-1. As the LV specification anticipated at the site is expected to substantially vary in its characteristics, the impact assessment is based on the worst-case scenario for each parameter:

- Max diameter: 196 mm to 712 mm
- Lift off mass: 150 kg to 2.5 tonnes
- Payload mass: <2 kg to 100 kg
- Control: guided and unguided[10]
- Stages: single-stage LV (booster with payload) or two-stage LV (booster and sustainer)

Image 4-1 Examples of representative LV's expected at the site, ranging from the smallest class (left) to the largest class (right)

[9] Small satellites are subdivided into the following categories, micro satellite 10 kg – 100 kg, nano satellite 1 kg – 10 kg, and pico satellite 0.1 kg – 1 kg.

[10] Guided vehicles are those where the fins and/or rocket nozzles move to manoeuvre the LV into the correct trajectory during the powered and cruise phases of flight. Unguided vehicles have no such moving parts, with the trajectory dependent on the position and orientation of the launch.

Launch Vehicle Components

A LV typically comprises one or more stages, the payload fairings[11] and the payload. The first, or 'booster' stage is ignited at launch and burns through powered ascent until its propellants are exhausted. The first stage is designed to provide maximum thrust and enable lift off from the launch pad. Once the fuel has been exhausted, the booster would configure for separation and the first stage would be jettisoned to fall within a pre-designated splashdown area in the Atlantic Sea, west or northwest of the Project site. Should the LV incorporate further stages, following exhaustion of propellants, the first stage separates, and the second (sustainer) stage is ignited to deploy the payload into position. Further separation stages may be required for the payload fairings and the payload (Image 4-2). Meteorological instrumentation may be deployed to establish environmental conditions at altitude. Details of how these areas are managed from a marine safety perspective are summarised in Section 4.8.7, and described in detail in Appendix 13.1 of the 2021 EIA Report (Maritime Management Procedures).

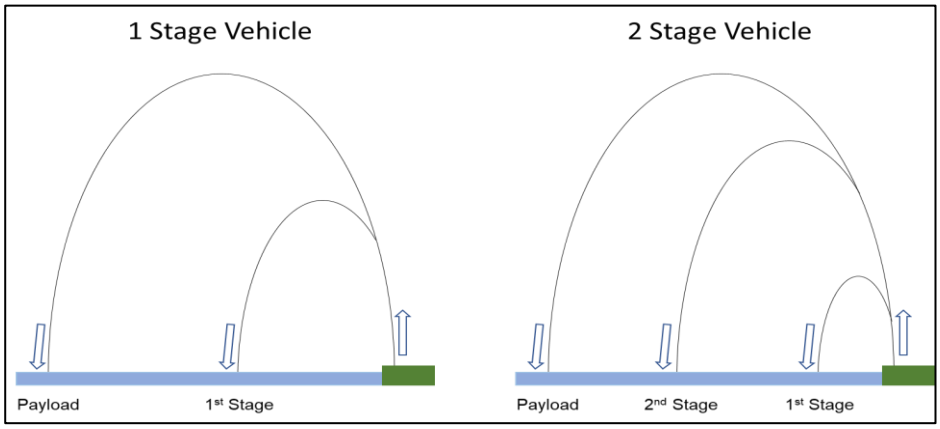

Image 4-2 Basic trajectories for one-stage and two-stage launch vehicles

In addition to a licence under the Space Industry Act 2018 / Space Industry Regulation 2021 (or a permission under the Air Navigation Order) from the UK CAA, consent will also be required from Marine Scotland - Licensing Operations Team (MS-LOT) under the Marine (Scotland) Act 2010 (as amended). Each launch will be independently assessed for a licence, including the jettisoned stages of each LV to determine any specific licensing conditions and/or requirements associated with each launch, and associated activity.

Stages

The first, or 'booster' stage is ignited at launch and burns through powered ascent until its propellants are exhausted. Typical structural materials for each stage of LV comprise aluminium, polymers, epoxy, vinyl ester, polyester resins and fibres, carbon and aramid in line with the high quality required in the aerospace industry. The jettisoned stages of each LV also generally include engines, fuel tanks, batteries and electrical components. By the point of jettison, each stage is designed to consume all the fuel located within the tanks. Typical materials associated with each stage are set out in Table 4-3 and described below.

Payload

The nature and composition of the payload can be variable and is based on the client requirements of the LO. For sub-orbital launches expected at the site, these are likely to comprise of atmospheric monitoring instrumentation, imaging systems, security equipment and communication technology. Sub-orbital launches may also be adopted to test or verify systems before advancing to orbital development, consequently some LV's may not carry a dedicated payload. Payloads (with accompanying booster or sustainer) are generally designed

[11] The nose cone used to protect a payload against pressure and heating during launch.

for recovery as they are likely to contain important data and equipment, therefore will contain a parachute for descent (recovery process detailed in section 4.8.9).

Payload Fairings

The payload fairing protects the payload against pressure and heating during launch. It is typically a cone shaped object, which is jettisoned into the sea during a launch event, in addition to the LV stage(s).

Table 4-3 Example stage components based on a representative 1-stage and 2-stage deployment

LV model	LV specification	No. deposits	Components deposited	Fuels/ substances	Speed at impact
1-stage LV	10.8 m length x 0.712 m diameter 2.5 tonnes lift off mass	2	Booster and payload*: • 9.7 m x 0.7 m • 787 kg • Carbon composite and aluminium composite components. • Small metal (steel) and plastic components associated with the fuelling system and the payload. • Small circuit boards/electronics associated with systems control and telemetry.	Fuel – kerosene (residual <18 kg) Oxidiser – hydrogen peroxide (residual <12.1 kg)	~10.5 m/s (23 mph)
			Payload fairing (cone): • 1.1 m x 0.5 m/0.1 m • Composite shell	None	~53.6 m/s (120 mph)
2-stage LV	6.45 m length x 0.196 m diameter 150 kg lift off mass	2	Booster: • 2.65 m x 0.20 m • 7075 aluminium (~30 kg) • Small metal (steel) and plastic components associated with the motor and fuelling system. • Small circuit boards/electronics associated with systems control and telemetry.	Fuel - Hydroxyl Terminated Polybutadiene (residual <5 kg) Oxidiser – hydrogen peroxide (residual <4 kg)	~212.7 m/s (475 mph)
			Sustainer and payload*: • 3.62 m x 0.15 m • 7075 aluminium (~30 kg) • Small metal (steel) and plastic components associated with the motor and fuelling system and the payload. • Small circuit boards/electronics associated with systems control and telemetry.	Fuel - Hydroxyl Terminated Polybutadiene (residual <4 kg) Oxidiser – hydrogen peroxide (residual <3 kg)	~17.9 m/s (40 mph)
*Designed for recovery by parachute					

Propellants

The propellants used for rocket launches are a combination of fuel and oxidisers[12], which may be liquid or solid. Four typical propellant mixes anticipated for use at the site are listed below:

- Hydroxyl Terminated Polybutadiene[13] (HTPB) / High Test Peroxide (HTP)[14]
- High Test Peroxide (HTP) / Kerosene
- Nitrous Oxide / High Density Polyethylene (HDPE)
- Ammonium Perchlorate / Aluminium Powder / Hydroxyl Terminated Polybutadiene (HTPB)

The above propellant/oxidiser combinations reflect those most likely to be used in LVs at the Spaceport; however, other potential propellants mixtures may be adopted by individual clients, not covered within the four representative fuels above (e.g., sorbitol, paraffin, and aluminium powder). The maximum volumes of mixtures likely to be brought onto site for four representative propellant mixes are outlined in Table 4-4 below. This includes the 'worst case scenario' for the largest specification of LV proposed to be launched from the site, which also provides details on the range of fuel requirements for three typical LVs to illustrate the nature and range of fuels anticipated to be used and stored on site.

Table 4-4 Fuel quantities for four representative launch vehicles with four typical propellant / oxidiser mixes expected on site

Propellant	Total Representative Mass (Kg) (Launch Vehicle 1)	Total Representative Mass (Kg) (Launch Vehicle 2)	Total Representative Mass (Kg) (Launch Vehicle 3)	Total Representative Mass (Kg) (Launch Vehicle 4)	Worst Case Fuel Requirements (Kg)
Nitrous Oxide	-	-	4	-	4
Sorbitol	-	-	-	-	58
Paraffin	-	-	-	-	8
Ammonium perchlorate	-	-	-	85	8
HTP	60	1431	-	-	1431
HTPB	10	-	-	-	10
Kerosene	-	191	-		191
HDPE	-	-	0.9	-	0.9
Aluminium powder	-	-	-	20	20
HTPB	-	-	-	50	50

[12] Combustion is a chemical process in which a substance reacts rapidly with oxygen and gives off heat. The original substance is called the fuel, and the source of oxygen is called the oxidiser. In rocket propulsion systems, the oxygen source can come from a range of reactive substances including hydrogen peroxide, nitrous oxide, aluminium perchlorate etc. Oxidisers can be bound in inert materials to form a solid.

[13] HTPB is a liquid rubber used as a binder in solid rocket propellant, binding the oxidising agent, fuel and other ingredients into a solid but elastic mass and acts as a fuel in such mixtures.

[14] HTP is a highly concentrated solution of hydrogen peroxide with the remainder consisting predominantly of water. It is used as a propellant for HTP rockets and torpedoes and some high-performance engines.

Blast Deflectors / Launch Pad Protection

Heat and emissions generated by the LV may require deflection to support efficient dispersion of heat and gases during the launch event and to minimise potential damage to the launch pad and surrounding area. Some LVs will require a deflector underneath the exhaust jet, which will direct the jet from the vertical to the horizontal plane. Blast deflection and launch pad protection requirements will vary by operator and Image 4-3 illustrates representative specifications including integrated blast deflection for a small rocket launch and blast deflection 'chute' up to 1.14 m long for a static test rig for a range of LV specifications.

.

Image 4-3 Blast deflection for representative launches including a small launch and a test rig for LV specifications covered within the project envelope.

4.7.2 Materials and Storage

The nature of propellants is highly diverse and rapidly evolving, with specific fuel mixtures bespoke to each launch vehicle. The LO may require various other hazardous materials to be located on site, in solid, liquid or gaseous states. Other typical propellant constituents and potentially hazardous materials are set out in Table 4-5. Spaceport clients will be expected to use propellants in line with the maximum materials inventory. However, should new materials be proposed at the site, the implications of their use and management will be reviewed against relevant legislation, assessed in consultation with SEPA, and where required, trigger a review of the Spaceport Safety Case (Chapter 17: Hydrology, Hydrogeology and Geology of the EIA Report).

Designated materials storage areas are illustrated on Figure 17.6 of the 2021 EIA Report. Table 4-5 details the full materials inventory – including the range of possible propellants / oxidisers - and associated physical hazards. This list of materials is representative of the range of materials that may be required to support the launch of varying specifications of LV.

Table 4-5 Representative materials to be handled on site during launch

Material	Physical Hazard
Hydroxyl Terminated Polybutadiene (HTPB)	Combustible Liquid – Flash point >113ºC
High Test Peroxide 90%	Oxidiser Liquid. Severe detonation hazard when mixed with organics Combustible Liquid – Flashpoint of 82-85ºC
Kerosene	Combustible Liquid – Flash point 82ºC
Powdered aluminium	Flammable Solid (Category 1) – H228 Substance and mixture in contact with water emit flammable gases (Category 2) – H261
Ammonium perchlorate	Oxidiser
Sorbitol	No hazard
Paraffin (need state, oil or wax)	Combustible Liquid – Flash point 215ºC

Material	Physical Hazard
Nitrous oxide	Oxidiser compressed gas
Oxygen	Oxidiser compressed gas
Helium	Inert compressed gas
Nitrogen	Inert compressed gas
Diesel	Combustible Liquid – Flash point >56ºC

The site may be required to handle small quantities of inert liquid gases, which are used for purging or pressurising fuel systems e.g., oxygen, nitrogen, or helium. These will be stored in standard industrial gas cylinders within mobile units provided by the LO.

The LO may choose to store certain materials at existing storage facilities at the MoD Hebrides Range in South Uist until required (subject to MoD approval). The circumstances for use of existing facilities at the Range would depend on timing of arrival of the fuel, the volume of fuels, storage requirements, and duration of the storage period, which may range from a day or for some materials up to two weeks; however, the operational policy of the Spaceport would seek to minimise the duration and nature of onsite materials storage.

Storage and Management of Fuels and Oxidisers

A third-party process engineering review of the storage and management proposals was carried out by Mabbett & Associates Ltd. Actions arising from the review are integrated into the current project design and infrastructure. An Outline Management Plan for Hazardous Substances is provided in the 2021 EIA Report (Appendix 17.1 and Figure 17.6 of the 2021 EIA Report, which illustrates key pollution control and management areas).

In summary, containerised propellant mixes (fuels and oxidisers) will be directed to the concrete launch pad area on arriving at site. Standard spill kits and procedures will be prepared for the specific types of fuels anticipated at each launch and recorded via the LO Safety Case, which forms part of the licence for the launch. The concrete launch pad has a series of pollution control measures designed into the structure including an integrated sump system to collect spillages <1 m^3 and a drainage channel to a liquid storage / containment tank for scenarios requiring pre-dilution of spillages (e.g., HTP). Following the fuelling procedures, residual propellants / empty containers will be stored at a designated area adjacent to the vehicle turning area, by the existing farm buildings (Figure 17.6 of the 2021 EIA Report).

Legislative Compliance

The quantity of dangerous substances to be handled on site at any one time may result in the site operating as a Major Accident establishment under the Control of Major Accident Hazards (COMAH) Regulations 2015 and requiring holding a 'hazardous substance consent', as required by the Town and Country Planning (Hazardous Substances) (Scotland) Regulations 2015. Both regulations apply to sites that hold a significant quantity of hazardous substances, in excess of controlled quantities. An assessment of the materials inventory against COMAH thresholds indicates that none of the proposed materials or volumes exceed the lower-tier COMAH threshold, for example, the COMAH threshold for high test peroxide is 50 tonnes, the maximum quantity expected on site is 1.4 tonnes. The amount to be held on site for all proposed inventory materials are several orders of magnitude less than the threshold. It is not expected that any substance will exceed the COMAH threshold as a single material or under the aggregation rule[15], nor will a Hazardous Substance Consent be required. The full assessment of the materials inventory against COMAH thresholds is provided in Appendix 17.1 of the 2021 EIA Report (Outline Hazardous Materials Management Plan).

[15] The aggregation rule is only for determining if the COMAH Regulations apply and at which tier and will not be needed in every situation. If an establishment has one substance present above the upper-tier threshold, it is immediately upper tier and aggregation is irrelevant. However, an establishment with no single substance above the upper-tier threshold could still be an upper-tier establishment if the aggregation rule gave a result equal to or greater than 1. Similarly, a site that holds dangerous substances but doesn't have one single substance present above the lower threshold could still be a lower-tier establishment if the aggregation rule gave a result equal to or greater than 1.

4.7.3 Infrastructure

Permanent infrastructure

Permanent infrastructure relates to the infrastructure that will be in place over the duration of the project lifetime. The proposed surface infrastructure is summarised below and illustrated in the Drawings (00)20.12 – (00)24.9 (Volume 2A of the SEI):

- **Launch Pad** – a 10.1 m x 13.1 m (132.3 m^2) reinforced concrete pad incorporating an integrated sump with removable open grid cover and perimeter drainage channel with removable bolted covers. The sump is fitted with shut off valve and has controllable drainage to the soakaway.
- **Pad Loading Area** – a 576 m^2 area of crushed rock hardstanding surrounding the launch pad for vehicle turning and tower installation.
- **Tether Points** – array of twelve concrete 1 m x 1 m x 0.75 m tether points with inset tie ring surrounding the launch pad for securing launch tower/ rail and will be set level with the adjoining ground level.
- **Socket Set and Supply** – pumped water supply to socket set surrounding launch pad for launch pad water spray system for water deluge system
- **Containment (Liquid Storage) Tank –** galvanised steel sectional tank of 63,500 litre capacity with a galvanised steel cover with access hatch and vents, approximately 8.2 m x 11.4 m.
- **Soakaway –** below ground clean crushed rock soakaway approximately 10 m x 18 m x 1 m.
- **Water storage** – galvanised water storage tank of 58,100 litre capacity[16] on block piers on concrete base 5.4 m x 5.4 m.
- **Fencing –** 1.1 m high rylock stock proof fencing surrounding farmstead hardstanding area and launch pad infrastructure, with two galvanised steel field gates, approximately 502 m in length.
- **Upgraded byre** – incorporating new access, windows, storage, workshop, communications room, water pump set, and 2.5 m VHF cable on gable end. Roof drainage discharges to a soakaway north of the water storage tank (1 m x 2 m x 0.3 m).
- **Vehicle Turning Area, Storage and Parking**: 855.6 m^2 for vehicle turning, equipment assembly, storage and access to the equipment storage.
- **New access track** – approximately 130 m of new access track between the existing farm buildings and launch pad, approximately 3.7 m wide.
- **Culvert Upgrade** – the existing submerged culvert forming part of the causeway between 'upper' and 'lower' Loch Scolpaig will be replaced with a larger box culvert.
- **Upgraded access track and associated laybys** – upgrade and widening of the existing access road from the A865, including a visibility splay at the site entrance and four new laybys to include additional options for launch and emergency vehicle parking.
- **Parking** – additional car parking spaces, including accessible parking will be provided at the site entrance (10 spaces in total). These spaces will be available to the public when there are no launch restrictions. Additional car parking space for the launch operator will be provided at the hardstanding area adjacent to farm buildings. Car parking will be finished in Bodpave85 grid, kerbing and signage / marking.
- **Power and Fibre Optics** – the existing 11 kV supply will be reinstated to the farmhouse and extended to the byre and launch pad. Underground ducting will provide fibre optics communications to the laybys/ parking along the access track, to the byre and launch pad.

[16] The water storage tank will only be required to be filled to 50,000 litres.

A full description of the permanent infrastructure is provided in section 4.10 and construction and installation of infrastructure in section 4.11.

Temporary (Launch Event) Infrastructure

Whilst the requirements of each launch event will vary, the maximum infrastructure to support individual launch events may include some or all of the following components:

- **Fuel filling system** – a mobile system designed for short term fuel storage and filling / draining hose within a modular container system will be transported directly to the launch pad area on arrival.
- **LV Launch Tower and Transportation** – a temporary launch tower may be integrated in the LV transport system or assembled on the launch pad. The tower will comprise a steel lattice structure or rail of a maximum 20 m height. Blast deflection systems may be integrated into the system.
- **Command / Control Centre** – a mobile type unit designed for the centralised control of launch.
- **Oxidiser filling system** – mobile unit designed for the short-term storage, filling and draining of oxidiser.
- **Compressed gas supply** – a compressed helium gas system.
- **Staff and welfare units** – up to two mobile welfare units and portable toilets installed at site for each launch event.
- **Shipping Containers -** launch events may require the additional temporary installation of up to two 6.1 m x 2.5 m x 2.6 m containers for the storage of the launch operator's equipment. These containers will be removed from the site during extended periods of site inactivity.
- **Lightening Protection –** a length of copper wire will be stored in the upgraded byre for use in case of immediate requirements[17].
- **Standby diesel generation -** a mobile (towed) diesel generator will be placed on standby for emergency and/or specialist power requirements.
- **Lighting**: lighting needs have been agreed with specialist security systems engineers. Temporary, mobile launch pad lighting systems will be used in winter during the hours of daytime darkness (Image 4-4).
- **Security**: there is no requirement to install security fencing on site during launch events. Operational measures will be delivered through personnel-based security measures and monitoring, in addition to signage / marking and guarding depending on the phase of operations.
    - CCTV static cameras to monitor the Byre 2 perimeter and approaches - affixed to the byre.
    - CCTV coverage of the launch pad, using a Pan, Tilt & Zoom (PTZ) camera affixed to the northern end of the byre.
    - CCTV coverage of the site entrance, using a fixed camera mounted on a 3 m post near the site entrance.

[17] Meteorological forecasts are analysed prior to launch events; in the event of potential lightening risks, towers will not be assembled. Use of lightening conductors for emergency use only.

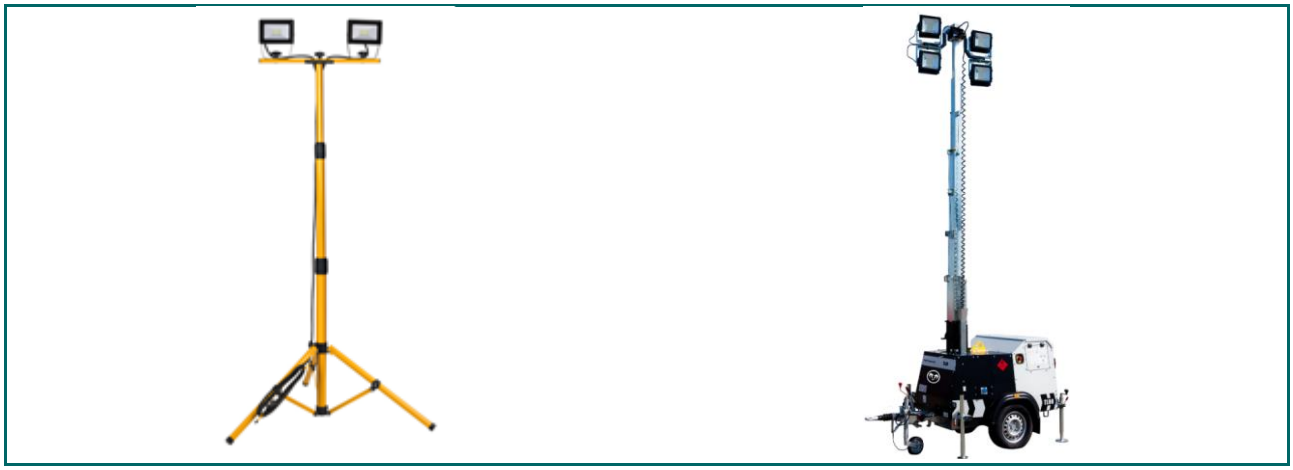

Image 4-4 Example of temporary mobile floodlighting requirements for winter months, for use during daytime working hours only.

The exact specification and dimensions of the temporary (launch event) infrastructure will vary with each LO. Most of the infrastructure is anticipated to be portable and containerised. Renderings of typical temporary launch infrastructure are provided in Volume 2, Visualisations.

4.8 LAUNCH OPERATIONS

4.8.1 Launch campaign

It is important to note that each launch event will be separately regulated by the CAA under the Space Industry Act 2018 / the Space Industry Regulations 2021 or, alternatively, the Air Navigation Order. For operations that involve LV stages entering and depositing the marine environment, a licence under the Marine (Scotland) Act 2010, will also be required from Marine Scotland. A separate agreement with maritime stakeholders (a 'Relevant Agreement') is a statutory requirement of the Space Industry Act 2018 with the MCA, NLB and UKHO.

A launch campaign comprises the complete process from the inception of a launch, to planning and execution of the launch event (initial discussions with the regulators, contract discussions with the SO / consultees, launch rehearsals, the launch event to site demobilisation and post launch notifications). A description of the general preparatory activity prior to, including and following a representative launch event is set out below. The full range of activities associated with each launch event are summarised in the following sections:

- Outline safety analysis and discussion with the regulator(s)
- Planning and scheduling
- Notifications
- Launch event preparation
- Launch rehearsals
- Launch Event
- Post Launch Activities, and
- Operational traffic

4.8.2 Outline safety analysis and discussion with the regulators

Before any other launch project activity is undertaken, the LO and RO will determine whether a Safety Case can be made/established for the proposed launch, in conjunction with the SO. This includes consideration of the launch vehicle, proposed propellants, planned flight

profile and the associated safety considerations. Once these details are reviewed, the LO discusses the launch project with the regulator at a pre-application meeting, generally also attended by the SO and RO.

4.8.3 Planning and scheduling

Planning and scheduling activities are initiated, to include the following activities:

- Appraisal and Contract Agreement
- Schedule of Preparatory Events
- Safety Case development
- Concept of Operations development
- Licensing and Approvals
- Logistics
- Communications
- Site preparation
- Incident planning and rehearsals
- Pre-launch, launch and back-up procedures
- Site demobilisation.

Appraisal and Contract Agreement

Discussions between the SO, LO, RO and launch stakeholders will be initiated to agree any specific terms or requirements necessary to deliver the launch. The Spaceport will appraise LO proposals for the following:

- Transport to Site – transport of fuels and propellants with be the responsibility of the LO: however, the Spaceport will assess proposals to ensure they comply with relevant regulations, including the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs) and the European agreement (ADR). The SO will support the LO with terrestrial and marine logistics arrangements, which may require dedicated charter vessel (further details are set out in Appendix 17.1 of the 2021 EIA Report (Outline Hazardous Materials Management Plan).
- Transport within the Site – LO proposals will be evaluated to ensure safe transit of dangerous goods whilst on site.
- Materials Inventory and Storage – the proposed materials inventory, management and handling requirements will be assessed, including accompanying Risk Assessments prepared by the LO. The specific requirement of each material will be assessed e.g., gas storage requirements, ventilation, and other environmental controls. The SO will evaluate proposals against Safety Clear Zone boundaries, and any requirement for a Dangerous Substances Explosive Atmosphere Regulations (DSEAR) Hazardous Area Classifications, if necessary.
- Fuelling Operations – the proposed fuelling strategy will be appraised to ensure site pollution prevention controls are sufficient to contain any potential spills and de-fuelling procedures (where required) in the case of a launch cancellation.
- The LO's launch procedures, including safety contingencies.

Each launch will require a dedicated licence or permission from the CAA. Relevant documentation relating to the launch licence will be reviewed as part of the appraisal process to identify issues specific to the interaction with the Spaceport.

Schedule of Preparatory Events

A Schedule of Preparatory Events will be prepared by the LO in collaboration with the SO and RO, setting out how long, to the nearest day, before the launch the scheduled event is due to take place.

Safety Case Development

The Safety Case is the main way in which an LO identifies potential hazards and risks associated with the launch campaign and demonstrates how these risks will be managed. It forms the core part of the launch licence application and is supported by evidence demonstrating the necessary steps to manage all risks to both public safety and the environment, to ensure risks are as low as reasonably practicable (ALARP). The focus is to ensure the design, construction, operation and maintenance of any LV and mission management has taken safety into consideration. The same principals apply to the design, construction, operation, and maintenance of ancillary equipment associated with the launch (fuel storage and other equipment associated with ground operations). The development of the Safety Case is anticipated to be a collaborative and iterative process between the RO, SO, LO and consultees.

Concept of Operations Development

The launch event will be captured in a detailed Concept of Operations document. This defines stakeholders, roles and responsibilities of personnel, the detailed programme of activity, communications networks and protocols, the countdown procedures, risks, and mitigations associated with the specific launch and actions in the case of an incident.

Licensing and Approvals

Prior to the launch event, pre-application consultation will be undertaken with key regulators, specified below, to support the process for obtaining necessary launch specific approvals. Responsibility for consultations and securing the necessary approvals will be undertaken jointly between the LO and the SO:

- Civil Aviation Authority (CAA) – as the key regulatory body, the CAA will primarily liaise with the LO, in the context of the Spaceport as an existing licensed facility. However, the CAA will require evidence of interaction with the Spaceport to demonstrate that specific locational requirements have been integrated into the LO Safety Case
- Marine Scotland - Licensing Operations Team (MS-LOT) will regulate – via a marine licence – issues associated with the stages and payload of the launch vehicle deposited in the sea
- Maritime Coastguard Agency (MCA) – via a marine licence, the MCA will comment on issues relating to the safety of navigation and search and rescue, and ensuring the marine environment, including the impact on shipping and environmental quality is adequately considered
- Ministry of Defence (MoD) – the MoD will require a Spaceport Programme Schedule to be submitted and approved in advance, specifying details of radar units, technical details of the LV, launch preparation schedule, details on the tower, trajectory and recovery protocols
- OFCOM – local radio communication licences, including requirements for local site communications with personnel, and with the LV / LV flight termination system will be secured. The responsibility for securing communications will be dependent on the nature of operations and be the SO, LO and RO
- Scottish Health and Safety Executive (SHSE) permission / licence – on those occasions when a SHSE licence may be required e.g., under the Explosives Regulations 2014

In addition, a series of planning, incident response and consultation meetings will be held with the Western Isles Emergency Planning and Co-ordinating Group (WIEPCG)[18]. The WIEPCG meets statutory obligations to be prepared, to respond to, and mitigate the effects of any potential emergencies in the Western Isles[19]. Consultation at an early stage with this group will ensure an integrated emergency

[18] Membership of the WIEPCG comprises Comhairle nan Eilean Siar, Highlands and Islands Enterprise, HM Coastguard, NHS Western Isles, Police Scotland, Scottish Environment Protection Agency and Scottish Ambulance Service.

[19] This planning process brings together all first responders including Police, Fire, Ambulance, Coastguard, Health Board, Local Authorities, Public Utilities, Government Departments, Industry, and the Voluntary Agencies.

management approach to any potential issues associated with the launch campaign. The purpose of engagement with the WIEPCG will be to prepare for launch-specific incident planning requirements, public access, traffic management, pollution response and emergency standby arrangements.

4.8.4 Notifications

Key stakeholders are involved in the planning process from inception of the launch campaign and at designated points prior to a launch event. A Notification Plan has been developed as part of the Maritime Management Procedures (Appendix 13.1 of the 2021 EIA Report) in line with guidance from the MCA and includes key community stakeholders in addition to statutory consultees. In summary, consultation protocols are set out below:

- Maritime Stakeholders – a series of notification protocols form part of a formal agreement with the UK CAA, UKHO and MCA as part of an 'Agreement with Relevant Authorities'. In addition, a wider Notification Plan contains agreed processes for alerts and associated timescales including an advance alert service. Prior to a launch event relevant notifications will be issued including Notice to Mariners (NtM) and Navigation Warnings (NavWarning)
- Air Stakeholders - Notice to Airmen (NOTAM)
- Community – an Advance Alert / Pre-Launch Contact service will be put in place to directly notify key stakeholders including emergency services, hauliers and closest residential receptors. The wider community will also be notified via updates on social media platforms

4.8.5 Launch Event Preparation

Launch preparation activities will be progressed in line with the Schedule of Preparatory Events developed earlier in the Launch Campaign. In summary, these preparations comprise the delivery and installation of temporary launch infrastructure to site, launch vehicle assembly. The processes are detailed below:

- Establish Safety Clearance Zones
- Transport of materials and equipment to Site
- Site Mobilisation
- Interoperability, communication, and static testing
- Incident planning and rehearsals
- Maritime and terrestrial notifications
- Fuelling
- Emergency Procedures.

Establish Safety Clearance Zones

Before, during and after launch activities, the site may hold a number of 'dangerous substances' as defined by the Dangerous Substances Explosive Atmosphere Regulations (DSEAR) 2002 and include combustible liquids, oxidisers and compressed gases. There may be a requirement to implement zoned areas with additional ignition control requirements, limiting the use of electrical and mechanical equipment in the vicinity of the storage. There areas are expected to fall within a Safety Clear Zone (SCZ) associated with the type and volume of any hazardous substances which may be temporarily stored on site[20]. SCZs may range up to 160 m around the launch pad, for storage

[20] The SCZ is a defined area based on the more conservative calculation of 1) peak incident overpressure or 2) hazardous fragment distance - Federal Aviation Administration – Office of Commercial Space Transportation (FAA-AST) guidance.

of the worst-case scenario of hazardous material storage i.e., hydrogen peroxide (H_2O_2)[21], and may be delineated by physical demarcations during a launch (e.g., flags, signage), monitored and / or enforced by security personnel.

Transport of Materials and Equipment to Site

The movement of materials and equipment to the site will be the responsibility of the LO; however, proposals for the movement of equipment will be reviewed by the SO. Hazardous materials will be delivered by the manufacturers chosen road haulier on a designated vehicle, with the appropriate safety documentation. On arrival at the site, the SO will supervise the safe unloading and storage of materials. The Fire Service will be notified of the arrival on the island of the fuels, and that the fuels are in transit to the site. Spaceport personnel may lead the vehicle in convoy to the site, should this be a requirement agreed with WIEPCG.

A dedicated Hazardous Materials Management Plan (Appendix 17.1 of the 2022 EIA Report) outlines proposals for the transport, storage and pollution control associated with the proposed material inventory at the site. The management of materials will form part of a detailed Safety Case, which will form part of the licence submission to the Civil Aviation Authority (CAA) and will be subject to ongoing review under the relevant regulations, including requirements of the Space Industry Regulations 2021. A detailed risk assessment as part of a ground safety analysis will also be required for every launch, for the identification and elimination/reduction of hazards and risks associated with the operation of the Spaceport under the principles of ALARP (as low as reasonably practicable). An outline risk register is provided as part of this addendum in SEI Appendix 21.1 Risk Register and includes control measures to ensure safe transit of materials to the Spaceport.

The most appropriate method of transportation of any materials to the islands will be determined by the SO and LO, on a case-by-case basis, in consultation with stakeholders, including CalMac and WIEPCG. Certain equipment and materials will require to be transported by dedicated charter vessel to avoid impacting on existing ferry services.

Site Mobilisation

Site mobilisation covers the range of activities associated with establishment of the LO on site, including the delivery of vehicles, materials, and equipment to site. This also includes the assembly or erection of the launch tower and requirements related to security (e.g., marking of areas) and signage (public access and hazardous materials).

Interoperability, Static and Environmental Testing

Interoperability testing will be undertaken to establish and test the interface between equipment and devices between the LV and the payload/ ground support equipment. Static testing may be undertaken and / or a 'dry' dress rehearsal of the launch procedure, including attaching the vehicle to the launch tower assembly.

4.8.6 Launch rehearsals

In the period running up to a launch event, stakeholders will be required to attend launch planning events. A desk-top walk through of the launch day activities will be undertaken, to ensure all stakeholders are familiar with the launch activities and their roles in normal, and any emergency processes. Approximately two weeks to launch, a second run through of the launch day will be conducted, with a number of emergency procedures raised, and responses discussed and planned. In the final days before launch a full-dress rehearsal of the launch will be undertaken in *real time*, with failures incorporated into the pre-launch processes, launch countdown and post-launch processes to rehearse incident response.

[21] For the onshore zone this is likely to include a 'Safety Clear Zone' (SCZ). The SCZ is a defined area based on the more conservative calculation of 1) peak incident overpressure or 2) hazardous fragment distance - Federal Aviation Administration – Office of Commercial Space Transportation (FAA-AST) guidance.

Emergency Preparations

Consultation with the WIEPCG will establish launch specific emergency and standby requirements, with scenario planning covering incidents and accidents. These are likely to include traffic management provision and the positioning of emergency equipment into standby.

4.8.7 Launch Event

The duration of the launch event refers to the preparations on the day of the launch. Key activities are summarised below under the following sections:

- Implementation of Exclusion Zone
- Spectators Management
- Traffic Management
- Fuelling
- Maritime Safety
- Land and inshore area
- Airspace Safety

Implementation of Exclusion Area (onshore)

An Exclusion Area will be established based on the Safety Case for a range of operations including propellant loading and static engine testing, fuel / oxidiser storage as well as the launch itself and ensures that the risk to any person from blast overpressure, fragmentation debris or thermal radiation is as low as is reasonably practicable. A representative area of 430 m is based on the worst-case scenario launch vehicle.

The onshore representative Exclusion Area is based on the worst-case LV scenario anticipated at the site. The area will be demarcated (e.g., gates and flags) to confirm boundaries/ geographic extent and will be continually monitored by personnel and / or other remote methods (e.g., CCTV). A zone of the inshore area will form part of the Exclusion Zone and will be monitored by a patrol vessel. There is a legal obligation to monitor and enforce the boundary under the Space Industry Act 2018.

Spectators

The public will not be encouraged to observe launches and dedicated traffic management measures will ensure a continual flow of traffic along the A865 to remove opportunities to park in close vicinity to the site during the launch event. Observations of the launch will be by invitation only and only authorised personnel will be allowed to enter the site.

Traffic Management

Traffic management measures are not required in terms of the operations of the Spaceport site from a launch safety perspective. However, Western Isles Emergency Planning Coordinating Group (WIEPCG) has stipulated that precautionary measures be put in place to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads.

Police Scotland will be responsible for monitoring the route and have stated that for each launch event management measures will include:

- A dedicated police patrol to monitor traffic during a launch event.
- A temporary clearway (no stopping) along the A865 (from Clachan to Lochmaddy via the west-side of North Uist) during each launch day. The clearway ensures traffic flow is maintained along this route for the benefit of all road users and will

promote the existing Highway Code responsibilities for vehicles on single track roads (no stopping on the single-track road, the verge or in passing places and will be strictly enforced with the police having power to move/remove vehicles).

- Proactive media releases to notify local community of planned launch days and discourage motorists from causing congestion along the route.
- As an emergency planning measure only, a Temporary Traffic Regulation Order (TTRO) will be applied for, which will include powers for the police to invoke a road closure, in the unlikely event that traffic congestion could lead to potential obstruction or danger for road users.

The efficacy of these measures will be reviewed with the WIEPCG following initial launches, with the opportunity to step-down measures, if appropriate for future launches.

Fuelling

Containerised fuelling systems will be brought directly to the launch pad upon entering the site. The transfer of fuel into the stages of the rocket will be undertaken by dedicated fuelling personnel from the ground and, if required, from a raised platform, potentially supported by a mobile oxidiser filling system and mobile pressurisation system. A dedicated fuel filling unit will be provided by the LO for short term fuel storage, fuelling and de-fuelling of the LV. Following the fuelling process, the unit will be transferred to the dedicated fuel storage area adjacent to the farmstead hardstanding.

Maritime Safety

Launch trajectories (and relevant safety buffers, see Appendix 13.1 Maritime Management Procedures of the 2021 EIA Report) will be contained within the boundary of a Space Launch Hazard Area (SLHA) (Figure 4.4 of the 2021 EIA Report). LV flight trajectories may range up to 250 km from the launch pad, depending on the nature of the LV. Flight paths and trajectories will also vary by launch vehicle, and each launch event will require authorisations from the CAA to ensure appropriate measures for airspace safety for each event. Planned flight paths and subsequent deposits are intended to remain well within the UK Exclusive Economic Zone (EEZ). The boundary of the SLHA has been defined to avoid crossing the EEZ.

A detailed procedure for controlling access to specific areas of the sea has been agreed with the MCA and forms a core part of the launch Safety Case, which will include a navigational risk assessment (see Chapter 13: Marine Users and Assets, Appendix 13.1 Maritime Management Procedures of the 2021 EIA Report). Exclusion Zones[22] and Warning Zones[23] will be defined based on the Safety Case for each launch, and a full description of these areas is provided in Appendix 13.1 in the 2021 EIA Report (Maritime Management Procedures). A representative illustration of a typical launch is provided in Figure 4.5 of the 2021 EIA Report, illustrating a typical temporary designation process for maritime safety. Processes for monitoring inshore and offshore areas, post launch procedures and emergency / unplanned events are also set out. Maritime exclusions are expected to last up to 4 hours, although nearshore areas are likely to be open substantially quicker following a launch event.

Airspace Safety

An Air Danger Area[24] will be activated, based on the existing complex used by the MOD Hebrides Range. Individual sections of this area (D701) will be activated via notice to airmen (NOTAM) prior to the launch. Bespoke areas of airspace outside the D701 complex may also

[22] An area of sea space in (or over) which hazardous activities dangerous to the passage of surface vessels can occur, and to which access is controlled to manage risk to life

[23] An area of sea space in (or over) which activities can occur, however risk is considered to be below the level that would require it to be a Sea Danger Area. Access to Sea Notification Areas is not controlled.

[24] A volume of airspace in which hazardous activities dangerous to the flight of aircraft can occur at specified times, and to which access is controlled to manage risk to life.

be segregated initially via a Temporary Danger Area (TDA), and subsequently by a permanent airspace change (subject to approval from the CAA). Some flight trajectories may enter Irish airspace and established protocols to manage this interface are currently in place (Chapter 12 of the 2021 EIA Report: Aviation, Radar and Telecommunications). Surveillance of the airspace via radar will be undertaken by the RO to continuously monitor for the presence of other airspace users.

4.8.8 Flight Termination

Prior to and during the launch event, the LO will continuously monitor the launch and flight in real-time to ensure that any malfunctions are detected. An automated or personnel decision to terminate the flight may be carried out if considered that the flight cannot be continued safely (SEI Appendix 21.1 Risk Register). This may result in stages of the LV containing residual fuel returning to the sea in the event of termination. A launch specific licence obtained from MS-LOT will include a description of the potential for residual fuels and other consumables that may be deposited in the sea / on the seabed.

4.8.9 Post Launch Activities

Following the completing of a launch event the following activities are anticipated:

- Recovery
- Post Launch Notifications
- Site Demobilisation

Recovery

In most cases, a parachute recovery system will provide a low-speed descent touchdown of the different stages of the LV, in addition to any onboard payloads. Separate stages of the LV, the payload fairings and payload may not always be recovered from the sea. However, for those that are recovered from the sea, a charter vessel will be deployed to recover stages of the LV, when required. Individual launch licensing arrangements with MS-LOT will reflect a worst-case scenario, planning for the loss of all stages, and maximum fuel loss. Stages of the LV not planned for recovery will be designed to sink, and a process for deposit charting has been agreed with the MCA / UKHO (Appendix 13.1 of the 2021 EIA Report: Maritime Management Procedures).

Post Launch Notifications

A procedure has been developed to confirm to key stakeholders (including the MCA, Local Coastguard station, UKHO, NLB and Air Traffic Control) that the launch operation is complete, that debris has landed and remains as predicted and that no further assessment is required (Appendix 13.1 of the 2021 EIA Report: Maritime Management Procedures).

Demobilisation

Site demobilisation covers the removal of all vehicles, units, materials, and equipment from site. Some equipment may be temporarily stored in the byre. This phase also includes the removal of the launch tower and the temporary requirements related to security (e.g., flags and signage). The launch pad will be cleaned to remove any residue related to exhaust gases from the launch, and runoff water contained within the dedicated sump system. The SO will be responsible for the emptying and disposal of any fuel/water mix in the sump via tanker discharge or other contained disposal method (e.g., inert absorbent material) and disposed of as special waste.

4.8.10 Operational traffic

During a launch campaign, various temporary infrastructure will be transported to the site by HGV and LGV and removed when the campaign is complete (if another campaign is not due to begin). No abnormal loads will be required for launch activities at the spaceport. The site preparations for each launch will vary between launch operators and launch vehicles, site mobilisation will require the delivery of a range of containerised and portable infrastructure, including fuelling systems, staff and welfare units, shipping containers, launch vehicle and tower. It is likely that many of the deliveries will be combined, for example, the launch vehicle and the tower are often integrated into

one complete system. Material deliveries are also likely to be integrated into the mobilisation; however, in some cases may require separate deliveries. Daily personnel movements during the week are expected to be restricted to a small number of standard vehicles or Light Goods Vehicles (LGV) each day. A launch campaign is likely to last no more than two weeks, from site mobilisation to the launch day, and finally, site demobilisation, where all containers are removed from site.

The main vehicle types expected to support a launch campaign include HGV, pick-up/ van or LGV, minibus, cars and fire vehicles.

Main operational traffic activities will comprise:

- Delivery of containers, portacabins, equipment and materials
- Arrival and departure of spaceport, security and launch operator teams
- Removal of containers, portacabins, equipment and materials

Key routes for launch traffic will generally be from Lochmaddy ferry terminal (Route 01), the MOD Hebrides Range in South Uist (Route 02) and a route from Lochmaddy to the Range for temporary storage of supplies (Route 03). These routes are illustrated in Drawing (00)46.0 Operational Vehicle Movements of the SEI Addendum.

Full details of indicative vehicle movements each day during a launch campaign, including type and number of vehicles and their purpose, are presented in Image 4-5. Anticipated movements for the largest vehicle type likely to launch on site, a typical launch vehicle and a smaller launch vehicle are presented.

A large vehicle project, which is unlikely to launch more than once per year, will result in an anticipated 88 trips to site over the 2-week launch campaign, averaging at 7-8 per day, based on Monday to Saturday working. The maximum trips to site in any one day by all vehicle types is anticipated to be 12. Up to 13 HGV trips to site are anticipated throughout the launch campaign, with no more than three arriving in a single day. The maximum number of vehicles likely to be on site in a single day during a launch campaign is expected to be no more than 10; however, it is unlikely that these vehicles will all be on site at the same time given that some will be delivering materials or dropping off personnel and departing. There is sufficient parking available to accommodate these vehicles between the launch pad, vehicle turning area with parking (three spaces), four laybys (each of which can accommodate at least one articulated HGV) and parking at the site entrance (10 car spaces) (parking provision is detailed in Section 4.10.1).

A typical vehicle project will result in an anticipated 63 trips to site over a 2-week launch campaign, averaging at 5-6 per day, based on Monday to Saturday working. The maximum trips to site in any one day by all vehicle types is anticipated to be 9. Up to six HGV trips to site are anticipated throughout the launch campaign, with no more than two arriving in a single day.

A small vehicle project will not require any HGVs on site, with all equipment delivered by LGV/van or pick-up type vehicles. Up to 43 trips to site by LGV and cars are anticipated over a launch campaign, with a maximum of six in any one day.

The most appropriate method of transportation of any materials to the islands will be determined by the SO and LOs, on a case-by-case basis, in consultation with stakeholders, including CalMac and WIEPCG. Certain equipment and materials will require to be transported by dedicated charter vessel to avoid impacting on existing ferry services.

Large Vehicle Project														
Event Day	Day of Week	Activity	HGV	Arr	Depart	Purpose	Pick-Up / Van	Purpose	Minibus	Purpose	Trips To Site	Cars	Purpose	Fire Vehicle
1	Tuesday	Site Preparations	1	1	1	Bring Iso-Containers			1	SP Team	2	2	SP Team	
2	Wednesday	Site Preparations							1	SP Team	2	2	SP Team	
3	Thursday	Site Preparations	2	2	2	Bring Portacabins	2	Delivery Site Equipment	1	SP Team	2	2	SP Team	
4	Friday	Site Preparations	3	3	2	Bring LO's Equipment	2	Deliver Launch Equipment	2	SP and LO Teams	4	3	SP Team / Security	
5	Saturday	Launch Preparations					1	Deliver Launch Equipment	2	SP and LO Teams	4	3	SP Team / Security	
6	Sunday											3	Security	
7	Monday	Launch Preparations	2	2	1	Water / Oxidiser Delivery	1	H&S Support	2	SP and LO Teams	4	3	SP Team / Security	
8	Tuesday	Launch Day					1	Bring Launch Equipment	2	SP and LO Teams	2	3	SP Team / Security	1
9	Wednesday	Back Up Day							2	SP and LO Teams	2	3	SP Team / Security	1
10	Thursday	Back Up Day	1		1	Oxidiser Removal			2	SP and LO Teams	2	3	SP Team / Security	1
11	Friday	LO Equip Removal	3	2	3	Remove LO's Equipment	1	Remove Launch Equipment	2	SP and LO Teams	4	2	SP Team / Security	
12	Saturday	Site Demobilisation	1	1	1	Remove Iso-Containers	3	Equipment Removal	1	SP Team	1	2	SP Team	
13	Sunday													
14	Monday	Site Demobilisation	2	2	2	Remove Portacabins			1	SP Team	1			
		Total Movements:			26			22		60			62	6

Typical Vehicle Project														
Event Day	Day of Week	Activity	HGV	Arr	Depart	Purpose	Pick-Up / Van	Purpose	Minibus	Purpose	Trips To Site	Cars	Purpose	Fire Vehicle
1	Tuesday	Site Preparations							1	SP Team	2	1	SP Team	
2	Wednesday	Site Preparations							1	SP Team	2	1	SP Team	
3	Thursday	Site Preparations	1	1	1	Bring Portacabins	1	Delivery Site Equipment	1	SP Team	2	1	SP Team	
4	Friday	Site Preparations	1	1	1	Bring LO's Equipment	1	Deliver Launch Equipment	2	SP and LO Teams	4	2	SP Team / Security	
5	Saturday	Launch Preparations					1	Deliver Launch Equipment	2	SP and LO Teams	2	2	SP Team / Security	
6	Sunday											3	Security	
7	Monday	Launch Preparations	2	2	1	Water / Oxidiser Delivery	1	H&S Support	2	SP and LO Teams	4	2	SP Team / Security	
8	Tuesday	Launch Day							2	SP and LO Teams	2	2	SP Team / Security	1
9	Wednesday	Back Up Day							2	SP and LO Teams	2	2	SP Team / Security	1
10	Thursday	Back Up Day	1		1	Oxidiser Removal			2	SP and LO Teams	2	2	SP Team / Security	1
11	Friday	LO Equip Removal	1	1	1	Remove LO's Equipment	1	Remove Launch Equipment	2	SP and LO Teams	4	1	SP Team / Security	
12	Saturday	Site Demobilisation					1	Remove Site Equipment	1	SP Team	1	1	SP Team	
13	Sunday													
14	Monday	Site Demobilisation	1	1	1	Remove Portacabins			1	SP Team	1			
		Total Movements:			12			12		56			40	6

Small Vehicle Project														
Event Day	Day of Week	Activity	HGV	Arr	Depart	Purpose	Pick-Up / Van	Purpose	Minibus	Purpose	Trips To Site	Cars	Purpose	Fire Vehicle
1														
2														
3	Thursday	Site Preparations					1	Delivery Site Equipment	1	SP Team	2	1	SP Team / Security	
4	Friday	Site Preparations					1	Deliver Launch Equipment	2	SP and LO Teams	2	2	SP Team / Security	
5	Saturday	Launch Preparations					1	Deliver Launch Equipment	2	SP and LO Teams	2	2	SP Team / Security	
6	Sunday											3	Security	
7	Monday	Launch Preparations							2	SP and LO Teams	4	2	SP Team / Security	
8	Tuesday	Launch Day							2	SP and LO Teams	2	2	SP Team / Security	
9	Wednesday	Back Up Day							2	SP and LO Teams	2	2	SP Team / Security	
10	Thursday	Back Up Day							2	SP and LO Teams	2	2	SP Team / Security	
11	Friday	LO Equip Removal					1	Remove Launch Equipment	2	SP and LO Teams	2	1	SP Team / Security	
12	Saturday	Site Demobilisation					1	Remove Site Equipment	1	SP Team	1	1	SP Team	
13	Sunday													
14	Monday								1	SP Team	1			
		Total Movements:			0			10		40			36	0

Image 4-5 Indicative vehicle requirements and movements for a large launch vehicle, typical launch vehicle and small launch vehicle project

4.9 ORGANISATION AND MANAGEMENT

4.9.1 Spaceport Roles and Responsibilities

The development will be under the ownership of CnES and will be leased to "Spaceport 1" a distinct commercial entity and designated SO. Under the new regulations, facilities supporting the launch of Space Industry Act regulated sub-orbital and orbital LVs require a SO to obtain a Spaceport Licence. The Space Industry Regulations[25] 2021 also place specific requirements in terms of the management of the Spaceport including 'prescribed personnel'. A detailed analysis of personnel requirements has been undertaken and will includes:

- **Spaceport Accountable Manager / Launch Director / Spaceport 1 Team Lead**: overall lead, responsible for maintaining the Spaceport management system and ensuring that the activities are undertaken in compliance with licence requirements
- **Business Development and Media**: client management, community, media and non-statutory stakeholder engagement
- **Security Manager**: responsible for all security aspects of the development, site preparation and demobilisation
- **Safety Manager**: responsible for the development and operation of the safety management system. Responsible for the development, operation and continuous improvement of the safety management system, and will act as a focal point for safety management issues within the organisation.
- **Spaceport Training Manager**: responsible for all aspects of training the spaceport staff.
- **Environmental Officer**: dedicated to managing the site for community access, agricultural use, habitat enhancement, access and other aspects related to the Habitat and Amenity Management Plan
- **Administration**: document control and organisational administration support
- **Operational (various)**; includes Training Manager and Safety Manager roles
- **Temporary (various**): includes site security and support roles for each specific launch event

Additional staff are anticipated following an initial operational period to extend support for customers, develop skills diversification and engagement activities (outlined in more detail in Section 7) and expand in-house commercial capabilities.

4.9.2 Other Roles and Responsibilities

Launch Operator

The key responsibility associated with the launch lies with the LO. The LO usually represents the organisation that has designed the launch vehicle and subsequently has a duty to demonstrate the technical and operational capability for undertaking launch events, and the submission of a detailed Safety Case with an accompanying flight safety analysis[26] and a ground safety analysis to the regulator (CAA).

Range Operator

A Range Control Licence is required for facilities that are responsible for managing zones subject to restriction, exclusions, or warnings for keeping the area clear. Range services extend to planning and coordinating arrangements for operation, ensuring relevant notifications are issued as well as meteorological information. A Range Control Licence will be held by QinetiQ, as RO.

---

[25] The Spaceport may seek to undertake launches utilising the Air Navigation Order regulatory framework. It is the intention of Spaceport to comply with the more rigorous of the stipulations from both regulatory frameworks.

[26] The flight safety analysis should be based on a fully quantitative assessment.

4.9.3 Operational Management

Spaceport Manual

A Spaceport Manual forms one of the statutory requirements, and the contents of this will include the relevant information on the management and organisational structure, including the duties and responsibilities of staff. It will also describe the spaceport services and facilities, operating procedures and restrictions.

Safety Management System

A Safety Management System based on EASA 'Easy Access Rules for Aerodromes' and CAP795 will set out in detail the lines of responsibility, accountability, and processes to ensure risk controls effectively, and will form part of the overall Safety Case issued to the regulator for the Spaceport Licence.

Emergency Response Plan

The SO will have in place an Emergency Response Plan (ERP), which will interact with the LO Emergency Response Plan. Spaceport ERPs have similar requirements for aerodromes and the Control of Major Accidents and Hazards Regulations 2015, including provision for rescue and firefighting services on site. The level and type of this provision will be determined in the Safety Case and agreed with WIEPCG.

Site Security

A Spaceport Licence currently requires at least one prescribed person to be responsible for security. Outside launch preparation activities and launch events, the site will be open to the public, although additional measures to manage amenity and access may be put in place to support conservation objectives (Section 4.9.8).

Environment

As indicated in Section 4.9.1, a dedicated Environmental Manager will have a remit covering agricultural tenancy management, public access, habitat management and other aspects related to the Habitat Amenity Management Plan (an outline plan is provided in Appendix 7.2 of the 2021 EIA Report). In addition, the Environment Manager will have a duty to manage the implementation of any planning conditions and commitments made in the EIA Report related to natural and cultural heritage resources within the site, including monitoring activities.

4.9.4 Duration

No more than 10 individual launch events are expected per year. Each individual launch event is expected to last no more than one day; however, the on-site preparation and demobilisation requirements may last up to a maximum of two weeks. This period would include the process outlined in 'Launch Event Preparations' in Section 4.8.5 above i.e., from the point of entry to site (mobilisation) to removal of all equipment and materials following a launch event (demobilisation). However, weather considerations or delays relating to launch activities may require that temporary infrastructure remain on site for slightly longer periods for an individual launch event, to allow for back-up launch days. Details on public access restrictions whilst equipment is mobilised on site differs from restrictions during the launch event and are described in detail in Section 4.11.13.

4.9.5 Hours of Operation

All launch operations will be carried out between daytime hours of 0700 – 2100 Monday to Friday, 0800 – 1900 Saturday with no Sunday working. Ancillary spaceport activities may require operations outwith these times, including security and patrols.

4.9.6 Operational Lighting

There will be no permanent operational lighting on site. Temporary lighting may be required in line with monitoring and security arrangements during launch preparations. This is likely to include low light CCTV cameras at the byres and site entrance (which do not require floodlights) Image 4-4. Low-level flood lighting (portable tripod lighting) may occasionally be required around the launch pad during launch set-up, which is likely to be limited to periods of low light during winter months, should a launch be scheduled at this time.

4.9.7 Maintenance

Maintenance of the infrastructure will be focused on pollution control measures / launch pad drainage system and Loch Scolpaig Outfall:

- Pollution control system - the system will be functionally tested to ensure that the system operates as expected, on demand. Maintenance will also include the clearance of windblown sand from the rocket launch platform, sump system, socket / sprinkler set and the area surrounding the containment tank. A site log sheet detailing how often the pollution prevention and drainage measures will be checked and maintained will be kept on site ready for inspection at any time.
- Loch Scolpaig outfall, drainage channel and culvert – monitoring the status of the outfall and clearance of debris from the channel with a digger.

Other checks and repairs include general site repairs (fencing, road drainage, communications building, and culvert inspections), and ensuring that gates are closed / in good repair.

4.9.8 Public Access (Operation)

Four tiers of access restrictions will be implemented depending on the nature and status of launch activities at the site:

Tier 1 - No Active Launch Events

Tier 1 access arrangements will be in place during 'no launch activity' scenarios i.e., no mobilisation, launch event or demobilisation activities. The public will have and free pedestrian access across the site; however, access to the spaceport compound (comprising the launch pad to the vehicle turning area adjacent to the byres) will be restricted and fenced with standard 1.1 m rylock fencing (Drawing (00)22.13) to protect Spaceport infrastructure from livestock. A minor diversion of the existing Wider Path network route[27] will take walkers around the spaceport compound, between Scolpaig Farm and the vehicle turning area (Figure 7.2 of the 2021 EIA Report).

Tier 2 - Launch Event Preparations (Site Mobilisation)

Whilst the site is mobilised for a launch event and equipment / materials are on site, some area-specific access restrictions may be enforced, defined by the nature and quantity of materials retained on site and the security preferences of the LO. Should any hazardous materials be stored at the site, temporary areas of restricted access may be defined under a Safety Clear Zone (SCZ), in addition to any requirements under the Dangerous Substances Explosive Atmosphere Regulations (DSEAR) 2002 (Section 4.8.5).

The restrictions, exclusions and warnings that apply to any Safety Clear Zone will differ depending on what activity is being carried out; however, a radius of up to 160 m from the point of storage (launch pad) may be implemented for the most hazardous material expected to be stored at the site in significant volume; hydrogen peroxide (H_2O_2)[28]. SCZ implementation for the storage of materials is likely to be required infrequently due to the nature of most propellants currently adopted by LV operators. Due to the degradation rate of some

[27] Illustrated in Outer Hebrides Core Paths Plan – Map 17. Available at: https://www.cne-siar.gov.uk/leisure-sport-and-culture/community-life-and-leisure/countryside-access/core-paths-planning-in-the-hebrides/

[28] The SCZ is based on the more conservative calculation of 1) peak incident overpressure or 2) hazardous fragment distance - Federal Aviation Administration – Office of Commercial Space Transportation (FAA-AST) guidance.

oxidisers, the storage of hazardous substances is likely to be very short term, and the duration of this period will last up to the launch event only. The public will continue to have access to Scolpaig Bay both via the entrance off the A865 and the coastal footpath. Should a SCZ for the storage of materials be required, these will be monitored by on site security personnel and demarcated with temporary markers (red flags).

Tier 3 - Launch Event

The launch event comprises the period from fuelling to launch of the LV. During a launch or testing event, an Exclusion Zone will be implemented, a representative zone based on the worst-case launch vehicle may extend up to 430 m (radius, centred on the launch vehicle on the pad), depending on the nature of the launch or test[29]. This area may be extended in the direction of the launch trajectory to ensure safety during the initial stage of flight. The duration of the restrictions will be approximately one day, although occasionally a launch may be delayed, due to technical or weather-related issues, and there may be a requirement for 1-2 'back-up days' where the launch may be reattempted. Notice will be provided to the public (Section 4.8.7) and appropriate markers, (e.g., flags) will be erected to indicate restrictions. Security personnel will continuously monitor the site during these periods.

Tier 4 – Launch Demobilisation

Launch demobilisation comprises the period following completion of the launch. Activities include disassembly of the tower, recovery of launch stages / payload (if required), removal of equipment, removal of wastes and post launch clean-up operations. During this period the Exclusion Area status will be removed.

4.9.9 Security

Security and access arrangements form part of a confidential Threat Vulnerability Risk Assessment (TVRA) and Operational Requirements (OR). A security strategy has been developed and is undergoing a standard assessment process with the Centre for the Protection of National Infrastructure (CPNI). Police Scotland and the Counter Terrorism Security Advisors (CTSA) have also been consulted in terms of proposed site operations and will review the security strategy. Security arrangements are expected to be met by the use of onsite technology (CCTV), the Range (e.g., for maritime craft) and monitoring by spaceport personnel.

4.9.10 Waste management

The generation of waste will be minimised through implementation of a Site Waste Management Plan (see Chapter 21: Environmental Management and Monitoring) for further information. Waste generated during the operational period that cannot be safely re-used will be either recycled through appropriate recycling providers or disposed of at licensed waste management facilities. The LO will be required to establish waste segregation bins and to separate all waste materials arising from launch preparations and demobilisation.

4.10 PROJECT INFRASTRUCTURE

A detailed description of the project components is provided below. The site location is provided in Drawing (00)20.12, and the site layout is illustrated on Drawing (00)21.13.

4.10.1 Access Tracks, Parking, Turning Area and Laybys

Existing access to the site from the main A865 will be widened to 3.7 m to comply with Scottish Fire and Rescue requirements (Table 4-1) and resurfaced to allow articulated vehicles to access the site (Drawing (00)22.13). The new access falls away from the public road. A short length (15 m) of two-way road will be formed to allow vehicles to pass at the site entrance. A total of ten parking spaces are proposed at the site entrance: seven standard spaces, two extended car parking spaces and one accessible space. A pedestrian access gate will

[29] The Exclusion Area has been designed with the safety case of the 'worst case' scenario of LV proposed and falls wholly within the boundary of Scolpaig Farm.

replace the existing 'kissing gate' at the site access point. Two laybys (approx. 90 m^2) will be formed between Loch Scolpaig and the farm buildings. A further two laybys will be formed between the site entrance and the causeway. Laybys will be used to facilitate passing vehicles, in addition to parking for launch control vehicles and emergency vehicles during a launch. Approximately 130 m of new access track will be installed between the proposed turning area and launch platform.

A vehicle turning area with car parking (approximately 855.6 m^2) will be formed between the derelict farmhouse and the farm buildings (Drawing (00)22.13). Two standard car parking spaces and one accessible parking space will be provided. The hardstanding will include an area for the temporary installation of two shipping containers (post launch storage) and access to the upgraded byre.

4.10.2 Upgrading of the Existing Causeway and Culvert

The existing causeway is fully submerged some of the time, is of unknown structural integrity, and restricts flow between upper Loch Scolpaig and Lower Loch Scolpaig. The nature of the existing culvert results in hydrological separation of the loch system and contributes to localised flooding events in the winter months. The existing culvert will be replaced with a concrete box culvert (internal size of 2.1 m wide x 1.2 m high) shown on Drawing (00)22.13 and (00)24.9. The causeway level will be raised and increased in width and the sides of the causeway will be protected with rock armour. The concrete box culvert will allow the north and south parts of Loch Scolpaig to act as one body of water.

4.10.3 Upgrade of Existing Byre

An existing byre ('byre 2') will be upgraded to provide a covered area for a communications area, storage for the pump set to serve the launch pad sprinkler / deluge system, and a covered workshop / storage area for non-hazardous materials. Existing plans of the byre are provided in Drawings (00)35.1 and (00)36.1, proposed upgrades are provided in Drawings (00)37.2, (00)38.1, (00)39.3 and (00)40.1. In summary the upgrade to the byre will comprise internal upgrades, repointing and re-rendering of the external walls with timber cladding, a new 2.5 m VHF radio mast and 2.6 m x 2.93 m garage-type security door. Roof drainage will be directed to a 1 m x 2 m soakaway north of the byre (Drawing (00)22.13).

4.10.4 Launch Pad (Primary Fuel Storage), Tether Pads and Pad Loading Area

The concrete launch pad (13.1 m x 10.1 m) provides a stable and secure surface for the erection of LV tower and launch of LVs. The launch pad also functions as the primary storage area for the storage of fuels / oxidisers prior to a launch event (Drawing (00)27.2). The pad contains an integrated pollution management system which comprises of an inset sump system (2 m x 1 m x 0.5 m) with a removable open grid cover. The sump connects to an underground drain, which subsequently discharges - via a drain stop valve - to a soakaway system (Drawing (00)27.2). A 300 mm wide perimeter drainage channel connects to underground pipework, which conveys any material to a containment (liquid storage) tank (Drawing (00)27.2). The drainage channel has removable, bolted covers. A 'socket set' for a water deluge / sprinkler system surrounds the launch pad. An array of twelve tether points (1 m x 1 m x 0.75 m) surrounds the launch pad to provide options for securing the temporary launch tower. Tether points will be set level with the adjoining ground level.

A pad loading area (576 m^2) provides a suitable hardstanding surface for supporting vehicles for the installation / erection of a temporary launch tower (Drawing (00)27.2) and has been sized to accommodate standard articulated vehicles.

4.10.5 Pollution Control

Each launch operator will use bespoke propellent mixtures, indicated in the maximum materials inventory within the 2021 EIA Report, and each launch will require a licence from the CAA under the Space Industry Act 2018. As each launch will differ, and will be regulated separately, the 2021 EIA Report describes outline processes for managing a range of spillage scenarios. Small spillages that may arise from fuelling operations on the launch pad will be captured by the integrated launch pad sump system. Larger spill events are managed through an integrated pollution conveyance and dilution system, also described below and in Appendix 17.1 of the 2021 EIA Report. If the potential pollution management scenarios associated with a launch cannot be managed by the existing infrastructure of the Spaceport, it will not be possible to licence a launch event at the location.

Containment (Integrated Sump System)

Spillage clean-up will be based on the use of inert materials including dry sand, absorbent granules, vermiculite, sealing putties and booms for containing and clearing up small spills, where safe to do so. In addition, several clean, empty bags or drums will be held on site for this purpose (Appendix 17.1 of the 2021 EIA Report).

Containment (Liquid Storage) Tank

The containment (liquid storage) tank provides a liquid storage unit to prepare for unplanned events only (Drawing (00)27.2). The tank is sized (63.5 m^3) to accommodate the potential dilution requirements of a worst-case scenario spillage event (up to 1.5 tonnes) of HTP and potential dilution / degradation requirements. The tank also provides containment of liquids arising from firefighting water in the event of an explosion, or fire. The tank will have a galvanised steel cover with access hatch and vents.

Below ground drainage pipes from the launch pad integrated sump system and launch pad channel drain will convey liquids (under controlled valve operation) to the galvanised steel containment tank. The containment tank will be surrounded by concrete steps, walkway, and handrail. A control valve fitted with lock will provide an option to convey liquid material from the containment tank to a soakaway or connect to tanker for alternative disposal options.

Containment (Liquid Storage) Soakaway

The launch pad soakaway drains the clean launch pad when not in use. In addition, launch preparations for LVs that adopt HTP as part of the propellant will require pre-filling of the containment tank with water to prepare for worst case scenario of spillages, and ensure adequate dilution of HTP. Only water or highly dilute / degraded solutions (<2% Hydrogen Peroxide) will be discharged to the soakaway, and appropriate registration or licence secured from SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2011. The sizing of the soakaway is yet to be defined but is anticipated to occupy 180 m^2, at a depth of 1 m.

4.10.6 Post Fuelling Materials Storage Area

A materials storage area for the temporary storage of containers / fuelling infrastructure following the fuelling process will be located adjacent to the turning area within the farmstead. This area includes space for up to two shipping containers (Drawing (00)22.13).

4.10.7 Water Storage Tank

A water storage tank (5.4 m x 5.4 m) will provide a pumped water supply to the sprinkler deluge system surrounding the launch pad and will be filled and topped up by a mobile tanker (Drawing (00)22.13). Longer term options to supply water to the Spaceport are considered in SEI Appendix 7.4. Water Supply Options.

4.10.8 Fencing

The Spaceport compound (vehicles turning area, upgraded byre, new access track, launch pad and associated infrastructure) will be surrounded by 1.1 m rylock stockproof fencing (total length 502 m). Galvanised field gates will be installed at the compound entrance, on the eastern corner, and northern flank of the compound.

4.10.9 Services

Electricity

An application will be made to the district network operator to replace the existing 11 kV overhead supply to the farm entrance. Responsibility for the overhead supply lies with SSEN, who will apply for the required consents. Underground ducts will be installed to provide electricity to the launch pad and byre. Fibre optic cabling will extend from the site entrance via the laybys to the byre and launch pad.

Water

An analysis of water supply options is provided in SEI Appendix 17.4, which sets out the various options for water supply to the site. Following a detailed review of options, the following options are proposed to service the development:

- Water for construction: The contractor will be responsible for the supply of water for the work and staff facilities. It is envisaged that the contractor will supply water using a 2000 litre water bowser towed by a suitable vehicle. Potable water will be bottled.
- Firefighting supply: water will be purchased from Scottish Water and transported to Scolpaig by tanker to fill the water storage tank. Initial filling of the tank or filling after a fire or hydrogen peroxide fuel spill will require four lorry deliveries if 16,000 litre articulated water tankers or rear wheel steer water tankers are used, or two lorry deliveries if a 30,000 litre (44 tonne) articulated water tanker is used. Topping up will be carried out using a 2,000-litre water bowser towed by a suitable vehicle.
- Water for cleaning and toilets: Launch operators will be responsible for the supply of water that they will use. It is envisaged that water will be purchased from Scottish Water and supplied using a 2,000-litre water bowser towed by a suitable vehicle.
- Potable Water: launch operators will be responsible for the supply of potable water. It is envisaged that bottled water or water dispensers will be provided.

Broadband

A new super-fast broadband connection will be installed. Discussions are ongoing with BT Openreach, but it is expected that extending the provision of high-speed broadband will be of benefit to the local community.

Drainage

Access Track

The proposed road surface will comprise a Type 1 finish, which is a naturally permeable surface to allow surface water to drain away. Check dams may be used to control the flow rate within the drainage channel as well as providing some attenuation capacity. The natural topography either side of the access will be used to identify appropriate outfall points along the route for roadside drainage to allow overland flow and filtration of surface water between outfall points and Loch Scolpaig.

Launch Pad

Following every launch event, the launch pad will be cleaned, and the effluent contained within the sump system (valves to soakaway closed). Spillage clean-up will be based on the use of inert materials including dry sand, absorbent granules, vermiculite, sealing putties and booms for containing and clearing up small spills, where safe to do so. In addition, several clean, empty bags or drums will be held on site for this purpose (Appendix 17.1 of the 2021 EIA Report). For larger liquid spills requiring tanker disposal, a tanker will be required to take stored effluent onto the mainland disposal point. When not in use the launch pad will drain via the integrated sump system to the soakaway (Drawing (00)27.2), described in Section 4.10.5.

Upgraded Byre

The upgraded byre has a soakaway (1 m x 2 m x 0.3 m) to convey and disperse roof drainage.

4.11 CONSTRUCTION AND INSTALLATION

The construction period for the Project is anticipated to last approximately 20-24 weeks, which includes four weeks for desk-based preparations, 16 weeks of construction works on site and a further four weeks for contingency (any delays relating to weather, delivery of materials etc.). A construction timetable based on a 20-week construction period is provided in Image 4-6.

4.11.1 Construction Personnel

Approximately 15 people will be contracted on-site over the duration of the construction. The actual number will depend on the activities being undertaken and will vary throughout the course of the construction programme.

4.11.2 Upgrade of access from A865, associated laybys and car parking.

The existing entrance will be increased in size to allow articulated vehicles to access the site form the single width A865. The entrance radius will be increased to 9 m and a 15 m length of 2-way road to allow vehicles to pass. Up to three cars or one articulated vehicle can be stationary waiting to access the A865 while allowing vehicles to enter the Scolpaig access track. The first 5 m of the access track, measured from the A865, will be finished with a hard-wearing surface, such as concrete. The new access will be graded away from the A865 ensuring that there is no water run-off onto the public road. The remainder of the access, including laybys, will be formed to the same standard as the upgraded access track. The small rock outcrop on the east side of the current farm access track will be removed.

Ten car parking spaces will be formed off the new access. These spaces are primarily for use of the public visiting Scolpaig for recreational purposes. One of these parking spaces will be accessible and will be finished with a plastic grid paving system. Two of the spaces will be extended to accommodate larger vehicles. The parking area will be finished with Bodpave 85 grid, finished with clean stone and kerbing (Drawing (00)24.9) and signage / bay marking to be agreed with CnES Roads. Beyond the entrance and car parking there will be a gate forming a stock proof barrier to Scolpaig Farm. Adjacent to the gate on the track the existing “kissing gate” will be replaced by a standard access pedestrian gate to facilitate access to users of limited mobility.

Activity	Weeks																				
Week no	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Appoint Contractor																					
Orders and H&S prior to site start																					
Stage 1																					
Mobilisation – Install of Site Accommodation and Security																					
Form new entrance from A856 and formation for parking. (Parking formation to be used for material deliveries)																					
Upgrade road from new entrance to Loch Scolpaig																					
Installation of new culvert and upgraded causeway																					
Upgrade road from Loch Scolpaig and to Scolpaig Farm																					
Stage 2																					
Erect fencing around farm buildings and launch infrastructure																					
Form hard standing between Scolpaig Farm House and Farm																					
Construct road to launch pad, launch pad, and supporting infrastructure																					
Upgrade Byre 3																					
Construction of parking and kerbing entrance																					
Snagging and handover																					
Access Restrictions																					
No access restriction																					
Public Access permitted to Scolpaig Farm Land by wider path network. Scolpaig Farm Track out of use.																					
Public Access permitted to Scolpaig Farm excluding fenced area at farm. May be some short-term restrictions on farm access track.																					
Agricultural tenant access. Restricted due to works on Scolpaig Farm Track.																					
Vehicle Movements																					
Rockfill						10	53	64	30	27	69	69	30	32	30	30	26	5	4	2	
Concrete						1			1							4		6	2		
Steel Reinforcement																3					
Culvert Units								3			0										
Geotextile						1							1								
Water tanks and pipes															3	4					
Site Accommodation/Sundries						3			1			1				1	1				3
Weekly lorry journeys						15	53	67	32	27	69	70	31	32	33	42	27	11	6	2	3
Lorries per day average over 5 days						3	10.6	13.4	6.4	5.4	13.8	14	6.2	6.4	6.6	8.4	5.4	2.2	1.2	0.4	0.6

Image 4-6 Proposed construction phasing.

4.11.3 Upgrade of existing access track.

The existing access track currently varies in width from 2.0 m to 2.5 m, this will be increased in width to 3.7 m in line with Scottish Fire and Rescue feedback with localised widening at corners (Drawing (00)21.13 and (00)24.7). Topsoil from the verges of the existing track will be laid aside and used for finishing the edges of the widened track. Any areas of soft verge will be excavated and filled with small rockfill. Soft excavated material will be used for finishing the edges of the upgraded track. It is envisaged that areas of soft verge will be restricted to the area immediately adjacent to the causeway on the west side. The existing track and existing verges will be overlaid with a geotextile membrane and capped with a surface layer of minimum 150 mm deep Type 1 aggregate.

4.11.4 Causeway upgrade including installation of concrete box culvert

The existing culvert, approximate opening size 0.3 m x 0.4 m, will be replaced with a precast concrete box culvert with an opening of 2.1 m wide x 1.2 m high. An outline method statement for the construction is provided in Appendix 17.2 of the 2021 EIA Report (Water Management). Prior to construction works a temporary dam structure will be installed to enable the culvert to be replaced under dry conditions. Dewatering of the working area will require the deployment of sump pumps to discharge water to a proposed temporary construction area adjacent to lower Scolpaig Loch (Drawing (00)21.13). A zone within the temporary construction area will be contained with silt fencing to ensure suspended sediments are filtered out between existing vegetation and fencing. A 10 m buffer to Loch Scolpaig has been applied to manage sediment operations. A second pump will be deployed to control the water level of the upper loch. This water would be discharged directly into the lower loch, or alternatively, should the pump intake be located close to the bed sediment, this water would also be discharged to the silt management area. Following dewatering of the working area, the box culvert will be installed with ongoing pumping to the silt management area and continued as necessary. On completion, the temporary dam and silt management measures will be removed. A method statement describing the proposed works is provided in SEI Appendix 17.5. Sediment Management.

The causeway and the existing track will be raised to ensure that the access track is above the estimated 1 in 200-year flood level. Drawing (00)24.7 illustrates details of the culvert design.

4.11.5 Vehicle turning area, car parking, byre access and base for storage

A turning area, approximately 855 m^2, will be constructed between the existing farm outbuildings and the farmhouse. Adjoining this area will be an additional hardstanding area for the temporary installation of shipping containers and the byre access. The vehicle turning area, car parking, base for shipping containers and the existing byre access will be set level with the surrounding machair ground. The existing grass vegetation will be carefully removed and laid aside for reuse. The sand will be excavated to a depth of approximately 500 mm. Excavated sand will be used to make up levels for the launch pad access road with the remainder being stored in the low areas within the former walled farmyard. A geotextile membrane will be laid over the sand base. This will be capped with 450 mm of small, crushed rock fill and finished with a wearing surface of 100 mm of Type 1 Road Base.

4.11.6 New access track to launch platform

New access track will follow the shortest route from the vehicle turning area car park to the launch platform. The width of the track has been increased to 3.7 m. The access track passes between the walls of two former buildings and crosses the farmyard perimeter wall which is currently covered with windblown sand. The land within the former farmyard is uneven. Sand from the excavation of the vehicle turning area will be used to overlay the loose stone that lie between the walls of the two former buildings and level the route of the new track. Detailed sections of the excavations are provided in Drawing (00)23.4. The existing farm wall will be reduced in level in the location of the new access track and the track excavated between the farmyard boundary wall and the launch platform. The sand will be well rolled, overlaid with a geotextile membrane and capped with 450 mm of crushed rock fill and finished with a wearing surface of 100 mm of Type 1 Road Base. Verges will be finished with turf laid aside from the vehicle turning and car parking area. With the exception of the excavation at the former farmyard, the proposal is to overlay the existing ground so as not to disturb any items of potential archaeological interest.

4.11.7 Launch pad, tether pads and pad loading area

A detailed layout of the launch pad is provided in Drawing (00)26.2. The launch pad / tether points and pad loading area will be constructed of excavated and levelled sand on land remodelled to the level of the launch pad (9.0 m AOD). Prior to cutting and filling, turf will be removed, laid aside and reinstated immediately on completing cut and fill work. Details of the excavation sections for the launch pad, tether pads and loading area is provided in Drawing (00)23.4.

The launch pad loading area will be approximately 576 m^2 with the majority of the hardstanding comprising a Type 1 finish on crushed rock. The launch pad / sump (13.1 m x 10.1 m) will be inset within this area. The launch platform will comprise reinforced concrete, 0.8 m deep and laid to falls (1:60) on a blinded hardcore base on geotextile membrane. An array of twelve concrete 1 m x 1 m x 0.75 m tether points with inset tie ring will surround the launch pad for securing launch tower/ rail (Drawing (00)27.2). Tether points will be set level with the adjoining ground level.

4.11.8 Containment Tank and Water Storage Tank

The original ground level will be excavated to a depth of 1.09 m, over an area cross section of 14.5 m^2. After setting out the construction area, grass turf will be carefully removed and laid aside for reuse. Sand will be excavated to formation level. The sand will be used for building up road levels and filling hollows within the application site. A reinforced concrete slab will be constructed over blinded hardcore on a geotextile membrane laid over the sand formation level. Ready mix concrete from a registered production plant will be brought to the site. Tank supports will be constructed from concrete blockwork. The tank will be constructed from galvanised steel panels bolted together over the block work support structure. No specialised machinery is required. Two mass retaining walls will be constructed at the liquid storage tanks (blockwork or poured concrete). On completion of the tank construction, the ground around the tanks will be graded as shown on the design drawings and all exposed sand will be covered with the grass turf laid aside during the excavation work.

4.11.9 Soakaway

Two below ground soakaways will be installed for the launch pad and byre roof drainage. The soakaways will comprise clean crushed rock with perforated pipe distribution contained within a filter membrane.

4.11.10 General construction

Construction Hours

Construction hours will be daytime hours ranging from 07.00 to 20.00 Monday to Friday and 07.00 to 18.00 Saturday, with no Sunday working.

Temporary construction requirements

The construction contractor will require a temporary compound to provide staff facilities, the storage of materials and a control point for visitors to the works. A temporary construction compound will be designated initially at the proposed car parking area at the entrance to the site during construction of the access track / culvert upgrade, then moved to the farmstead area to support construction of the launch complex. Temporary construction requirements are likely to include a cabin with toilets, a canteen and a meeting room. A further temporary area (approximately 120 m^2) will be established adjacent to Loch Scolpaig, exclusively to support the over-pumping works and sediment management requirements for the proposed culvert upgrade (Drawing (00)21.13).

4.11.11 Construction materials and delivery

The estimated quantities of construction materials are outlined in Table 4-6. The volume of construction materials has increased from original volumes specified in the 2021 EIA Report due to the widening of the road from 3.0 m to 3.7 m to meet Scottish Fire and Rescue requirements. Sand excavated from the site will be retained on site and used for filling below the launch platform access road and landscaping. Machair turf, laid aside during excavation works, will be used to cover and landscape areas and the road verges within the

machair areas. Soil and nominal quantities of peaty soils[30] excavated as part of the road works will be used for landscaping road verges in the areas that are not machair. It is intended to retain all excavated materials on site.

Aggregate

All aggregate material required for construction will be imported to the site, no borrow pits are proposed on site. Approximately 7,220 tonnes of aggregate will be delivered by road. It is preferred that aggregate will be sourced from one of the Uist and Benbecula quarries, as identified in the CnES Outer Hebrides Local Development Plan, Development Strategy Maps and subsequently will have similar properties to material on site. However, sourcing of aggregate is at the discretion of the appointed contractor and may include off-island quarry sources.

Concrete and Steel

Concrete and steel will be required for the launch pad, containment tank and water tank. The concrete culvert will be precast and manufactured off site. The likelihood is that these will be manufactured on the mainland and imported. All geotextile membranes and drainage, including the drainage storage tank will be imported. Concrete will not be batched on site and will be imported.

Table 4-6 Construction material quantities and loads

Material	Area	Tonnage	Loads[31]
Imported Rockfill	Access track upgrade (inc. access at main road)	7,220	481
	Passing places		
	Compound hardstanding		
	Launch pad access		
	Launch pad & storage area		
	Causeway		
Concrete	Launchpad	206	14
Steel reinforcement	Launchpad		3
Geotextile		18	2
Containment and Water Tank		N/A	2
Pipes/Ducts/chambers			5
Culvert Units			3
Accommodation & Sundries			10
TOTAL			**520**

Construction Traffic

Traffic movements associated with the construction of the infrastructure will primarily relate to the delivery of materials and components to the site together with construction staff travel. Prior to construction, all public road surfaces on the proposed material delivery routes will be surveyed and repaired where any damage is caused by construction works associated with the Spaceport. The Developer will contribute, under agreement with CnES Planning, to review and undertake road repairs due to the increased pressure on the surfaces from repeated heavy loads during construction.

[30] Trial pits identified two limited and shallow deposits of peat around the causeway not exceeding 50 cm in depth and subsequently not considered to fall within the definition of peat soil (Scottish Government *et al*, 2017).

[31] Based on a 15-tonne payload.

Table 4-6 outlines anticipated construction materials and estimated number of loads. It is anticipated that over the construction period there will be approximately 520 deliveries of goods to the site. Based on a 20–24-week overall construction phase timetable, HGV movements are anticipated to be required over a 16-week period.

The estimated total number of heavy goods deliveries to the site during the construction work has been assessed on a weekly basis, with average weekly deliveries of 32 across the construction works period (Image 4-7). Weekly deliveries in excess of 50 occurs on weeks 2,3, 6 and 7 of the on-site works. Weekly deliveries at other times exceed 30 on five weeks. Peak delivery activity of approximately 69-70 heavy good vehicle deliveries will occur on weeks 3, 6 and 7. During week 3, 6 and 7 there is on average 14 deliveries per day. Based on an 8-hour working day, there will be a heavy goods vehicle delivery every 34 minutes during this period. The daily average across the 16-week period is six deliveries per day.

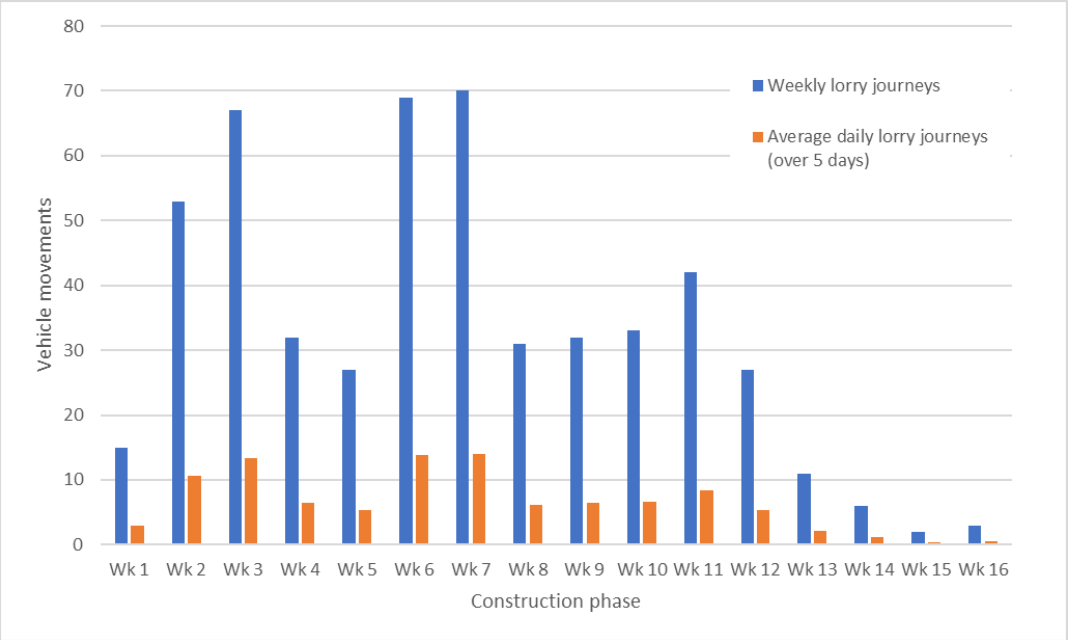

Image 4-7 Indicative distribution of construction phase HGV deliveries to site

The Contractor will be required, under the terms of the Contract, to have a minimum time of 15 minutes between heavy goods vehicle deliveries to the site and 15 minutes between heavy goods vehicles leaving the site. This restriction will limit the risk of large vehicles causing disruption on the single-track A 865.

Materials Delivery Routes

The successful Contractor will be responsible for sourcing and supplying materials for the works. Likely delivery routes for aggregates, building materials, Contractor's equipment and temporary site accommodation are shown on Drawing (00)45.0. Materials will come from one of the following sources:

- Aggregate: the Contractor will be required to source materials from an approved quarry. It is most likely that the successful Contractor will source materials from one of the two local quarries or from an approved quarry "off island" with delivery by sea (Druim Reallasgeir located adjacent to the A867 between Lochmaddy and Clachan (Route 01) or Reuval (Ruabhal), Benbecula (Route 02)). Contractors have in the past sourced materials from mainland quarries. Deliveries to the island have been by cargo boat. The most likely port would be Lochmaddy with a route via the A865 or A867 (Route 03, Route 04).
- Deliveries of Contractors equipment, accommodation, and materials other than aggregate: material deliveries (other than aggregates) will most likely be delivered to Scolpaig from Lochmaddy ferry terminal (via Route 03 or 04), Berneray ferry terminal

(Route 05) or one of the two builders' merchants in Benbecula (via Route 02). Both builders' merchants have their own lorry transport that deliver around the islands weekly.

The upgraded Scolpaig track junction from the A865 has been designed to allow articulated heavy good vehicles to access the site from either the east or west. Heavy goods articulated vehicles will be required to leave the site in a westerly direction only and south towards Clachan. This restriction will be part of the Contract specification during the construction work.

4.11.12 Construction Management

Change control

The project will be tendered on the basis of a design, drawings and specification. Only changes instructed by the Contract Administrator will be authorised. All relevant stakeholders would also be consulted at this time.

Smaller changes will be tracked during the detailed design and construction of the project and measures will be taken to ensure that adverse impacts are not exacerbated by changes, and where possible opportunities are taken to enhance positive impacts.

Public Access and Communication

To ensure the health and safety of the public, the farm tenant and construction workers it will be necessary to restrict access during construction works. Final timing of the restrictions will be dependent on the Contractors work programme and their Health and Safety assessment: However, closure of the access track, including the causeway will be necessary during the formation of the new entrance with the A865, the upgrading of the access track, the installation of the new culverts and upgraded causeway at Loch Scolpaig. Closure will be required during weeks 1 – 7, 14 and 15 of the site works. Specific site management measures will be determined by the appointed contractor during construction and in accordance with the relevant best practice and health and safety requirements.

Notification of construction activities is likely to include:

- Public notification of intended access restrictions
- Local authority website, community councils, local press
- Area of land affected, date and times, alternative access arrangements (if relevant); and
- Signage on site, access road, paths into site, and marshalling.

Commissioning

Commissioning will be limited to testing the water and drainage systems at the launch platform. This work will be carried out by the construction contractor prior to the completion of their work.

4.11.13 Public Access (Construction)

The *Space Industry Act 2018* (clauses 39 to 41: *Powers to obtain rights over land*) grants powers to the Secretary of State to make orders in relation to land, in favour of a qualifying person i.e., the Secretary of State, SO or RO, for the purposes of spaceflight activity. These include powers to obtain rights over land and to temporarily restrict the use of land to ensure safe and efficient use for spaceflight activities and prevent a launch from endangering persons or property.

Provision for public access is facilitated through 10 parking spaces at the site entrance and installation of a pedestrian swing gate to the farm track. Vehicular access will be restricted to authorised vehicles associated with the Spaceport, with an exception for agricultural tenants and other activities related to habitat or asset management or monitoring on-site. Pedestrian access is currently available through:

- Access off the main road (A865) to Scolpaig Farm along the access track to Scolpaig Bay (a route which contributes to the Wider Path network in the Outer Hebrides[32]) and will be maintained throughout much of the year.
- Access via the coastal path network at the western and eastern boundary of the ownership boundary of the farm.

There will be some restrictions during the construction phase for public safety.

A temporary construction laydown area will be established at the site entrance during the period. Access to Scolpaig Farm will be limited from the main entrance off the A865 to the farm compound for a temporary period during construction of the road and causeway culvert upgrade works. Restrictions are expected to be in place for a period of 16 weeks or up to 20 weeks (Section 4.11.10) with 4 weeks contingency planning (20-24 weeks in total). Public access arrangements are also set out in the construction schedule. Alternative routes to Scolpaig Farm will continue to be accessible from the eastern and western coastal boundary illustrated on Figure 7.2 of the 2021 EIA Report.

Following completion of access track / culvert upgrade works, the temporary construction laydown area will be transferred to the farm compound and pedestrian access to the farm from the A865 will be reinstated. During the remainder of the construction period, construction traffic will continue to access the site also through the A865. Specific site management measures, including signage and other safety measures will be determined by the appointed contractor during construction and in accordance with the relevant health and safety requirements.

4.12 ENVIRONMENTAL MANAGEMENT

4.12.1 Construction

A Construction Mitigation Register (CMR) will include monitoring, reporting and communication protocols to manage changes, as detailed in 2021 EIA Report, Chapter 21. Environmental Management and Monitoring. The CMR will be based on the Schedule of Mitigation in SEI Annex C. The CMR will set out the commitments in the Mitigation Schedule and any additional planning and licensing conditions. The CMR will form a part of tender documentation for a construction Contractor, who will be required to provide a dedicated 'Construction Environment Manager' to ensure compliance with the CMR during construction. The Construction Environment Manager will ensure all activities with potential to affect the environment are appropriately managed, and commitments made during the EIA process and relevant planning conditions are implemented. All identified environmental risks and necessary protection measures will be integrated into the contractor's method statements for all key construction activities. The contractor will also be required to produce a set of minimum control standards for sub-contractors working at the site.

4.12.2 Operation

As outlined in Section 4.9.1, in addition to the proposed operational staffing of the Spaceport, either CnES or the Spaceport 1 entity will also include one member of staff dedicated to habitat management for the site. This staff member will also be responsible for the coordination of any agricultural tenancies and the management of public access and amenity.

4.13 DECOMMISSIONING

This application seeks planning approval for a permanent project. Should the Spaceport close the containment and water tanks will be removed and the communications room demobilised. Access and parking infrastructure is proposed to remain in place to facilitate access to the site as an agricultural resource, public amenity access and any ongoing habitat management requirements.

[32] Detailed in the Outer Hebrides Core Paths Plan Outer Hebrides Core Paths Plan (CnES, 2010) as a 'Wider Path network' path and is not part of the Core Path network.

4.14 REFERENCES

Department for Transport. 2020. Guidance for the Assessment of Environmental Effects.

Department of Transport. 2020. Guidance for spaceport licence applicants and spaceport licensees; The Space Industry; Space Industry; UK Space Agency

LTPA. 2020. MoD Hebrides. Available online: https://www.ltpa.co.uk/SitesAndRanges/Hebrides. Accessed 02/10/2021.

Scottish Government, Scottish Natural Heritage, SEPA. 2017. Guidance on Developments in Peatland: Peatland Survey.

5 CONSULTATION PROCESS

A planning application and supporting EIA Report was submitted on 27 December 2021 with a stakeholder and public consultation period of 30 days from date of advertisement, which was extended for a further eight days. Comments and representations were received, with relevant requests for additional information forming the basis of a Request for Supplementary Environmental Information (SEI) from CnES Planning (received 01 September 2022), which has informed this SEI Addendum.

Further engagement with key regulators and stakeholders (CnES Planning, CnES Roads, CnES Archaeology Service, Health and Safety Executive (HSE), NatureScot, Royal Society for the Protection of Birds (RSPB), Scottish Water and the Western Isles Emergency Planning Committee Group) have been held to confirm the scope of requirements and clarifications for the SEI Addendum for a number of topic assessments, including Ornithology, Hydrology, Archaeology and Cultural Heritage, Landscape and Visual Amenity, Traffic and Transport and overall project design (building standards and road access requirements).

The SEI Request reflects information required to address queries arising from the determination process. The determination process considers feedback from statutory consultees, non-statutory consultees, an externally commissioned review of the EIA Report (commissioned by the Planning Authority) and representations from the public.

The content of the SEI Addendum, including comments arising from statutory and non-statutory consultees and feedback submitted to the developer following a review commissioned by CnES Planning, have been integrated into the consultation summary tables within each of the sections of the SEI Addendum. Representations received in response to the planning application were collated by CnES Planning and issued to the developer / consortium to provide an opportunity to respond. The collated representations, and the developer's responses are presented in SEI Appendix 5.2. Collated Public Representations (2022). The key themes raised by consultees are referenced in each section of the SEI Addendum and addressed individually within SEI Appendix 5.2.

6 APPROACH TO EIA

6.1 INTRODUCTION

The Approach to EIA is set out in Chapter 6 of the 2021 EIA Report. An external review of the EIA commissioned by the Planning Authority evaluated the scope, content and structure of the EIA in line with the Regulations and best practice. The content, and response to the output of the review is provided in Table 6-1.

Table 6-1 Feedback from CnES Planning (external review) relating to scope, structure, and content of the EIA

Consultee	Issue	Response	Section
CnES Planning (External Review)	It is noted that following the implementation of Short-Limited Duration Tenancy agreements to allow grazing and cutting, as well as proposed habitat enhancement measures, will modify the baseline environment from 2022. In undertaking our review of the EIA Report Lichfields will seek confirmation that this future baseline is acknowledged and taken into account.	Future baseline is assessed in the 2021 EIA Report: Chapter 14. Ornithology (14.8.1) and Chapter 15. Terrestrial Ecology chapter (15.8.4). Future baseline arising from the Short-Limited Duration Tenancy Agreement was a substantive consideration in these chapters only, at the time of writing. Further environmental information has been gathered to inform the SEI, and assessment of Future Baseline has been extended to other topics, where relevant, within the SEI Addendum.	SEI Section 7 to 20

Consultee	Issue	Response	Section
CnES Planning (External Review)	Whilst the EIA Report technical chapters include a consideration of cumulative effects in accordance with the reasonably foreseeable scheme identified within the Approach to EIA, there is no consideration of in-combination effects that may arise when the residual effects identified within each technical assessment chapter are considered in combination on each identified sensitive receptor. Whilst the EIA Report clearly presents the findings of a cumulative assessment (the scope for which is set out within Chapter 6 'Approach to EIA'), no consideration of the inter-relationship of effects has been found that attempts to identify the potential for secondary and synergistic effects against identified sensitive receptors. Undertake an assessment of the potential for in-combination effects on identified receptors. This may find that several 'not significant' effects, when viewed together, require the application of additional mitigation to be considered and implemented.	An additional section summarising all identified impacts in the EIA Report, evaluation of significance, and mitigations is collated. The collated table has formed the basis of an assessment of in-combination effects and is based on the updated information provided as part of the SEI.	SEI Section 22. Summary of Effects, SEI Section 23. Cumulative and In-Combination Effects
CnES Planning (External Review)	The EIA Report would benefit from an overall summary of residual effects, which could also be used to inform an assessment of in-combination effects (see above).	A summary of residual effects has been collated and accompanies this response.	SEI Section 22. Summary of Effects
CnES Planning (External Review)	For clarity it would be helpful if a summary table of residual effects against the receptors of relevance to each assessment is provided within the conclusions of each chapter. Some chapters do include a summary table, whilst others only provide descriptive text.		

Consultee	Issue	Response	Section
CnES Planning (External Review)	Update the NTS to provide discussion on cumulative effects and the potential for synergistic effects. It is also recommended that the NTS includes a glossary. The Applicant may also wish to update the NTS to reflect any other additional information provided as a result of comments to the main EIA Report.	An updated NTS in light of project revisions has been provided.	SEI Volume 4. Annex A Non-Technical Summary
CnES Planning (External Review)	Each technical chapter provides detail on the baseline conditions however the 'future baseline' is only discussed within some chapters. Ensure that the future baseline is considered for all environmental aspects that have been scoped into the EIA, even if it is to confirm that there is no change to the existing baseline.	Future baseline and any implications for the assessment is described for all relevant topics in the SEI Addendum.	Section 7 to 20.

Consultee	Issue	Response	Section
CnES Planning (External Review	The baseline sections within the EIA Report technical chapters provides a detailed description of the baseline environment however the sensitivity of identified receptors is not evaluated within all technical assessments. Ensure that the sensitivity of the receptors identified within the presentation of the baseline environment is stated.	Conclusions on significance made for all relevant receptors. Assessments that did not assess the sensitivity of receptors are: Chapter 8 - Landscape and Visual Chapter 9 - Land Use and Utilities Chapter 11- Transport and Traffic Chapter 20 - Climate Change Chapter 8, Chapter 9 and Chapter 11 are assessments that were originally scoped out of the EIA. Additional information was provided within these topics to ensure a comprehensive consideration of the development was available to the public. Chapter 8 and Chapter 11 assessments have been revised and submitted as part of the SEI Addendum. Chapter 20: it is acknowledged that this assessment (climate change) did not assess the sensitivity of specific receptors as part of the assessment. As indicated in Section 20.6.1, the approach for this assessment was 'high level' due to the small scale of the proposed construction and operational requirements. No issues were raised from statutory stakeholders on the approach.	N/A
CnES Planning (External Review	One determinant that we query is whether it is appropriate to assume a minor significant effect where the magnitude is medium and the importance is also medium. Our experience in this category is that further professional judgement is required as in some instances the effect may be significant – and we welcome that the supporting text to Table 6.2 notes that the table provides a guide and is not intended to be prescriptive.	No assessment has identified *medium* importance, *medium* magnitude, and minor significance for any receptor/impact. The matrix is a guide only. All impact assessment rationale and justification for the conclusions is provided in-text, this approach is specifically set out in some good practice documentation (e.g., CIEEM, 2018).	Updated EIA methodology adopted into Section 7 Socio Economics which replaces Chapter 7 of the 2021 EIA Report.

Consultee	Issue	Response	Section
CnES Planning (External Review)	Update the 'Impact Overview (Without Mitigation)' sections within the technical assessment chapters to identify the potential effect and its significance prior to the application of mitigation. This will allow an understanding of the influence of the mitigation on the significance of effect and the extent to which the mitigation is able to reduce the effect.	The approach taken in the EIA chapter attempts to avoid being unnecessarily lengthy and focuses on describing the impact without mitigation in the 'Impact Overview' heading. Various best practice documents interpret this requirement differently e.g., Section 5.2 of CIEEM guidance (CIEEM, 2018) states: *"In EcIA it is only essential to assess and report significant residual effects that remain after mitigation measures have been taken into account. However, it is good practice for the EcIA to make clear both the potential significant effects without mitigation and the residual significant effects following mitigation, particularly:* *a) where the mitigation proposed is experimental, unproven or controversial; or* *b) to demonstrate the importance of securing the measures proposed through planning conditions or obligations".* No further information required/requested as part of the SEI request.	N/A

Consultee	Issue	Response	Section
CnES Planning (External Review)	Whilst the EIA Report clearly identifies mitigation, monitoring and other environmental management measures that are to be applied, there is no clarification on how the mitigation will be secured (e.g., by planning condition/legal agreement/separate licensing or consenting regime etc) and/or who is responsible for delivering the mitigation (e.g., the developer/contractor/future users of the facility etc). Confirm how the mitigation will be secured and who is responsible for delivering it.	The EIA Report mitigation descriptions reference the measures that will be delivered by the regulatory regime, and the enforcement of specific launch conditions via both the Spaceport Licence and Launch Licence, where necessary. The text within the mitigation measures set out specific responsibilities, where relevant, e.g., Construction Environment Manager to enforce construction mitigation commitments, Environment Manager to deliver the Habitat Enhancement and Management Plan etc. The Planning Authority is responsible for determining which mitigations should be set as a planning condition, and interpretation of these mitigations as planning conditions in the EIA Report may not be in line with that of the planning authority. The Schedule of Mitigation is resubmitted as part of the SEI Addendum with details of the relevant regulatory/licensing regime and responsible parties for delivery. A statement is also provided on the anticipated legal arrangement that will be in place relating to a Unilateral Planning Obligation under section 75 of the Town and Country Planning (Scotland) Act 1997 in order to secure the mitigation measures referred to.	Updated Schedule of Mitigation provided in SEI Annex C.

Consultee	Issue	Response	Section
CnES Planning (External Review)	Expand the Site Location description within EIA Report Section 4.2 to make it clear that whilst the 'red line boundary' extends to 1.7 ha of land, there is a much wider zone of influence that could be affected by the development due to the nature of launching sub-orbital LVs. The description should also include an overview of the key environmental aspects relating to the site including designations and other receptors within the site and its immediate surroundings. It is noted that this information is provided within the specific technical assessment chapters, however it would be helpful to have a summary overview at the outset of the EIA Report for ease of reference.	It is acknowledged that the Project Description initially describes the terrestrial aspects of the development in the 'Project Location' Description. This is to reflect the nature of the planning application for the Spaceport infrastructure under the relevant planning legislation. A full summary of the project, including the marine area of influence, is provided shortly after this in the Project Summary in Section 4.4, and illustrated in Figure 4.4 of the 2021 EIA Report. Section 4 updates Chapter 4 of the EIA Report, including a modification to the description of the development to include the complete marine area. The impact on the marine environment is fully assessed in a number of relevant technical assessments including dedicated chapters on Marine Users and Assets and Marine Ecology.	SEI Section 4 – Project Description
CnES Planning (External Review)	Should any amendments be required to the scheme [as a result of consultation comments] these will need to be considered and presented through an EIA Report Addendum, or Supplementary EIA Report.	The Regulations are clear that supplementary information (in the form of Supplementary Environmental Information (SEI)) should represent information that is directly relevant to reaching a reasoned conclusion on the significant effects of the development on the environment.	N/A
CnES Planning SEI Request 01/09/2022	Requested an assessment of cumulative impacts, both in terms of the potential cumulative impact of the application project combined with the impacts of other planned projects, and the potential cumulative impact of different identified residual effects of the project on a single receptor – such as noise, visual and transport impacts.	An additional section summarising all identified impacts in the EIA Report, evaluation of significance, and mitigations is collated. The collated table has formed the basis of an assessment of in-combination effects and is based on the updated information provided as part of the SEI.	Section 22. Summary of Effects, Section 23. Cumulative and In-Combination effects

7 SOCIO ECONOMICS

7.1 INTRODUCTION

This assessment has been collated to support the request for Supplementary Environmental Information (SEI) under Regulation 26 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, issued by Comhairle nan Eilean Siar (CnES) Planning on 1 September 2022. The assessment supersedes, updates and expands the original Chapter 7. Community, Recreation and Tourism of the Environmental Impact Assessment (EIA) Report submitted to support the planning application for a spaceport in North Uist[33] (the 2021 EIA Report). The assessment has been collated by Atlantic58 and draws on the original assessment undertaken by Aquatera, presented in the 2021 EIA Report and is supported by SEI Appendix 7.1: Socio-Economic Analysis.

Following examination of the EIA Report by CnES Planning and assessment of representations by the public and externally commissioned reviews, the chapter (and supporting information) has been fully revised in line with feedback. Table 7-1 summarises the relevant feedback received relating to the socio-economic assessment. The main modifications are:

- Socio Economic Analysis: economic impacts of the project were previously presented in Appendix 7.1: Socio-Economic Analysis of the 2021 EIA Report, undertaken by MKA Economics in support of the planning application. The report has been updated in line with feedback from CnES Planning and an externally commissioned review (SEI Appendix 7.1: Socio-Economic Analysis). Comments from CnES Planning and the externally commissioned review are detailed in Table 7-1.
- EIA Methodology: the findings of the report are interpreted in the context of EIA. The assessment has been expanded to provide greater consideration of the potential social impacts and adopts a more detailed assessment methodology.

This section should, where applicable, be considered in conjunction with the updated Section 8: Landscape and Visual Impact Assessment (which updates Chapter 8 of the 2021 EIA Report), and Section 11: Traffic and Transport (updates Chapter 11 of the 2021 EIA Report) which form part of the SEI. It should be noted that potential impacts for these receptor topics were previously scoped out of the EIA. In line with feedback arising from the determination process of the 2021 EIA Report planning application, a full Landscape and Visual Appraisal has been provided to support the application in line with the SEI. The Outline Habitat and Amenity Management Plan (HAMP, Appendix 7-2 of the 2021 EIA Report) sets out the key principals in the future management of the Scolpaig Farm site including habitat enhancement, grazing activities and public access and recreation.

7.2 STUDY AREA

The social and economic impacts of a project may impact a wide area, particularly for rural island communities that can have different vulnerabilities to impacts or may experience more intensified impacts relative to population size. For the purposes of this assessment, local impacts (West North Uist to Baleshare) - focusing on the individual data zone of S01009021, as defined by the Scottish Government - are adopted where possible (Scottish Government, 2016). This data zone represents the smallest area of available data. Some assessments are made in the context of the sub-regional context of North Uist, i.e., 'Benbecula and 'North Uist' to represent the wider island of North Uist. Finally, the assessment of the Western Isles is represented at regional level. The contribution of the proposed development to wider policy objectives and national strategy are considered in Chapter 2 of the 2021 EIA Report (Legislation and Policy).

The socio-economic appraisal provided in SEI Appendix 7.1 is based on an initial three-year period, from 2023/24 to 2025/26, and covers 24 launches in total over this period. This is based on six launches in 2023/24, eight launches in 2024/25 and ten in 2025/26.

[33]Planning Reference 21/00646/PPD

7.2.1 Data gaps and uncertainties

Assessment Methodology

Rural, specifically island environments, experience a unique set of circumstances that may require distinct consideration in social and economic assessments. Specific issues around connectivity, geographical isolation, a distinctive sense of identity / tradition and dispersed populations may intensify the magnitude of specific impacts in contrast to other mainland or urban environments. Consequently, baseline conditions may not always be accurately represented in some socio-economic methodologies, which may be experienced differently in rural and/ or island environments. The methodology and associated assessment criteria have been developed based on a review of literature and other projects, described in more detail in Section 7.4 below. Given the limitations present in the accurate characterisation and sensitivity of receptors in the context of an island environment, the tables (Table 7-2 to Table 7-6) represented in section 7.4 provide an indicative guide for assessing impacts only, and accompanying text provides the context and rationale for the overall assessment of impacts.

COVID-19 and Wider Macroeconomic Uncertainties

The impacts of COVID-19 from a social and economic perspective have not been fully characterised due to the recent nature of the pandemic, and baseline data may not fully reflect the legacy of wide-reaching impacts from this event. At the time of writing, many of the restrictions had been lifted. However, following COVID-19 restrictions, the UK economy has witnessed a number of wider macroeconomic challenges, which can result in statistics being rapidly out of date, notably the inflationary crisis as a result of the ongoing war in Ukraine, post COVID-19 recovery. Similarly, there are ongoing labour market issues arising from Brexit. Relevant and most recent statistics have been adopted, where possible; however, a number of the assumptions outlined in the assessment may quickly go out of date.

Timescales

The economic assessment is based on the initial three-year period of operation only. The level of employment and resultant Gross Value Added (GVA)[34] may be greater in future periods depending on market conditions and the performance of Spaceport 1. The predictions presented in Year 3 are considered optimal for ongoing function of the Spaceport and any changes to the predicted full-time equivalent (FTE) and other metrics (GVA, Turnover) are likely to be within the bounds of variability.

Assumptions

Construction Turnover

Assumptions have been made in terms of retention of turnover within the Outer Hebrides (75%) and wider Scottish economy (25%). These discussions are based on a review of the type of capital works required and the skillsets and resources within the Outer Hebrides. The proposed construction scheme does not require specialist skills, and both the skills and resources are available within the Outer Hebrides, should local companies wish to tender for the proposed works. Total upfront capital investment costs are anticipated to be around £3.1 million. This is based on a review of the Spaceport 1 Business Case, updated in October 2022. Spending on construction related activities will provide opportunities for the construction and civil engineers sector in the Outer Hebrides, the Highlands and Islands and Scotland.

Project Personnel

Estimations of project personnel are based on prescriptive regulatory requirements set out in the Space Industry Act 2018 and an estimation of operational requirements. Personnel requirements include a part-time component associated with each launch event (e.g., security) in addition to permanent staff. The novel nature of the development as a sub-orbital launch facility means that there is no direct

[34] GVA is an economic productivity metric that measures the contribution of a company, producer or development to an economy or region. It provides a monetary value for goods and services that are produced in an area, minus the cost of all inputs directly attributable to that production (Glasson *et al* 2020).

comparator for personnel requirements; however, comparisons are drawn with the Shetland and Sutherland launch facilities to calibrate estimations in line with the proposed scale of the operations.

Business Tourism

Business tourism (number, spend and stay of business visitors) is complex to assess given the wide variety of launch types, profiles and operators. A standard business tourism profile per launch has been assumed. For the purposes of this assessment, and in consultation with Spaceport 1, the assessment has assumed that for each launch, around 10 business visitors will travel to and remain on the island for around eight nights. It should be noted that this is a conservative estimate and the number of business visitors, and the duration of their stays may vary.

7.3 SUPPORTING SURVEYS AND STUDIES

7.3.1 Desk Study

SEI Appendix 7.1 of the SEI Addendum contains an updated supporting socio economic assessment undertaken by MKA Economics. The study presents a baseline of the local, and tourism economy, through to the completion of a socio-economic audit. Findings also estimate direct, indirect, and induced impacts for employment, income (wages/salaries) and GVA, and a commentary on any key wider socio-economic impacts of the project.

7.3.2 Consultations

Following submission of the planning application, feedback relating to the assessment were received from CnES Planning based on an external review of the EIA, and as part of a formal request for Supplementary Environmental Information. Key responses are listed in Table 7-1.

Table 7-1 Key issues raised by stakeholders during consultation

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning (External Review) Planning Determination	This baseline would have benefitted from further evidence on past trends and future projections by age cohort to underline the trends towards a more elderly local population.	These features are included in the updated assessment, there is now reference to population characteristics by age, and population projections with clear references to an ageing population.	SEI Appendix 7.1, section 3.15 – 3.19
CnES Planning (External Review) Planning Determination	The overview of the economic structure would have benefitted from evidence relating to past and projected change in employment levels and an overview of the value of each sector in terms of GVA (including evidence of past and projected figure change in GVA levels).	A high-level overview of the regional economy has resulted in a revised GVA, employment/unemployment and industrial breakdown, as well as an overview of ongoing economic challenge. Note the assessment is not a detailed socio-economic audit, but an overview drawing on current figures, trends and an overview of current challenges.	SEI Appendix 7.1, section 3.25 – 3.38
CnES Planning (External Review) Planning Determination	Construction costs are anticipated to be £2.8 million. It is estimated that 75% of this figure would be retained in the Outer Hebrides and 100% would be retained in Scotland. Clarity in terms of the sources of these figures is suggested.	A new construction cost profile was supplied in October 2022. It is inherently difficult at ex-ante appraisal stage as the contracts have not been detailed or tendered.	SEI Appendix 7.1, section 4.9

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning (External Review) Planning Determination	The report states that applying these shares to the construction costs would result in "the Outer Hebrides will benefit from around £2.1 million and Scotland from £2.7 million" (paragraph 4.10). It is not known why the figure for Scotland is less than the total construction cost of £2.8 million.	This reflected a reporting error and has since been rectified.	SEI Appendix 7.1, section 4.11
CnES Planning (External Review) Planning Determination	It is not clear why a figure for "turnover per GVA ratio" has been applied. We consider that a preferable approach to calculating construction employment would be to apply labour coefficients from the HCA. Calculating Cost per Job Best Practice Note (2015).	The metric should represent 'turnover per employee', and GVA per employee is then worked from this proxy. This has been updated in SEI Appendix 7.1. This is the standard manner to convert turnover to employment, drawing on the latest Scottish Annual Business Statistics (SABS, 2020 publication presenting 2018 figures) to convert turnover to jobs to GVA. This is considered the most up to date and accurate measure. The same source is used on all HIE and Space economic impact assessments.	SEI Appendix 7.1, section 4.12
CnES Planning (External Review) Planning Determination	The socio-economic assessment applies an average GVA per construction job of £45,476 in the Outer Hebrides. The source of this figure is not known and should be referenced. It equates to 90% of the Scotland-wide average of £50,440 as provided by Experian (March 2020), which is not unreasonable. Given that the employment impact of the construction phase has been underestimated, we consider that the GVA impact is also likely to have been underestimated.	This is the same source as referenced in the preceding paragraph (SABS, 2020). It is the most up to date and local level figure. It is used across all HIE assessment and other Scottish Enterprise assessments. The Experian figure is from a private market research firm and is not an official statistic, unlike SABS. The latest figure has been used, and this has been updated in the October 2022 version.	SEI Appendix 7.1, section 4.12
CnES Planning (External Review) Planning Determination	The analysis sets out the turnover, GVA and income effects arising from this level of employment. The source of the income figures has not been provided. The report would benefit from further clarity in this regard.	The income represents wages and salaries. These are drawn from Spaceport 1's own financial modelling and business case.	SEI Appendix 7.1, section 4.12
CnES Planning (External Review) Planning Determination	Rounding to the nearest £0.1 million results in a lack of clarity as to the precise economic impact of the proposed development.	The tables have been altered to include a further decimal point to provide more detail.	SEI Appendix 7.1, Table 4.1 – Table 7-1

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning (External Review) Planning Determination	The economic assessment states that the facility has the potential to generate business tourism. Further evidence is required to support the assumptions regarding the number of business visitors associated with each launch and the duration of each stay.	These projections were developed through consultation with the Spaceport 1 team and a range of launch vehicle operators. Predictions have since been updated in line with the business case. Assessment is prudent in approach for assuming a standard profile per launch.	SEI Appendix 7.1, section 4.23 – 4.24
CnES Planning (External Review) Planning Determination	Calculation of economic impacts arising from the business tourism associated with Spaceport 1 does not appear to be supported by the figures that are set out in the report.	This related to an editing issue in final report. This has been rectified.	SEI Appendix 7.1, section 4.25
CnES Planning (External Review Planning Determination	Further clarification should be provided in respect of the business tourism effects arising from the proposed development.	This has been provided in the updated assessment in SEI Appendix 7.1	SEI Appendix 7.1, sections 4.23 – 4.24
CnES Planning (External Review) Planning Determination	Assessment of gross direct impacts draws together the figures relating to permanent activity, launch activity and business tourism, impacted by the assessment approach described above.	Edits noted above are addressed in the relevant tables and analyses in SEI Appendix 7.1.	SEI Appendix 7.1, sections 4.26 onwards
CnES Planning (External Review) Planning Determination	The scale of the potential economic impact that has been reported by the Western Isles Fisherman's Association and Outer Hebrides Regional Inshore Fisheries Group are neither referenced nor considered in the Socio-Economic Impact Assessment. This results in an incomplete position regarding the potential impact of the proposed development on existing economic activity in the area.	Western Isles Fisheries Association (WIFA) were engaged to outline the proposed development and potential impacts on maritime users (27-09-21). WIFA indicated that there would be a financial impact on fishermen; however, no evidence was provided to inform claims of financial disruption. To address potential issues which may arise as a result of the temporary implementation of exclusion areas, a dedicated fisheries forum will be established to maintain communication between the Spaceport and the fishing community, including the use of local vessels as patrol or guard vessels. The impact assessment has concluded no significant effects for the level of disruption expected.	Chapter 13 (2021 EIA Report)
CnES Planning (External Review) Planning Determination	No clear justification has been given for the deadweight and displacement adjustments that have been applied in respect of launch activities and business tourism. Further information would be useful in this regard	No gross to net adjustments have been made regarding site management and business tourism figures, as none of this activity would take place in the absence of the proposed development. It is therefore all on-island and	SEI Appendix 7.1, sections 5.2 – 5.4

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning (External Review) Planning Determination	Concerns regarding the approach that has been taken to the application of adjustment factors in order to identify the net impacts.	additional. Launch activity revenues will accrue at different spatial levels. Discussions with Spaceport 1 estimate 80% will accrue in Scotland, 50% in Highlands and 15% within the Western Isles.	
CnES Planning (External Review) Planning Determination	Recognition that displacement/deadweight factors may differ at the various spatial scales and there is merit in reflecting this within the analysis. However, before applying these factors to identify the net direct impacts, the assessment should apportion the gross impacts to each spatial	This model is consistent with HIE assessment methodologies, in terms of calculating the gross effects across activity areas at the spatial levels, prior to adjusting for multiplier effects at each spatial areas, then making an adjustment for where impacts will accrue. Launch activities as tourism effects are judged to be 100% additional.	SEI Appendix 7.1, sections 5.2 – 5.4
CnES Planning (External Review) Planning Determination	GVA multiplier of 2.3 has been applied to turnover and income but there is no evidence that this is a reasonable assumption. In the absence of any such clarity, we would recommend focusing the calculation of indirect and induced impacts on employment and GVA, for which reliable multipliers are available	The GVA adopted is the industry standard multiplier for space activities and there is nothing comparable for the space sector at the Scottish level. These are drawn from the Size and Health Report of the UK Space Industry 2021) (UKSA, 2022). The space research is the most accurate source for assessing the multiplier effects of space related activities.	SEI Appendix 7.1, sections 6.1 – 6.2
CnES Planning (External Review) Planning Determination	It is assumed that the multiplier at the Highlands and Islands scale will be 50% of the Scottish figure and that the multiplier for the Outer Hebrides will be 33% of the Scottish figure. No evidence is provided to support this assumption.	This metric is standard across all HIE studies – as there is no regional or local multipliers, and professional judgement is made. These proxies, and their reduction, are the same as those deployed on all HIE space studies in the Highlands and Islands.	SEI Appendix 7.1, sections 6.1 – 6.2
CnES Planning (External Review) Planning Determination	The document has not been prepared as an ES chapter for which an assessment of the significance of effects is required. It would have benefitted from an indication of how the extent to which the proposed development would benefit the local economy.	Findings of the socio-economic assessment are integrated into an updated Section 7 of the SEI as part of the Request for Supplementary Environmental Information.	Section 7 (SEI Addendum)
CnES Planning (External Review) Planning Determination	The economic impacts associated with Spaceport 1 are set in the context of two orbital launch sites. We would question whether a 50% variation can reasonably be described as being of a similar magnitude, but we recognise that the sub-orbital nature of Spaceport 1 means that these other launch sites do not represent a like-for-like comparison.	High level summary comparison table, and caution should be taken when reviewing as all the sites are different in their capital expenditure (Capex), operational expenditure (Opex) and launch profiles. Further information has been supplied for context in the Appendix.	SEI Appendix 7.1

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning 01/09/2022 (SEI)	Clarify scoring methodology for the significance of impacts.	Full and revised EIA methodology adopted to support the assessment of significance.	Section 7.4
CnES Planning 01/09/2022 (SEI)	Clarify level and type of access during site construction and operations, including launch event preparations, the launch and demobilisation.	Clarification of construction access arrangements provided. Clarification of access during operation of the spaceport across the four 'tiers' of site operational activity provided.	Section 7.8.3 Section 7.9.4
CnES Planning 01/09/2022 (SEI)	Confirm whether the use of the access track from the public road to the farmhouse will be available during these times.	Clarification of access arrangements across the following four 'tiers' of site operational activity provided.	Section 7.8.3 Section 7.9.4
CnES Planning 01/09/2022 (SEI)	Clarify housing demand likely to arise from the levels of employment likely to be generated is intended to be addressed.	Assessment of impact on housing and social infrastructure provided based on Spaceport 1 personnel requirement forecasts.	Section 7.9.8
North Uist Community Council (NUCC) Planning response	The lack of vehicle access to the farmhouse is deemed detrimental to ensuring appropriate access by all sectors of the community and the Comhairle should at least reconsider provision of disabled vehicle access.	The 'kissing gate' will be replaced with a pedestrian gate to enable improved access for recreational users of limited mobility. An additional 10 parking spaces will be installed (including a disabled space) and these will be available to the public unless launch restrictions are in place. A Habitat and Amenity Management Plan (HAMP) will set out a series of actions for ecological and amenity improvement. Unrestricted access by vehicles has the potential to create disturbance on wildlife / damage habitats. Any decision to allow vehicular access by the community would need to be taken in conjunction with the tenant crofter, statutory consultees, and the Royal Society for the Protection of Birds (RSPB) to ensure that an appropriate management plan (with mitigation) is in place.	Section 7.9.8
NUCC Planning response	There is however some scepticism that the number of projected FTE jobs will materialise and that they will manifest as full-time roles in North Uist – or elsewhere in the local area.	Socio-economic analysis revised and presented as an Appendix to the SEI. The jobs referred to in the Socio-Economic Report (21 in year one, growing to 25) are jobs based on proportionate projections based on other spaceport facilities. Employment will be a mix of full and part-time.	Section 7.9.1

Stakeholder	Comment	Response/Action taken	Section cross-reference
	It is unclear as to where full-time jobs will be located & if they will provide appropriate benefit to the local economy. Part time / short-term employment as may be required during periods of launch activity, whilst offering some benefit fall significantly short of the benefits of full-time employment as required to provide real positive impact. The Socio-Economic report is not convincing on this point and there has been no community consultation on socio-economic benefits.	Many of the roles are mandatory under the Space Industry Act (2018).	
NUCC Planning response	It is noted that the lack of suitable and available housing is a significant problem for businesses trying to recruit staff in the locality. Similar challenges can be envisaged for any job opportunities that are created via the Spaceport. The Comhairle are encouraged to consider provision of some land on the periphery of the site to facilitate the provision of housing; or otherwise, to consider how suitable provision can be provided.	General approaches to addressing housing availability are considered in the EIA based on employment projections.	Section 7.9.8
NUCC Planning response	We acknowledge there is a sizeable construction phase and would encourage that work is contracted wherever possible to local contractors.	The developers Procurement Policy will be adhered to during construction, including the requirement to local contractors if appropriate / possible. Approximately 75% of the construction contract is expected to be awarded to local contractors.	Mitigation COM04 (Table 7-7)

In addition, representations made by the public in response to the planning application were also received. The broad range of issues is summarised in the topics outlined below. A full response to each of the collated representations is provided in SEI Appendix 5.2. Collated Public Representations (2022).

7.4 ASSESSMENT METHODOLOGY

7.4.1 Approach to assessment

The general EIA process and methodology is detailed in the 2021 EIA Report. There is currently no prescribed methodology or standard guidance on the assessment of socio-economic impacts in EIA. Following consultation with CnES Planning, a modified version of the methodology developed by Oxford Brookes University to support offshore wind sector has been adopted for the assessment (Glasson *et al*, 2020) and methodologies / approaches set out in various 'thought pieces' by the Institute of Environmental Management and Assessment (IEMA). New assessment criteria have also been developed as part of this assessment. Although the scale and complexity of the proposed development is not comparable with an offshore windfarm, the methodology captures a wide range of economic and community impacts that can be generated by projects and may be intensified in the context of the highly rural island setting, and

professional judgement has been applied when applying the methodology. Reference has also been made, where necessary to the Environmental Impact Assessment Handbook (NatureScot, 2018), which sets out a methodology to assess impacts to outdoor access.

7.4.2 Assessment criteria

Identification of Receptors

Relevant receptors are identified based on the social and economic composition of the study area. Receptor sensitivity is defined based on the indicators set out in Table 7-2, including those set out in the Scottish Index of Multiple Deprivation (SIMD, 2020)[35].

Table 7-2 Receptor Sensitivity

Receptor sensitivity / importance	Description
High	Changes relating to the receptor considered a high priority in local, regional, or national economic regeneration policy. Evidence of direct and substantial socio-economic challenges including: Employment and Income: area with levels of unemployment more than regional/ national averages and high levels of relative deprivation (i.e., top 10% of employment and income domain rank). High levels of employment based on seasonal economic activity. GVA, Economy and Industry: data zone experiences a weak economic base which is concentrated on a narrow range of sectors, reliant on primary industries and / or public sector, with high levels of seasonality. Population and Community: receptor population is highly sensitive to changes to in-out migration effects, population isolated or very small and / or vulnerable to changes in the social and cultural composition. Recreation and Tourism: areas with a considerable shortfall of open and recreational space / poor quality resources, or tourist attractions of national importance, national cycle routes and national trails and no potential substitution. Connectivity (digital and geographic): areas with poor geographic and/or digital connectivity poor i.e., within the lowest 10% of geographic connectivity. Housing: areas with an acute housing shortage or lack of affordability. Community and Social infrastructure: areas within which social and community infrastructure (e.g., education, healthcare, and community facilities) have no capacity /are oversubscribed, and / or highly limited in extent and / or no alternative options. Natural resources: areas that are of high importance for the extraction of natural resources (e.g., fishing, agriculture, seaweed gathering). Protected cultural heritage and cultural resources: high levels of cultural, archaeological, and spiritual value attributed to area / specific language, education, laws and traditions. Education, Skills and Training: areas in the lower education / skills domain rank (top 10%) with poor access to training, further education, and skills development.

[35] Scotland is split into 6,976 small areas, called 'data zones', with roughly equal populations. The SIMD is formed from more than 30 indicators of deprivation, clustered into domains e.g., health, connectivity etc.

Receptor sensitivity / importance	Description
Medium	Change relating to the receptor has medium priority in local, regional, or national economic and regeneration policy. Some evidence of significant socio-economic challenges including: • Employment and Income: area with levels of unemployment above regional/ national averages and levels of relative deprivation (i.e., top 50%). GVA, Economy and Industry: data zone experiences a moderate to weak economic base which is concentrated on a moderate range of sectors / economy. Population and Community: receptor population is moderately sensitive to changes to in-out migration effects, population moderately isolated / small with some vulnerability to changes in social and cultural composition. Recreation and Tourism: areas with a shortfall of open and recreational space / moderate quality resources, or tourist attractions / recreational provision of regional importance and limited potential for substitution. Housing: areas with a moderate housing shortage and moderate affordability. Community and Social infrastructure: areas within which social and community infrastructure (e.g., education, healthcare, and community facilities) have limited capacity, may have some limitations in extent or alternative options. • Connectivity (digital / geographic): areas with moderate to low geographic and/or digital connectivity poor i.e., 50% of geographic connectivity. • Natural resources: areas that are of moderate to high importance for the extraction of natural resources (e.g., fishing, agriculture, seaweed gathering). • Education, Skills and Development: areas in the lower education / skills domain rank (top 50%) with moderate to poor access to training, further education and skills development. Protected cultural heritage and cultural resources: moderate to high levels of cultural, archaeological, and spiritual value attributed to area / specific language, education, laws, and traditions.
Low	Change relating to the receptor is accorded a low priority in local, regional or national economic and regeneration policy. Little evidence of socio-economic challenges, including: • Employment and Income: area with levels of unemployment in line with regional/ national averages and levels of relative deprivation (i.e., bottom 50%). • GVA, Economy and Industry: data zone experiences a moderately strong economic base which has good levels of sectoral diversity. Population and Community: receptor population is slightly sensitive to changes to in-out migration effects, or changes in the social and cultural makeup of affected communities. Recreation and Tourism: areas with a surplus of open and recreational space / high quality resources or recreational provision of local importance only. Connectivity (digital / geographic): areas with poor geographic and/or digital connectivity poor i.e., moderate to high decile of geographic connectivity. • Housing: areas with some limitation on available housing and affordability. • Community and Social infrastructure: areas within which social and community infrastructure (e.g., education, healthcare, and community facilities) have reasonable capacity with alternative options available. • Social Infrastructure: areas within which social and community infrastructure (e.g., education, healthcare, childcare and community facilities) have some capacity. • Training, Skills, and Development: areas in the higher education / skills domain rank (moderate to high decile) with reasonable access to training, further education, and skills development. • Protected cultural heritage and cultural resources: moderate to low levels of cultural, archaeological, and spiritual value attributed to area / specific language, education, laws, and traditions.

Receptor sensitivity / importance	Description
Negligible	The receptor is not considered a priority in local, regional, or national economic and regeneration policy. No socio-economic issues relating to a receptor, including: • Employment and Income: area with levels of unemployment less than regional/ national averages and low levels of relative deprivation (i.e., bottom 10%). • GVA, Economy and Industry: data zone experiences a strong economic base which has high levels of sectoral diversity. Population: receptor population has minimal sensitive to changes to in-out migration effects, or changes in the social and cultural makeup of affected communities. Recreation and Tourism: areas with a considerable surplus of open and recreational space / high quality resources, or, conversely, no provision of any tourism or recreational facilities to be considered as sensitive. Connectivity (digital / geographic): areas with poor geographic and/or digital connectivity poor i.e., within the highest 10% of geographic connectivity. • Housing: areas with minimal housing shortage, good quality housing and/or affordable. • Social Infrastructure: areas within which social and community infrastructure (e.g., education, healthcare, and community facilities) have substantial surplus capacity and good availability of alternative options. • Education, Skills, and Development: areas in the highest education / skills domain rank (top 10%) with good access to training, further education, and skills development. • Protected cultural heritage and cultural resources: low levels of cultural, archaeological, and spiritual value attributed to area / specific language, education, laws, and traditions.

Magnitude

The magnitude of an impact relates to amount and type of change (positive or negative) which includes the timing, scale, size and duration of the impact. General criteria for assessing magnitude are provided in Table 7-3. It is important to note that the criteria reflect basic metrics to guide assessment, and a full rationale for assigning magnitude for complex topics is justified in the supporting text for each impact.

Table 7-3 General criteria for assessing magnitude of an impact.

Magnitude	Definition
High	Proposed development would cause a large change to existing socio-economic conditions in terms of absolute and / or percentage change, such as: • Greater than 5% increase / decrease on existing baseline levels of employment. • Greater than 5% increase / decrease on existing baseline levels of GVA. • Greater than 5% increase / decrease of housing stock in relation to contribution to planning policy targets. • Greater than 5% increase / decrease in provision of open and recreational space. • Considerable increase / decrease in quality of open and recreational space. • Considerable increase in demand on social and community infrastructure with no capacity / decrease in demand on social and community infrastructure with ample surplus capacity • Adverse or beneficial irreversible, permanent change to tourist attractions of national importance. • Considerable decrease in community safety. • Considerable decrease in quality of life, community cohesion or community character / image and increase in societal problems (crime, deprivation, ill health). • Considerable increase in skills, education and training, across a diverse range of sectors / topics and accessible to a wide demographic or social group. • Considerable increase of net inward – outward migration / changes in population size.
Moderate	Proposed development would cause a moderate change to existing socio-economic conditions in terms of absolute and / or percentage change, such as: • 1% - 5% increase / decrease on existing baseline levels of employment. • 1% - 5% increase / decrease on existing baseline levels of GVA. • 1% - 5% increase / decrease of housing stock in relation to contribution to planning policy targets. • 1% - 5% increase / decrease in provision of open and recreational space. • Moderate increase / decrease in quality of open and recreational space. • Moderate increase in demand on social and community infrastructure with limited capacity. • Adverse or beneficial medium-term change to tourism attractions of regional importance. • Moderate decrease in community safety. • Moderate decrease in quality of life, community cohesion or community character / image and increase in societal problems (crime, deprivation, ill health). • Moderate increase in skills, education and training, across a reasonable range of sectors / topics and accessible to a more than one demographic or social group. • Moderate increase of net inward – outward migration / changes in population size.

Magnitude	Definition
Low	Proposed development would cause a minor change to existing socio-economic conditions in terms of absolute and / or percentage change, such as: • 0.1% - 0.99% increase / decrease on existing baseline levels of employment. • 0.1% - 0.99% increase / decrease on existing baseline levels of GVA. • 0.1% - 0.99% increase / decrease of housing stock in relation to contribution to planning policy targets. • 0.1% - 0.99% increase / decrease in provision of open and recreational space. • Limited increase / decrease in quality of open and recreational space. • Limited increase in demand on social and community infrastructure with surplus capacity. • Adverse or beneficial short-term change to tourism attractions of local importance. • Minor decrease in community safety. • Minor decrease in quality of life, community cohesion or community character / image and increase in societal problems (crime, deprivation, ill health). • Low increase in skills, education and training, across a limited range of sectors / topics and accessible to a one demographic or social group. • Minor increase of net inward – outward migration / changes in population size.
Negligible	No discernible change in baseline socio-economic conditions.

Significance of effect

Effects can be considered significant at a range of scales from international to local. This assessment has considered regional and local impacts for economic impacts, and local impacts for social impacts only. Significant effects are qualified with reference to an appropriate geographic scale. For example, where there is a significant effect on local employment levels within an island, many are not significant at a regional scale. Table 7-4 and Table 7-5 provide an indication of how significance is determined based on the receptor of the sensitivity and magnitude of impact. The matrix table provides a guide for the assessor only and is not intended to be prescriptive.

Table 7-4 Significance of effect (adverse)

	Magnitude			
Importance/ Sensitivity	**High**	**Medium**	**Low**	**Negligible**
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Moderate	Minor	Negligible
Low	Minor	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Table 7-5 Significance of effect (beneficial)

	Magnitude			
Importance / Sensitivity	**High**	**Medium**	**Low**	**Negligible**
High	Major	Moderate	Minor	Negligible
Medium	Moderate	Moderate	Minor	Negligible
Low	Minor	Minor	Negligible	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

7.5 BASELINE DESCRIPTION

7.5.1 Introduction

North Uist lies in the centre of a major island chain in Scotland, known as the Outer Hebrides or the Western Isles (Na h-Eileanan Siar), with neighbouring islands in the chain including Lewis, Harris, Benbecula and South Uist. North Uist comprises of the island of North Uist with inhabited islands Grimsay, Baleshare and Berneray, all of which are linked by causeway. A ferry link connects the island's principal village and ferry terminus of Lochmaddy to Uig on Skye, and from Leverburgh in Harris to Berneray. Scolpaig is situated on the north-west coast of North Uist and is known for its beautiful coastline and scenic landscape. The area is surrounded by several small settlements including Griminish, Tigh a' Gearraidh, Middlequarter, and Ceann a' Bhàigh.

The main islands of Na h-Eileanan Siar consist of Lewis, Harris, The Uists, and Barra. The total population of the 15 inhabited islands is 26,500 as of 2020 (CnES, 2021b). The largest settlement is Stornoway on Lewis, with a population of around 7,000 (CnES, 2021b). Stornoway is the third largest island town after Kirkwall in Orkney and Lerwick in Shetland.

7.5.2 Employment and Income

Regional

A higher proportion of people living in the Western Isles are more economically active, more predominantly in positions of middle and lower skills, are lower paid, and are in receipt of fewer out-of-work benefits compared to Scotland. Employment at a regional level is 13,100 (79.7%) (Nomis, 2022). The earnings of those in full-time employment in the Western Isles are slightly lower than Scotland as a whole. Hourly pay follows this trend, with £14.60 in the Western Isles compared to £15.36 in Scotland as a whole. Perceptions of employment were recorded in a recent (2022 undertaken by HIE (HIE, 2022), with 74% of Western Isles residents indicating that people are leaving their local area because they can't find work, higher than the region overall at 47%.

Local

According to the Scottish Index of Multiple Deprivation (SIMD, 2020), the population of the west of North Uist (data zone S01009021) is 700, of which 56 % are of working age. There is a higher percentage of retired people in the Western Isles (18.9%) compared to Scotland as a whole (14.2%), indicative of the socio-economic challenges of remote rural and island communities supporting an ageing population. No 'economically active' statistics were available at the local level; however, based on the assumption of similar levels of economic activity at the local level (SIMD), of the population of 700, approximately 553 people are assumed to be economically active.

The levels of those income-deprived and unemployed in West North Uist to Baleshare and Benbecula and North Uist are slightly lower than both the Western Isles and Scotland. Gross weekly pay is, on average, £562 across the Western Isles compared to £595 in Scotland as a whole. The income domain rank is 4000 which places the North Uist and Benbecula zone in the 6th decile. The employment domain rank is 4191 which again places the region in the 7th decile.

Employment levels are slightly higher than average and more of the workforce is economically active both at the local and regional level; however, income levels at the local and regional level are lower than average. The assessment of the sensitivity / importance of employment and income is classified as **medium** at both the local and regional scale**.**

7.5.3 GVA, Economy and Industry

The Western Isles total GVA output was around £211 m in 2020, compared to £174 m in 2010, representing a 21% increase over the decade (Scottish Annual Business Statistics, 2020), this compares with zero growth reported in GVA over the same period at the national level. Although GVA output levels have improved over the last decade, the GVA per head in the Western Isles is significantly below the national level, regionally it is around £30k compared to £45k nationally.

Primary industries (those concerned with natural resources) are of a lower proportion compared to the rest of Scotland (NOMIS, 2022). In secondary industries, there is a higher proportion in manufacturing, construction, and transportation and storage. The tertiary sector (professional, financial, information, and technology) are lower by substantial margins compared to Scotland on average. Tourism related activities (accommodation, food, and drink) have higher proportions compared to Scotland on average.

North Uist Community Development Plan (North Uist Development Company, 2018) indicates that the Hebrides, including North Uist, has a weak economic base which is concentrated on a narrow range of sectors, and is especially reliant on primary industries and the public sector. Industries within the public sector such as education, public administration, defence, social security, human health, and social work are of a higher proportion in the Western Isles than compared to the rest of Scotland, which suggests a disproportionate dependence on the public sector. The sensitivity of GVA, Economy and Industry as a receptor could be evaluated as low, given the strong growth of the economy over the last decade; however, the high levels of seasonality and focus on a moderately narrow sectoral base increases the overall evaluation of importance sensitivity to **medium** at the local and regional scale**.**

7.5.4 Population and Community

The population of the West North Uist to Baleshare district is 700 in 2020 (SIMD, 2020). The population of North Uist (together with Berneray and Grimsay) was 2,905 in 2018, of which there are around 300 residents in the main village of Lochmaddy. The population has fallen by 2% since 2011 (Outer Hebrides Community Planning Partnership; OHCPP 2018). The mid-year population estimate for the Western Isles overall in 2020 was 26,500, which was a decrease of 0.8% from mid-2019 to mid-2020 (CnES, 2021b).

Demographically, the population of the Western Isles is ageing with a continuing trend of young adults leaving the islands for further education or employment. Over the last ten years (between 2010 and 2020) in the Outer Hebrides there has been a decrease of 1,100 persons (-4.0%) (CnES, 2021b). In 2020, over 1 in 4 individuals (26%) was aged 65 and over (CnES, 2021b). Due to a falling birth rate and ageing population, there is an uneven age profile compared to the rest of Scotland, with a higher percentage of the population being of pensionable age (Western Isles 25%, Scotland 19%), and a lower percentage of those who are working age (Western Isles 59%, Scotland 64%). Over the period of 2018 – 2043 it is predicted that the Western Isles will have the largest decrease in households across Scotland's Local Authorities of 11%. In 2018, one-adult households were predicted to be the most common throughout the Western Isles (41.8% of total households), and this is projected to continue with the number of family households declining (CnES, 2021a). North Uist Community Development Plan (NUCC, 2018) sets out concerns that the current economy is insufficiently diverse to sustain a young, educated population. Coupled with a lack of well-paid jobs, this plan suggests that those in the age ranges of 15-29 are disproportionally among those who leave the island.

The local community around Scolpaig is based within a geographically isolated location in North Uist served by the A865, which follows the coast from Kirkibost to Lochmaddy, with a spur via a causeway to the island of Bernera. The sensitivity of local population to changes is classified as **high** at a local scale, due to the existing issues around population demographic, trend of outward migration of young people and a small, isolated, and dispersed population.

7.5.5 Recreation and Tourism

Context

In 2017, the islands received 219,000 visitors, adding £65 m to the economy of the Outer Hebrides and accounting for 10-15% of economic activity on the islands. Tourism directly supports the equivalent of 1,000 full-time jobs on the islands. It also plays a significant role in supporting other sectors, with retailers and restaurants in Stornoway obtain up to 40% of their sales from visitors. The industry is growing at around 5% p.a, the approximate split of tourism numbers are Lewis (45%), Uist (25%), Harris (20%) and Barra (10%). Over 80% of visitors to the Outer Hebrides are from the UK, with the majority coming from other parts of Scotland. The industry remains seasonal, though the season has extended significantly in recent years, from three to four months a generation ago to seven to eight months now (SEI Appendix 7.1 Socio-Economic Analysis).

The Western Isles landscape offers opportunities for a wide range of recreational activities to be undertaken by both residents and visitors. The scenery, coastline, history and wildlife of the Western Isles provide a major focus for much of the outdoor recreational activities and economic activity. The project site is directly adjacent to the South Lewis, Harris and North Uist National Scenic Area (NSA; see Section 8 of the SEI: Landscape and Visual Assessment and associated visuals for reference to the Project's Zone of Theoretical Visibility in relation to the NSA). The Outer Hebrides Visitor Survey 2017 reported that a respective 15% and 7% of respondents identified a specific sport or activity and interest in archaeology as their motivation to visit the Western Isles (CnES and Visit Scotland, 2018). The same survey also reported the following tourist attractions as the most popular for visitors to North Uist and the neighbouring island of Berneray:

- Balranald Nature Reserve (29% of survey respondents): managed by the RSPB. The reserve is composed mainly of sand dunes, coast, and ocean habitats and is a particular draw for bird enthusiasts to experience the rare corncrake. Access to the nature reserve is off the A865, where car parking is available by the RSPB information centre just outside the village of Hougharry/ Hoga Gearraidh (approximately 5 km from the proposed development at Scolpaig). On the reserve there is a waymarked trail which takes the visitor around 4.5 km of coastline. The Balranald RSPB Reserve Route forms Core Path no. 18 in the Outer Hebrides Core Paths Plan (CnES, 2010).
- St Kilda viewpoint (24%): located at Clettreval Hill approximately 4.33 km south-west from the Project site, this viewpoint looks out to the World Heritage site of St Kilda archipelago.
- The Hebridean Smokehouse (24%): a smokehouse and gift shop located in Clachan, approximately 13.64 km south-east of the Project site.

Boat tours throughout the Western Isles are popular with tourists with trips available to St Kilda, Mingulay, the Shiants, Flannan and Monach isles (departing from various locations). Navigational impacts associated with launch operations are assessed in Chapter 13 of the 2021 EIA Report (Marine Users and Assets). Within a 5 km radius of the Project site there are 12 Scheduled Monuments of cultural heritage importance (Section 10: Archaeology and Cultural Heritage provides a more detailed baseline description and assessment of potential impacts on archaeological and cultural heritage assets).

Project Site

Recreation and tourism amenities in the vicinity of the Project site are presented in Figure 7.1 of the 2021 EIA Report. Under previous private ownership, public access through Scolpaig Farm was not facilitated despite the presence of existing footpaths in the area as part of the wider path network.[36] There is anecdotal evidence from survey visits that since spring 2019, following the purchase of the farm by CnES, there has been a marked increase in recreational activity (see further details in Chapter 14: Ornithology and Chapter 15: Terrestrial Ecology). Pedestrian access is currently maintained on site in accordance with the Land Reform (Scotland) Act 2003. A "kissing gate" was installed at the end of the Scolpaig track, which facilitated pedestrian access through the site, while the main gate is locked to discourage vehicular access. Limitation of vehicular access serves to avoid disturbance to ground-nesting birds (including corncrake)

[36] It should be noted that the existing wider path network is currently not signposted / marked on the site and is indicative only.

throughout the machair habitat, and to ensure recreational access is compatible with any agricultural lease for the site. It is important to note that there are currently no formal parking or other facilities available at Scolpaig.

Scolpaig Farm is used by islanders and tourists for walking, birdwatching and photography. The sandy beach at Scolpaig Bay and routes from the farmhouse along the coast, out to Griminish Point and to the summit of Beinn Scolpaig (each just less than 1 km north and north-west of Scolpaig Farm) appear to be especially popular, as well as a "geo" inlet feature to the north of the site. There are no Core Paths within the site; however, the wider path network follows the coastal perimeter of the site with connections south to the A865 via Scolpaig Farm (following the farm access track) and Griminish to the east (following the wider path network track which traverses Beinn Scolpaig). Figure 7.2 in the 2021 EIA Report presents the wider path network and its indicative route through the Project site boundary, as well as the proposed minor rerouting of the path between the Scolpaig farmhouse and planned vehicle turning area. There are several alternative walking areas for beach visits (described in 'Marine Environment' below). Similarly, the same area includes extensive inland open space for walking (e.g., the hills of Beinn Riobhach, Beinn Bhanasaradh and Cleitreabhal a Tuath).

Fisheries

North Uist is a key destination for recreational and sporting anglers with the brown trout, sea trout and salmon season open from mid-March to the end of October. North Uist Angling Club have rights to fish Loch Scolpaig[37], in addition to rights to fish Balranald Estate (over 4.8 km from the site) and Newton Estate to the further north-east of the island. North Uist Estate controls the larger part of the available fishing across the island including Loch Hosta and Loch nan Clachan, situated approximately 3 km south and 4.5 km east of the Project site. North Uist Angling Association outline 16 alternative fishing locations across North Uist (NUAG, 2022).

Cultural Heritage

There are many archaeological interests throughout North Uist with Scolpaig Tower ("Dun Scolpaig") situated closest to the Project site, near Scolpaig Farm in Loch Scolpaig (approximately 420 metres south-east). Dun Scolpaig is a nationally important Scheduled Monument designated by Historic Environment Scotland. The monument is of national importance because it represents the site of a later prehistoric/early medieval defensive dun, which is likely to retain structural and cultural remains below ground (and below water). The monument's importance is further enhanced by the addition an early 19th-century folly at the site, which although of only minor architectural interest, contributes to an understanding of the social history of the period (Historic Environment Scotland, 2022). Scolpaig Tower is listed as a destination on VisitOuterHebrides.co.uk as part of an architectural trail (Visit Outer Hebrides, 2022).

Marine Environment

The marine environment around the Western Isles is a significant recreational resource and is important to the visitor experience of the environment. The Scottish Marine Recreation and Tourism Survey (SMRTS) provides a broad indication of recreational use in Scottish waters, the survey indicates that sea angling, power boating, motor cruising and sailing may occasionally occur in the vicinity of the study area (Marine Scotland, 2016). Wild swimmers have been observed at Scolpaig Bay adjacent to the Project site (Appendix 14-1: Ornithology Technical Report of the EIA Report). However, activities may be seasonally limited by the highly exposed nature of the beach. Prime beach locations are common throughout North Uist which offer enjoyment by locals and visitors to undertake additional recreational activities such as sea swimming, scuba diving and surfing (CnES, 2018).

There are a wide range of recreational marine areas available within 5 km of Scolpaig. These includes beaches around Hosta (Traigh-stir, Traigh Bheireal), Tigharry (Traigh Bhan), Griminish, and Vallay (Traigh Bhalaig Hosta beach (Tràigh Stir), situated approximately 2.6 km south of the Scolpaig Project site, is recognised as a popular surfing beach accessible off the A865 (CnES, 2018).

[37] Note that half the loch falls within the Scolpaig Farm ownership boundary and half of the loch belongs to North Uist Estate, illustrated on SEI Figure 4.1.

Cycling

The Hebridean Way is a major walking and cycling route through the Western Isles, with both routes beginning on Vatersay and the cycling route ending at the Butt of Lewis, and the walking route terminating in Stornoway. The A865 road to the west of North Uist forms part of the Hebridean Way cycling route (National Cycle Network Route 780), while the walking route progresses from south to north along off-road tracks from Clachan in North Uist over to Locheport and Langass, then onward to Lochmaddy. Walkers then continue north to Berneray where they catch the ferry to Leverburgh to pick up the route. At its closest point the Hebridean Way cycling route is situated approximately 0.7 km from the Project site, where the farm access track meets the A865.

The sensitivity / importance of the recreational and tourism resource is classified based on the combination of the presence and importance of nationally or regionally important tourism attractions, recognised trails, and routes, use of the site, and the availability of other comparable areas to enjoy open space. Based on these criteria and taking into consideration the availability of other comparable sites / tourism destinations, the importance of the sites, resources and increasing recreational use of the site, the overall sensitivity of the tourism / recreational resource at Scolpaig Farm is assessed as **medium** at a local scale.

7.5.6 Connectivity

Geographical

Geographically, most of the Western Isles are classified under the lowest category of connectivity as "very remote rural" under the Scottish Government Urban Rural Classification (2020)[38]. The geographic access domain rank defined in the SIMD for the North Uist and Benbecula data zone is 32 which places this region in the most deprived decile for geographic access[39]. North Uist is served by ferry connections from Uig in Skye (linked to the mainland via a bridge) to Tarbert or Lochmaddy. Air links are via Loganair to Benbecula. There are high levels of dissatisfaction with transport links at a regional level, notably ferry reliability (64% dissatisfied) and frequency (41%) are higher than in the Highlands and Islands region overall (34% and 26%). Two thirds (65%) are also dissatisfied with the cost of air services, higher than the average of 41% for the Highlands and Islands as a whole (HIE, 2022).

At a regional level, around six in ten households in Innse Gall can access a primary school (60%), convenience store (60%) and post/mobile post office (59%) in their local area, although this is lower than the region overall. They are also less likely than average to be able to access a secondary school, supermarket, or residential care, with around one in three residents unable to access them within a 20-minute drive. In addition, 35% cannot access a community hospital within a 20-minute drive and around two in ten cannot access a recycling centre (23%) or bank/mobile bank (19%) within this distance (HIE, 2022). Excluding those who don't know whether the service is available locally, households in the Western Isles are more likely than regionally to say they are unable to access a dentist (24% vs 15%) or home care services (10% vs 6%) within a 20-minute drive or online (HIE, 2022). Sensitivity / importance of geographic connectivity as a receptor is evaluated as **high** at the local scale**.**

Digital

At a regional level, around a fifth of households (17%) would find it difficult to stream a TV show or film without buffering (HIE, 2022). A significantly higher proportion of those living in West North Uist to Baleshare, Benbecula and North Uist, and the Western Isles do not have access to superfast broadband compared to the whole of Scotland. West North Uist to Baleshare stands at 29%, Benbecula and North Uist at 24% and the Western Isles at 21%, compared to 7% in Scotland as a whole (SIMD; Scottish Government 2020). Sensitivity / importance of digital connectivity as a receptor is evaluated as **high** at the local scale**.**

[38] Based on population as defined by the National Records of Scotland, and accessibility based on drive time analysis to differentiate between accessible and remote areas in Scotland.

[39] Mean travel time (in minutes) to key services, by car or public transport.

7.5.7 Housing

North Uist Development Company (NUDC) has previously assessed the demand for affordable housing on Uist (NUDC, 2018). Findings indicated that the biggest barrier for respondents to live where they would like on Uist is the lack of housing in the area (45.5%), compared to cost of housing (28.6%) and lack of employment (25.9%). Most housing on North Uist is privately owned and there are a limited number of houses sold every year, often with strong demand from both the holiday rental market and new entrants to the islands, increasing local house prices. Wider surveys have raised the availability of housing as a the most important issue in terms of community development, with 85% of residents of the Western Isles indicating that there aren't enough affordable houses for rent or to buy locally, that the right types of housing aren't available for local people (82%) and local people can't afford housing (80%) (HIE, 2022). Residents in the Western Isles cite the top priorities for their communities to thrive as: housing for local families (54%), more job opportunities (38%) and more working age people moving into the area (33%).

The average sold price in North Uist over the last year was £192 k, compared to £152 k across the whole of the Western Isles (Zoopla, 2022). These prices compared with an average price of £139 k over the past five years (£130 k at Western Isles level) and £123 k over the past ten years (£115 k at the Western Isles level). Housing domain rank in the SIMD is 5196 which places this region in the 8th decile for this category and relatively high compared to the rest of Scotland; however, this indicator relates to overcrowding in households and installed central heating, not affordability and availability (SIMD, 2020). Importance / sensitivity of housing as a receptor is assessed as **high** sensitivity at the local scale, based on availability and cost.

7.5.8 Social and Community Infrastructure

Social infrastructure (education establishments, healthcare facilities, centres for public safety, meeting places, community resources, open spaces and sports / leisure venues) can underpin society and can contribute to overall quality of life in an area. In North Uist, a number of key services are delivered in the main village/town of Balivanich, on Benbecula, approximately 22 km from Scolpaig. Services in Balivanich include a hospital, bank, airport, council offices, health board offices, Uist Council of Voluntary Organisations (UCVO) office, a supermarket (although these are distributed throughout the Uists) and accommodation for the Range operations. Benbecula is also home to the only secondary school for the Uists, which is located in Lionacleit (5.7 km south of Balivanich) adjacent to the UHI Uist campus and the Highlands and Islands Enterprise (HIE) data centre and local office.

Community Profiling undertaken by the Outer Hebrides Community Planning Partnership (OHCPP, unpublished) focused on North Uist and Benbecula as one of two key localities to support Locality Planning initiatives. A' Place Standard tool'[40] was used as a method of community engagement to inform understanding of the quality of existing places, based on perceptions of people within the community. North Uist scored the lowest across 'moving around', 'public transport' and 'work / local economy'. Baseline data was not gathered on the level of capacity / subscription of relevant community resources however social and community infrastructure as a general receptor is assessed as **medium** sensitivity / importance due to the limited extent of community resources within a geographically isolated location, lack of available alternatives.

7.5.9 Natural Resources

Historically, economic activity of the local economy on North Uist was focused on crofting and fishing. Today, the largest sources of employment on North Uist include (OHCPP, 2018):

- Health and social work activities.
- Construction.
- Agricultural and fishing activities.
- Wholesale, retail, repair of motor cars.

[40] A tool that is used to assess the quality of a place. It can assess places that are well established, undergoing change, or still being planned. The tool can also help people to identify their priorities for a particular place (Place Standard, 2022).

- Education.
- The biggest employer outside of the public sector is QinetiQ, the Ministry of Defence Hebrides Range operator.

Reliance on natural resources has transitioned to a more diverse economy including public sector, construction, vehicles, education, and QinetiQ. Crofting is the predominant form of land use in the Western Isles and is the foundation of the way of life, the language and the culture. Approximately 77% of the land area is held in crofting tenure, with around 6,000 crofts distributed among 280 townships. Of these, 94% provide less than 2 days' work per week for their occupiers and typically average 3 hectares in size (CnES, 2022). The concentration of crofting across the Western Isles represents a unique attribute of the region compared to the rest of Scotland[41] Tourism forms a substantial part of the economy and depends substantially on natural resources, with landscape, wildlife, water sports key motivators driving the tourism economy. The crofting system of diverse, small scale, high nature value agriculture and low intensity grazing, contributes significantly to the environment, landscape, ecology and biodiversity of the crofting counties. Sensitivity of natural resources is assessed as **high** at the local scale**.**

7.5.10 Education, Skills, and Training

Educationally, West North Uist to Baleshare, Benbecula and North Uist, and the Western Isles experience less deprivation than the Scotland-wide average across several indicators. The SIMD ranks the data zone at 4684, equivalent to the 7th percentile. School attendance and pupil attainment is higher; there is a lower proportion of working age people with no qualifications; fewer 16–19-year-olds are not in education, employment, or training; and a higher proportion of 17–21-year-olds go to university. UHI Benbecula delivers full time courses in Music and Archaeology, and a small range of part time courses in Gaelic and music. The higher proportion of 17–21-year-olds going to university may again be indicative of out-migration of working-age population out of remote rural and island communities in Scotland, as most higher education institutions lie out with the Western Isles. NOMIS statistics indicate that the Western Isles has, proportionally, fewer people with NVQ4 or above qualifications than the Scotland average, but they do have a higher proportion of those with NVQ1-3 qualifications, suggesting that the Western Isles may, overall, be more highly educated than the Scotland average, but may be lacking in access to higher and further education.

Education ranking is on the higher scale of the SIMD ranking which reflects a range of indicators around school attendance, attainment of school leavers and working age qualifications; however, it does not capture metrics relating to availability and diversity of training and development opportunities, which are locally limited. Skills training is thought to be one of the motivators for young people to leave the island. The importance / sensitivity of education, skills and training is assessed as **medium** at the local level.

7.5.11 Cultural Heritage

The Uists, as part of the Western Isles, continue to widely practice many traditional activities relating to natural resources (crofting, fishing), and indigenous crafts such as weaving. Gaelic continues to represent a fundamental element of the life and identity of North Uist and the Outer Hebrides; and according to the 2011 Census, there are 887 Gaelic speakers (61%) on North Uist[42]. Cultural heritage is most evident across the landscape through crofting land use, which forms an important part of culture from generations of crofters working closely together to complete many vital crofting activities, resulting in a strong culture of community and common purpose. Crofting and its association with land and place is important to preserving both Gaelic and Nordic cultural heritages, and croft land has provided the basis for the pattern of settlement and township structure across the Western Isles (and parts of the wider Highland region). The association with common grazing has entailed sharing a resource and co-operative working, which in turn provides for shared responsibilities and sense of identity (Crofting Commission, 2022). Approximately 95% of residents of the Western Isles are proud to live in the region, higher than the overall Highlands and Islands region (88%), (HIE, 2022). which is likely to be linked to the distinct cultural character of the region.

[41]There are 6,103 tenanted crofts across Comhairle Na h-Eileanan Siar, with a further 258 owned crofts; in Shetland there are 2,129 tenanted crofts and 1,193 owned crofts; Orkney has 65 tenanted crofts and 394 owned crofts; and there is one croft, owned, in Arran. There are further crofts located on the other islands across Highland and Argyll and Bute (Scottish Government, 2021).

[42] Results of the delayed 2021 /2022 census are not yet available.

Religion and spirituality are also important, with Western Isles Christianity evident in many aspects of island life[43]. Sabbath Day observance in the Outer Hebrides is practised predominantly in the northern islands, including North Uist. As a result, Sunday closing across the Uists mean that many shops and cafes are not open on Sundays. Indigenous knowledge is captured through a number of mediums, including local historic societies (e.g., Comann Eachdraidh Uibhist a Tuath) and digital platforms (e.g., Hebridean Connections[44]). The importance of cultural heritage is assessed as **high** sensitivity in the context of the links to existing crofting, Gaelic and Nordic culture.

7.5.12 Future Baseline

The future baseline relates to consideration of how on-going change could affect conditions at the site without the development of the project, including the potential for changes that may occur before the construction or operation of the proposed project. It is possible that baseline conditions reported in an EIA Report may change by the time the project is commenced on site or becomes operational. The EIA Handbook (SNH & Historic Environment Scotland, 2018) indicates that this should, where possible, be anticipated in the EIA Report by predicting future change in absence of the project.

Following the transition from private ownership to CnES ownership in 2019, changes have occurred at the site (i.e., the Scolpaig Farm landholding as a whole) with potential to affect the site's social and economic importance. These changes are independent of the predicted effects of the Project that are assessed in this chapter. The two most substantial changes that have occurred (and are on-going) relate to public access and adjacent developments.

Public Access

Under private ownership, public access to Scolpaig Farm was not facilitated despite existing footpath routes included in the Western Isles Wider Path network (Chapter 7 of the 2021 EIA Report: Community, Recreation and Tourism). For example, under private ownership, the gate at the main access point to Scolpaig Farm remained padlocked. Following the transition of ownership to CnES, a 'kissing gate' was installed at the end of the Scolpaig track, facilitating public (pedestrian) access to the site. The new access arrangements and the change of perception of the site as being under 'public ownership' are thought to have led to a marked increase (based on anecdotal reports from surveyors and local reports) in the number of islanders and tourists visiting the site for recreation. Recreational uses included walking, exercising dogs, swimming (in Scolpaig Bay), cycling, birdwatching and angling.

Other Recreational Activities

A planning application for the proposed St Kilda Viewpoint Visitor Centre was approved on 21 January 2022. The proposed development is located on the summit of Beinn Riabhach which overlooks the Scolpaig site and outwards towards Sit Kilda World Heritage Site, located 500 m from the Scolpaig site boundary and 1.2 km from the launch pad. The centre is anticipated to provide an interpretative centre for St Kilda in the context of the surrounding islands and is expected to provide a substantial economic benefit in the region of £345, 810 pa and 6.4 FTE. The proposed development will attract additional recreational and tourism interest to the area adjacent to Scolpaig which may result in additional footfall or access to the site by tourists particularly as Scolpaig Tower is listed on the Architectural Trail and is considered a specific visitor destination.

Transport

A key consideration raised by the public (SEI Appendix 5.2) highlighted the existing issues relating to pressure on the transport system, namely the existing ferry service (capacity, reliability and frequency). The Scottish Government recently announced (BBC, 2022) that budget has now been allocated for two new ferries for the Skye triangle route (Skye, North Uist, Harris). This upgrade is expected to be in service by 2026 and is anticipated to result in a substantial improvement in terms of reliability and frequency.

[43] Religion on Lewis, Harris and North Uist is predominantly Protestant while religion on Barra, Benbecula and South Uist is mainly Catholic.

[44] https://www.hebrideanconnections.com/

7.5.13 Summary

A summary of the importance of each of the receptors is provided in Table 7-6.

Table 7-6 Summary of importance / sensitivity of each receptor

Receptor	Importance / Sensitivity[45]	Summary Rationale
Employment and Income	Medium (Local and Regional)	Employment levels are slightly higher than average and more of the workforce is economically active. Gross wages are also slightly lower locally than the Scottish and UK averages.
GVA and Economy	Medium (Local and Regional)	The sensitivity of the economy as a receptor is evaluated as low; however, the high levels of seasonality associated with local industries are evaluated to increase overall sensitivity slightly.
Population	High	Ageing population demographic, trend of outward migration of young people and a small, dispersed and isolated population.
Recreation and Tourism	Medium	Based on the availability of other comparable sites / tourism destinations, the importance of the regionally recognised trails and destination feature (Scolpaig Tower), and current understanding of recreational use.
Geographic Connectivity	High	The geographic access domain rank defined in the SIMD for the North Uist and Benbecula data zone is 32, which places this region in the most deprived decile for geographic access. Regional context of high dissatisfaction with key transport links (reliability and frequency)
Digital Connectivity	High	Substantial proportion of local population with limited or poor access to internet.
Housing	High	At a regional and local level there are multiple reports which reference the lack of available and affordable good quality housing, which is cited as one of the main limiting factors to community development.
Social and Community Infrastructure	Medium	Baseline data was not gathered on the level of capacity / subscription of relevant community resources however classification based on reasonable extent of community resources but within a geographically isolated location and lack of available alternatives for key infrastructure.
Natural Resources	High	Traditional reliance on natural resources has transitioned to more diverse sectors. However agricultural (crofting) and fishing activities continue to represent important sectors and are linked with the cultural heritage of the region. Tourism also forms a substantial part of the economy and depends substantially on natural resources.

[45] Importance / sensitivity assessed for employment / income and GVA / Economy at both the regional and local scale only.

Receptor	Importance / Sensitivity[45]	Summary Rationale
Education, Skills, and Training	Medium	Education ranking is on the higher scale of the SIMD; however, it does not capture metrics relating to availability and diversity of training and development opportunities, which are locally limited. Skills training is thought to be one of the motivators for young people to leave the island.
Cultural Heritage	High	Unique spiritual and heritage character connected to crofting and religion, Norse and Gaelic culture. High levels of indigenous language (Gaelic) teaching and community events.

7.6 POTENTIAL IMPACTS

The following potential impacts have been established based on assessment of best practice, analysis of public representations, an external review commissioned by the Planning Authority and feedback from the Planning Authority as part of the determination of the planning application (Section 7.3.2). The potential impacts on community, recreation, and tourism, without mitigation, which have been identified as relevant for the Project are:

Construction Phase

- Changes in employment and GVA during the construction phase.
- Disruption or severance to community, recreational and tourism amenities during construction works.
- Disruption to the local community due to increased volumes of traffic during construction.

Operation Phase

- Changes in employment opportunities and income.
- Changes in GVA / economy.
- Disruption or severance to recreational and tourism amenities during launch operations.
- Disruption to community and population from launch traffic measures.
- Changes in social and cultural composition of population and community.
- Changes to education, training, and skills diversification opportunities.
- Change to access / nature of industries reliant on natural resource use.
- Impacts on housing availability and social infrastructure.
- Changes to digital connectivity.
- Changes to geographic connectivity.

Decommissioning Phase

- Potential impacts arising during the decommissioning phase are expected to be similar to, or less than, those arising during the construction phase.

Scoped out

- Regional and local impacts for employment, income and GVA are assessed. Other (social) impacts are assessed at the local level only due to the small scale of the project.
- Impacts on community / population, social infrastructure, and housing during the construction period have been scoped out due to the short duration of the construction project and anticipated high percentage of locally sourced contractors (75%).

- Disruption of cultural heritage including language (Gaelic), traditions and norms during the operational phase is scoped out as this impact broadly overlaps with the impact: *Changes in social and cultural composition of population and community*, due based on the findings set out in section 7.9.5.

7.7 MITIGATION AND MANAGEMENT MEASURES

The following mitigation and management measures are proposed to remove, avoid, reduce and, where possible, offset any impacts which could, either by themselves or in combination with others, have a significant adverse effect. Mitigation measures also include proposals to enhance potentially beneficial impacts. These measures are considered in the assessment of residual effects in each section of the following impact assessment.

Table 7-7 Mitigation and enhancement measures

Ref	Title	Description
GM03	Site Access Management and Safety (Operation)	Where access restrictions are required for public safety during the operational phases of the Project, the public will be notified through appropriate signage and markers. These physical demarcations may include: • Operational launch site mobilisation and demobilisation: signage will be provided for the public while temporary fencing or marking of areas will be required for security purposes. • Launch events: flags, temporary fencing or tape, and signage will be provided to the public and monitored or enforced by security personnel for safety purposes. • There will be a minor rerouting of the existing footpath (contributing to the wider path network) through the Project site to between the Scolpaig farmhouse and planned vehicle turning area.
GM04	Site Access Management and Safety (Construction)	• Provision of appropriate signage, notices during construction period and information on operational launch activities. • Best practice construction traffic measures to minimise material/dust on public roads i.e. All HGVs to be sheeted to reduce dust and stop spillage on public roads; and wheel cleaning arrangements in place, where necessary.
GM05	Pre-Launch Communications: Advance Alert and Community Notifications	An Advance Alert / Pre-Launch Contact Service will provide advance notice of activities relevant to key stakeholders including emergency services, fishermen, hauliers and closest residential receptors. Stakeholders can register for the alert service on a dedicated email address and can view the range activity programme on a dedicated website. The Spaceport Operator will additionally publish notifications in local/social media, their website and at key information points in the surrounding locality to the wider community and stakeholders informed of key project activities and any associated restrictions. Measures are likely to include: • Regular updates via e-mail to local community groups. • Website – showing schedule of planned activity. • Social Media – posts about planned activity.
GM07	Construction Hours	Any operations carried out will be limited to between the hours of 0700 – 2100 Monday to Friday, 0800 – 1900 Saturday with no Sunday working.

Ref	Title	Description
GM08	Launch day traffic management measures	Traffic management measures are not required in terms of the management / operations of the Spaceport site from a launch safety perspective. However, Western Isles Emergency Planning Coordinating Group (WIEPCG) has stipulated that precautionary measures be put in place to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads. Police Scotland will be responsible for monitoring the route and have stated that for each launch event management measures will include: • A dedicated police patrol to monitor traffic during a launch event. • A temporary clearway (no stopping) along the A865 (from Clachan to Lochmaddy via the west-side of North Uist) during each launch day. This is to ensure traffic flow is maintained along this route for the benefit of all road users and will promote the existing Highway Code responsibilities for vehicles on single track roads - i.e., no stopping on the single-track road, the verge or in passing places and will be strictly enforced with the police having power to move/remove vehicles. • Proactive media releases to notify local community of planned launch days and discourage motorists from causing congestion along the route. • As an emergency planning measure only, a Temporary Traffic Regulation Order (TTRO) will be applied for, which will include powers for the police to invoke a road closure, in the unlikely event that traffic congestion could lead to potential obstruction or danger for road users. • The efficacy of these measures will be reviewed following initial launches with the WIEPCG, with the opportunity to step-down measures, if appropriate for future launches.
COM01	Habitat and Amenity Management Plan (HAMP) & Environment Officer	A Habitat and Amenity Management plan will be developed post-consent to expand the current habitat enhancement proposals and integrate these with commitments arising from the EIA / planning process as part of a wider HAMP. Under CnES ownership, the site is currently being managed to allow access for recreational use, community grazing opportunities, and enhancement of habitats in consultation with the RSPB. An outline HAMP outlining key commitments and principals is provided in Appendix 7-2 and will be developed post consent in conjunction with a consultative Advisory Group. Coordination and management of the HAMP will be delivered by an Environmental Officer contracted by Spaceport 1. Commitments and development principals centre around the following: • Habitat enhancement for specific species and habitats. • Public (including users of limited mobility) access. • Community grazing opportunities. • Cultural heritage. • Fisheries.
COM02	Public access and users of limited mobility	Pedestrian access to the area will be enhanced through upgrading and widening of the existing access road from the A865 to Scolpaig Farm, and an additional layby adjacent to Loch Scolpaig. An additional 10 parking spaces will be installed which will be available to the public, including one accessible space and two extended spaces for larger vehicles. The existing 'kissing gate' will be replaced by standard pedestrian access to facilitate access for users of limited mobility.
COM03	Phased Construction	Site access during construction will be phased to enable recreational access following construction of the site access track / culvert upgrade over Loch Scolpaig.
COM04	Local Content Contract Clause	CnES will lead on procurement of construction work. It is CnES Policy to maximise the use of local contractors as far as possible.

Ref	Title	Description
COM05	Local Connectivity	A BT broadband fibre extension will be extended to the project site. The purpose of this cable installation is to ensure security and reliability of communications undertaken on site. It is recognised that, at present, there are no plans by HIE or other parties to install fibre connections near the site and residents will receive the benefit of access to improved connectivity within the area.
GM10	Construction Traffic Convoy Management	The construction contractor will be required, under the terms of the Contract, to have a minimum time of 15 minutes between heavy goods vehicle deliveries to the site and 15 minutes between heavy goods vehicles leaving the site. This restriction will limit the risk of large vehicles causing disruption on the single-track A 865. The upgraded Scolpaig track junction from the A865 has been designed to allow articulated heavy good vehicles to access the site from either the east or west. Heavy goods articulated vehicles will be required to leave the site in a westerly direction only. This restriction will be part of the Contract specification during the construction work.
COM07	STEM / Youth Education	As part of the Project, an education outreach programme will be developed with the commitment to build a clause into Memorandums of Understanding (MoUs) with launch operators to develop and deliver a STEM (science, technology, engineering and mathematics; or other youth focused) education project for the community of the Western Isles. The Consortium is developing an educational programme for local school children in conjunction with the Education Authority and UK Space Agency and is in consultation with Skills Development Scotland (SDS) in regard to skills requirements. In addition to this, Spaceport 1 will work with the TalEntEd Islands Programme, which aims to support and create innovative opportunities for education, skills and work-based learning through entre and intrapreneurship programmes. These initiatives will be monitored to validate predicted impacts arising from educational programmes.
COM08	Dedicated Training Programme	The licensing regime for spaceports carries legal obligations to develop and implement a training programme. Where skills gaps are identified, the Consortium has committed to working with Highlands and Islands Enterprise (HIE) and other partners to ensure that training and education programmes are provided to address these gaps locally.
COM09	Skills and Training	The Consortium will work with potential customers to identify the range of skills required on-island and develop appropriate skills development and diversification opportunities in collaboration with HIE.
COM10	Housing Support	Spaceport 1 and the Comhairle, through the Settlement Officer, will support any off-island appointments to source appropriate housing. Due to the nature of the operations, there is not an immediate requirement for anyone to move permanently to the islands. Temporary arrangements such as hotel / guest house / self-catering accommodation could be utilised during launch events until such time as permanent housing becomes available

7.8 IMPACT ASSESSMENT - CONSTRUCTION

7.8.1 Changes in employment and GVA during the construction phase

Impact (without mitigation)

A detailed economic analysis is provided in SEI Appendix 7.1 of the SEI Addendum. Capital investment costs for construction are anticipated to be around £3.1 million. It is estimated that the Development will directly generate £1.0 million GVA and 21.4 job-years in the Outer Hebrides, and £1.34 million GVA and 28.9 job-years in Scotland. It is assumed that contract apportionment will be approximately 75% in the Western Isles and 100 % across Scotland. It is estimated that the Outer Hebrides will benefit from around £2.3 million and Scotland from £3.1 million.

Mitigation of Enhancement

CnES will lead on procurement of construction work. It is CnES Policy to maximise the use of local contractors as far as possible. Although the operation of the spaceport is technically complex, the construction phase is relatively standardised with no requirements for specialist construction specification (COM04). Similar work has been completed at MoD Hebrides Range by local contractors.

Assessment of Residual Effects

Magnitude

The construction period is expected to be around 20-24 weeks, a relatively short duration and temporary in nature. The construction of the Development will directly generate £1.0 million GVA and 21.4 job-years in the Outer Hebrides and £1.34 million GVA and 28.9 job-years in Scotland. Spending on construction contracts will provide opportunities for the construction and civil engineers sector in the Outer Hebrides, the Highlands and Islands and Scotland. The magnitude of impacts on GVA and economy at the regional level are expected to be **low** as GVA represents 0.4% of annual estimated GVA (£231 m according to Scottish Annual Business Statistics, 2020) of CnES and the nature of the construction contract is temporary.

Similarly, the magnitude of employment levels at the regional scale are also **low** based on an employment base of around 7,000 employees, and an economically active population of 13,100 (Scottish Annual Business Statistics, 2020).

At a local level, there is no comparator metric for GVA. Although the construction project will represent a considerable but temporary development in relation to typical construction projects, the magnitude of the impact at a local level remains **low**. However, the works are of a scale that would generate employment opportunities for local firms and local people, over a construction period of around 20 weeks. In terms of employment, construction contracts are likely to be awarded to supply chain across both North Uist and South Uist and there is no direct comparator for an economically active population for this data zone; however, given the temporary nature of the development the magnitude of the construction period also remains as **low**. It is important to note that although these are front loaded and temporary jobs, they may encourage firms to become more involved in other space related and specialist civil engineering contracts in other locations in Scotland and the UK.

Significance of residual effects

The sensitivity of the economy (GVA) and employment sector at both the local and regional level is assessed as **medium** due to the above average levels of employment but taking into consideration the seasonal dependence of the economy on tourism, and relatively narrow range of sectors. The magnitude of the impact is assessed as **low** at both the local and regional level and an overall significance of **minor (beneficial)** is concluded**.**

7.8.2 Disruption or severance to community, recreational and tourism amenities during construction works

Impact overview (without mitigation)

Following the transition of ownership of Scolpaig Farm to CnES, new access arrangements (installation of a “kissing gate”) and the change of perception of the site as being under ‘public ownership’ are thought to have led to an increase in the number of visitors to Scolpaig for recreation (based on anecdotal reports from surveyors and local reports), and the area is currently used regularly for recreational walking, birdwatching, and swimming. The construction of the development will result in temporary access disruption to Scolpaig Farm, including Scolpaig Bay and Scolpaig Tower, an acknowledged destination for tourism. Access to Loch Scolpaig may also be disrupted as an angling resource and the wider use of the site for recreational activities. Construction restrictions will also limit access to one path which contributes to the wider path network.

Mitigation of Enhancement

Phased access to the site during the construction period will be put in place. During the upgrade of the access track / culvert a construction layby will be established at the site entrance at the A865. Access to Scolpaig Farm via the A865 will be prohibited during this period;

however, there will be no change to the existing access routes along the coastal route. Following completion of the access track / culvert upgrades, the construction compound will be moved to the farm compound and any access prohibitions associated with access from the A865 will be lifted to enable public access to the full site with exception of the farm complex (COM03).

The Developer will implement standard best practice mitigation measures to minimise the temporary effects relating to traffic associated with the construction phase of the project, which will include restriction of construction hours (GM07) and provision of appropriate signage and notices during construction periods (GM04).

Assessment of Residual Effects

Magnitude

While access through Scolpaig Farm from the A865 will be limited during the track upgrades from week 5 – week 11 of the construction schedule (7 weeks), the overall wider path network will continue to be accessible via Griminish, enabling access to Scolpaig Bay. Alternatively, similar areas for recreation are available nearby for walking and beach visits. There are numerous sandy beaches within 5 km of Scolpaig, these includes beaches around Hosta (Traigh-stir, Traigh Bheireal), Tigharry (Traigh Bhan), Griminish, and Vallay (Traigh Bhalaig). Similarly, the same area includes extensive inland open space for walking (e.g., the hills of Beinn Riobhach, Beinn Bhanasaradh and Cleitreabhal a Tuath) and fishing (e.g., Loch nam Magarlan, Loch Vausary and Loch Bhiorain).

Scolpaig Tower, due to its mid-loch location is inaccessible at close proximity, and the tower will continue to be freely visible from the A865. Recreational anglers will still be able to use Loch Scolpaig during the construction phase; however, while there are temporary farm access track restrictions, anglers may be required to fish from an alternative section of the loch for a limited period. Alternatively, North Uist Angling Association outline 16 locations for fishing across North Uist (NUAG, 2022). As indicated above, the duration of access restrictions to the site from the A865 during this period is limited to approximately seven weeks.

The magnitude of access disruption is influenced by the duration of disruption, availability of alternative routes to the farm and availability of other recreational areas. Overall, there will be a limited, short-duration and reversible decrease in availability of open and recreational space in North Uist. It is unlikely that this impact will directly or indirectly affect the wider tourism sector, through changing visitor numbers and expenditure, due to the small scale and temporary nature of disruption. The magnitude of indirect impacts on the tourism sector is evaluated as **low**.

Significance of residual effects

The sensitivity of tourism and recreational use as a receptor at Scolpaig Farm is assessed as **medium** based on the availability of comparable areas of open space for recreation but taking into consideration the tourism value of the landscape, Scolpaig Tower, fisheries and existing recreational use. The magnitude of the impact is assessed as **low** based on the short duration of access restrictions during construction, reversable impact, availability of other routes to access the site and availability of other comparable sites for enjoyment of the outdoors. An overall evaluation of **minor (adverse)** is concluded, and **not significant.**

7.8.3 Disruption to the local community due to increased volumes of traffic during construction

Impact (without mitigation)

The local community and tourism may experience increased journey times due to an increase in construction traffic associated with the Project. The estimated total number of deliveries to the site during the construction work has been assessed as 520 over the proposed construction period (16 weeks, with 4 weeks as a contingency measure).

Mitigation or Enhancement

The construction contractor will be required, under the terms of the Contract, to have a minimum time of 15 minutes between heavy goods vehicle deliveries to the site and 15 minutes between heavy goods vehicles leaving the site. This restriction will limit the risk of large vehicles causing disruption on the single-track A865 (COM06).

The upgraded Scolpaig track junction from the A865 has been designed to allow articulated heavy good vehicles to access the site from either the east or west. Heavy goods articulated vehicles will be required to leave the site in a westerly direction only. This restriction will be part of the Contract specification during the construction work and will form part of the lease agreement with spaceport operators. Liaison with the local community and key stakeholders for prior notification of construction activities (GM05).

Assessment of Residual Effects

Magnitude

The construction phase will involve 520 deliveries of materials to the site. The estimated total number of heavy goods deliveries to the site during the construction work has been assessed on a weekly basis, with average weekly deliveries of 32 across the construction works period. Weekly deliveries in excess of 50 occurs on weeks 2,3, 6 and 7 of the on-site works. Weekly deliveries at other times exceed 30 on five weeks. A peak of approximately 69-70 heavy good vehicle deliveries occurs on week 3, 6 and 7. During week 3, 6 and 7 there is on average 14 deliveries per day. Based on an 8-hour working day, there will be a heavy goods vehicle delivery every 34 minutes during this period. The daily average across the 16-week period is six deliveries per day, mainly impacting the A865 only. Construction traffic will generally adopt the route from Clachan along the west side of the island to the site along the A865. The application of mitigation to stagger the movement of construction vehicles will avoid convoy scenarios on the A865, and associated delays. No road closures or other measures likely to disrupt the free flow of traffic are proposed. The disruption to access and potential journey delay is likely to be temporary in duration and limited in extent to the construction traffic route. Therefore, the magnitude of this impact is assessed as **low**.

Significance of residual effects

The sensitivity of the community / population access is assessed as **high** based on the lack of other access options, majority of the road network in North Uist comprising single track road and the isolated nature of the population. The overall magnitude of traffic disruption is assessed as **low** based on the temporary nature of the impacts and proposed mitigations to reduce convoy scenarios extending journey times. The overall impact is evaluated as **minor (adverse)** and **not significant**.

7.9 IMPACT ASSESSMENT - OPERATION

7.9.1 Changes in employment and income

Impact Overview

Jobs associated with the development include a Launch Director, Business Development Officer, Site Manager, Commercial Officer, Environmental Officer, Health and Safety Officer, Administrative Support and Operations Officers. In total, this represents 12 FTEs across 25 roles (a mix of full time and part time posts) by Year 3. According to figures from the UK Space Agency report (UKSA, 2022), the UK space sector has a UK-wide GVA multiplier of 2.3, which effectively means that every £1.00 of direct activity will support a further £1.30 of indirect and induced activity elsewhere in the supply chain. The report also concludes that the sector has an employment multiplier of 2.8, meaning that every FTE job in the sector supports a further 1.8 indirect or induced jobs elsewhere in the UK economy[46]. After applying the Type II multipliers to the gross employment impact figures, the estimated net direct, indirect, and induced FTE employment impacts of the project are set out in Table 7-8 .

[46] https://www.gov.uk/government/publications/uk-space-industry-size-and-health-report-2018

Table 7-8 Indicative Estimate of Economic Impacts, Year 3 of Operation

	Outer Hebrides	Highlands and Islands	Scotland
Gross Impact			
FTE Employment	18.07	18.07	18.07
Turnover (£ m)	5.42	5.42	5.42
GVA (£ m)	2.30	2.30	2.30
Income (£ m)	0.96	0.96	0.96
Net Direct Impact			
FTE Employment	15.58	16.61	17.48
Turnover (£ m)	4.54	4.90	5.21
GVA (£ m)	1.94	2.09	2.22
Income (£ m)	0.84	0.89	0.93
Net Direct, Indirect and Induced Impact			
FTE Employment	23.26	29.07	43.99
Turnover (£ m)	6.45	8.02	11.85
GVA (£ m)	2.73	3.38	4.97
Income (£ m)	1.18	1.44	2.09

Mitigation or Enhancement

Spaceport 1 will work with local agencies to outline the type and nature of employment that will be required on-site, and the supply chain opportunities. Jobs will be advertised locally, and local people will be encouraged to apply, where applicable. Similarly, the Space Industry Act 2018 is prescriptive in relation to training, qualifications, and medical fitness. Spaceports are legally obliged to establish and maintain training programmes that combine practical and theoretical training for all employees / contractors participating in licensed activities. Training must be provided to ensure proficiency in each role as well as in relation to each individual mission (readiness training).

Section 7.9.6 assesses the impacts on education, training, skills and diversification opportunities. However, the proposed enhancement measures are expected to impact employment and income. As part of the Project, an education outreach programme will be developed with the commitment to build a clause into Memorandums of Understanding (MoUs) with launch operators to develop and deliver a STEM (or other youth focused) education project for the community of the Western Isles. The Consortium is also developing an educational programme for local school children in conjunction with the Education Authority and UK Space Agency and is also in consultation with Skills Development Scotland (SDS) regarding skills requirements. In addition, Spaceport 1 will work with the TalEntEd Islands Programme, which aims to support and create innovative opportunities for education, skills and work-based learning through entrepreneurship and intrapreneurship programmes. These initiatives will be monitored to validate predicted impacts arising from educational programmes (COM08, COM09).

Assessment of Residual Effects

Magnitude

Based on the employment projections for Year 3, job creation is equivalent to a 4.5% increase of employment at the local scale[47], considered a medium magnitude of increase in employment levels at the local level, and a negligible change at the regional level based on an economically active population of 13,100 (Table 7-3). Consideration of the net direct, indirect and induced FTE employment, this raises the total employment figure to 23.26, which at a local scale represents a 5.8% increase of employment and a negligible increase at regional scale. The proposed positions represent permanent and locally based positions with a number of part-time employment

[47] Based on a local population of 700 with 56% working age (392 people) - 4.5% (18 jobs)

positions (e.g., security and monitoring for launch events), which are not seasonal. The average salary across all positions is just under £35k / year, generating a weekly income of £673, substantially higher than both regional and national averages (£562 and £592 respectively). The assessment concludes a **high** level of magnitude at a local scale and a **low** magnitude of change at regional scale.

Significance of residual effects

The sensitivity / importance of the employment sector at both the local and regional level is assessed as **medium** due to the above average levels of employment but taking into consideration the seasonal dependence of the economy on tourism. The magnitude of the impact is assessed as **high** at a local scale and **negligible** at a regional scale and effects are concluded as **moderate (beneficial)** and **significant** at the local scale and **negligible** and **not significant** at the regional scale.

7.9.2 Changes to GVA / Economy

Impact (without mitigation)

The levels of turnover, GVA and income likely to be associated with predicted employment are based on figures from the Size and Health of the UK Space Industry, as reported by UKSA 2021 (UKSA, 2022), resulting in estimates of turnover per head as £351,697. GVA is assessed as 41% of turnover and average gross earnings have been drawn from Spaceport 1 financial projections. Industry standard proxies are utilised at appraisal stage, consistent with other space sector impact assessments, which allows comparisons and avoids optimism-bias associated with financial projections. Table 7-8 estimates the turnover and GVA associated with the operation of the Spaceport on an annual basis.

Mitigation or Enhancement

No mitigation is proposed for this impact or further enhancement proposals suggested.

Assessment of Residual Effects

Magnitude

GVA impacts suggest an injection of around £2.8 million at the regional level in Year 3. Based on a current GVA at the Outer Hebrides of £211 million, this represents a 1.4% increase at a regional scale. This is considered a **medium** magnitude of increase at the regional level (medium magnitude of change is between 1% - 5%). GVA figures are not available at the local level as they are not collated at this spatial level. However, the magnitude of this uplift is conservatively considered to result in a **medium** level magnitude of change.

Significance of residual effects

The sensitivity/ importance of the GVA and the economy is assessed as **medium** at the regional and local scale. The magnitude of impact from increased GVA is classified as **medium** based on the contribution of the Spaceport to the local economy. The overall impact is evaluated as **moderate (beneficial)** and **significant** at both the local and regional scale.

7.9.3 Disruption or severance to recreational and tourism amenities during launch operations

Impact overview (without mitigation)

The operation of the development will result in access disruption to Scolpaig Farm, including Scolpaig Tower; an acknowledged destination for tourism, Loch Scolpaig as an angling resource and the wider use of the site for recreation. Four tiers of access restrictions will be implemented depending on the nature and status of launch activities at the site, explained in detail below:

Tier 1 - No Active Launch Events

Tier 1 access arrangements will be in place during 'no launch activity' scenarios i.e., no mobilisation, launch event or demobilisation activities. The public will have free pedestrian access across the site; however, access to the farmstead area will be restricted and fenced with standard 1.1 m rylock fencing to protect Spaceport infrastructure from livestock.

Tier 2 - Launch Event Preparations (Site Mobilisation)

Whilst the site is mobilised for a launch event and equipment / materials are being delivered or located on site, some area-specific access restrictions may be enforced, defined by the nature and quantity of materials retained on site and the security preferences of the Launch Operator (LO). Should any hazardous materials be stored at the site, temporary areas of restricted access may be defined under a Safety Clear Zone (SCZ). The restrictions, exclusions and warnings that apply to any Safety Clear Zone will differ depending on what activity is being carried out; however, a radius of up to 160 m from the point of storage (launch pad or secondary storage area) may be implemented for the most hazardous material expected to be stored at the site in significant volume; hydrogen peroxide (H_2O_2)[48].

Tier 3 - Launch Event

The launch event comprises the period from fuelling, to launch of the launch vehicle. During a launch or testing event, an Exclusion Zone will be implemented, this may extend up to a maximum of 430 m (radius, centred on the launch vehicle on the pad), depending on the nature of the launch or test. The duration of the restrictions will be approximately one day, although occasionally a launch may be delayed due to technical or weather-related issues, and there may be a requirement for 1-2 'back-up days' where the launch may be reattempted.

Tier 4 – Launch Demobilisation

Launch demobilisation comprises the period following completion of the launch. Activities include disassembly of the tower, recovery of launch stages / payload (if required), removal of equipment, removal of wastes and post launch clean-up operations. During this period the Exclusion Area status will be removed.

Mitigation or Enhancement

Advance community notifications will be provided through an Advance Alert / Pre-Launch Contact Service, social media and the Spaceport Operator website to ensure that all relevant community, recreation and tourism stakeholders are informed of key operational activities and associated restrictions (GM05). Where access restrictions are required for public safety throughout the launch preparations, launch events and demobilisation stages of the operational phase, appropriate signage and physical markers will be provided to further notify the public (GM03).

There will be a minor rerouting of the existing footpath (contributing to the wider path network) through the Project site to between the Scolpaig farmhouse and planned vehicle turning area (GM03). Figure 7.2 in the 2021 EIA Report illustrates the rerouting. Further mitigations proposed to offset the access restrictions during the operational phase include:

- Improved access and amenity - an Outline HAMP is provided in Appendix 7-2 of the 2021 EIA Report which sets out the principles for future management of the Scolpaig Farm site including public access and recreation. The Plan will be fully developed by the developer post-consent in consultation with stakeholders (COM01). Further consideration of vehicular access would form part of the HAMP in conjunction with the tenant crofter, statutory consultees, and the Royal Society for the Protection of Birds (RSPB) to ensure that an appropriate management plan (with mitigation) is in place.
- Parking - there is currently no dedicated parking at the site, with visitors accessing the area through parking in laybys or walking at distance. Construction of the development will result in ten new parking spaces at the site, including dedicated spaces for users of limited mobility (COM02). Improved parking at the site entrance was requested by the local community from an access perspective but also to improve road safety.
- The existing 'kissing gate' will be replaced by standard gated access to allow users of limited mobility to access the site (COM02).

[48] The SCZ is based on the more conservative calculation of 1) peak incident overpressure or 2) hazardous fragment distance - Federal Aviation Administration – Office of Commercial Space Transportation (FAA-AST) guidance.

The Project site is popular with locals and visitors and is used regularly for walking, angling, and other coastal activities such as sea swimming. As part of the project programme, a detailed HAMP will be developed post-consent, building on the principles provided in the Outline HAMP (EIA Report Appendix 7-2), which identifies commitments around managing and enhancing nature conservation, grazing activities, cultural heritage, public access, and recreation around Scolpaig Farm. A dedicated Environment Officer will be permanently employed to develop and implement the Plan in consultation with an Advisory Group comprising key stakeholders and community representatives (COM01).

Assessment of Residual Effects

Magnitude of impact

During periods with no active launch activity (Tier 1), the public will have free pedestrian access across the site. Access will be restricted to the farmstead area only with standard 1.1 m rylock fencing and locked agricultural gates to protect Spaceport infrastructure from livestock.

During launch mobilisation activities (Tier 2), a SCZ for the storage of materials may be required. The likelihood of an SCZ is very low due to the nature of most propellants currently adopted by LV operators. In addition, due to the degradation rate of some oxidisers, the storage of hazardous substances is likely to be very short term, and the duration of this period will last up to the launch event only. The duration of the SCZ implementation period is not expected to exceed 10 days per launch event as a worst-case scenario. Some launch events will not require a SCZ during this period, and access will continue to be freely permitted as described for Tier 1 – No Operational Activities. In all cases of Tier 2 access arrangements, the public will continue to have access to Scolpaig Bay both via the entrance off the A865 and the coastal footpath. Should a SCZ be required, these will be monitored by on site security personnel and demarcated with temporary markers (e.g., red flags) as appropriate around the launch complex.

During a launch event (i.e., on the day of a launch; Tier 3), access to Scolpaig Farm will be prohibited via a wider Exclusion Zone covering the farm area including Scolpaig Bay. Notice will be provided to the public and appropriate markers, including flags, temporary fencing or tape will be erected to indicate restrictions. Security personnel and CCTV cameras will continuously monitor the site during these periods. Should 'back-up' days for launches be required due to aborted or delayed launch, access restrictions will revert to a Tier 2 arrangement whilst the site reverts to preparatory activities.

Disruption to recreational users is likely to be infrequent, with no more than 10 launches in a year, for a short and temporary duration over a limited area. Notification and management measures will ensure advanced warning to enable recreational users to make alternative arrangements where possible, and timely updates to mariners on completed launches to allow transits to resume at the earliest opportunity (further information around navigation for marine recreation users is detailed in Chapter 13 of the 2021 EIA Report: Marine Users and Assets). Alternative, similar areas for recreation are available nearby for walking and beach visits. There are numerous sandy beaches within 5 km of Scolpaig, these includes beaches around Hosta (Traigh-stir, Traigh Bheireal), Tigharry (Traigh Bhan), Griminish, and Vallay (Traigh Bhalaig). Similarly, the area includes extensive inland open space for walking (e.g., the hills of Beinn Riobhach, Beinn Bhanasaradh and Cleitreabhal a Tuath) and fishing (e.g., Loch nam Magarlan, Loch Vausary and Loch Bhiorain). Scolpaig Tower is already inaccessible due to its mid-loch location, and the tower will continue to be freely visible from the A865. Loch Scolpaig will still be able to be used by recreational anglers during Tier 1, Tier 2 and Tier 4 access arrangements; however, while there are temporary farm access track restrictions anglers may be required to fish from an alternative section of the Loch for a limited period, or alternatively, North Uist Angling Association outline 16 alternative fishing locations across North Uist (NUAG, 2022).

In summary, any disruption to access is likely to be for a temporary, reversible, and limited duration for each launch event (up to 10 launches proposed each year), with prior notifications of launch activities, which will ensure the local community and recreational users are notified in advance. There are several comparable areas of open space for recreational activities (notably, fishing, walking and beach visits) around the area and a number of mitigations are proposed to offset and improve access to the public during Tier 1 operations. It is unlikely that access restrictions will indirectly affect the wider tourism sector, due to the small scale and limited duration disruption to

access to tourism amenity and recreation around launch events. Therefore, the magnitude of this impact, with mitigation measures to offset impacts is evaluated as **low**.

Significance of residual effects

Recreation and tourism are considered of **medium** importance / sensitivity. The magnitude of this impact is assessed as **low**. Therefore, it is anticipated that there will be **minor (adverse)** residual effects, which are **not significant.**

7.9.4 Disruption to community and population from launch traffic measures

Impact (without mitigation)

Launch campaigns (mobilisation / preparation, the launch event and demobilisation) may require the delivery of a range of containerised and portable infrastructure, including fuelling systems, staff and welfare units, shipping containers, launch vehicle and tower, increasing traffic movements on the road.

Mitigation or Enhancement

Traffic management measures are proposed to ensure a continued flow of traffic along the A865 to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads (GM08).

Assessment of Residual Effects

Magnitude

Up to 10 launches per year are proposed for the Spaceport. There may be instances where a launch cannot proceed on the scheduled day and is rescheduled to a subsequent back-up day, in the worst case resulting in a further 1-2 days where a launch may be reattempted. It is anticipated that clearway measures (police monitoring to ensure normal free flow of traffic) will be put in place for part of a single day in most cases. Proactive media releases will ensure advanced notification to the local community of planned launch days and discourage motorists from causing congestion along the route. These measures promote the existing Highway Code responsibilities for vehicles on single track roads - i.e., no stopping on the single-track road, the verge or in passing places. The benefit of these measures is to ensure continued traffic flow for all road users.

Operational traffic is assessed in Section 11 across three different launch scenarios. Traffic to the site will be combined where possible, for example, the launch vehicle and the tower are often integrated into one complete system. Material deliveries are also likely to be integrated into the mobilisation; however, in some cases may require separate deliveries. Daily personnel movements during the week are expected to be restricted to a small number of standard vehicles or Light Goods Vehicles (LGV) each day. A large vehicle project, which is unlikely to launch more than once per year, will result in an anticipated 88 trips to site (176 including return) over the 2-week launch campaign; averaging at 7-8 per day (14-16 including return), based on Monday to Saturday working.

As an emergency planning measure only, a Temporary Traffic Regulation Order (TTRO) will be applied for, which will include powers for the police to invoke a road closure for a short period until the launch is complete, in the unlikely event that traffic congestion could lead to potential obstruction or danger for road users (due to the clearway system implemented as standard). With the provision of the proposed clearway measures, it is not anticipated that road closures would be required. These measures will be reviewed following initial launches with the WIEPCG to ensure they are effective, and disruption is minimised as far as practicable, with the opportunity to step-down measures if appropriate for future launches (refer also to Chapter 11: Traffic and Transport). The magnitude of impact on severance of the community resources from traffic measures is assessed as **low**.

Summary of residual effects

The sensitivity / importance of the population and community is assessed as **high**. The magnitude of change associated with severance of the community / population from community amenities arising from traffic is **low**. The overall significance of effect is assessed as **minor (adverse)** at a local level.

7.9.5 Changes in social and cultural composition of population and community

Impact (without mitigation)

Inward migration in rural areas can create both beneficial and adverse impacts on the local community. Adverse effects can include increased pressure on public services and increase tensions between the established and incoming population. The Western Isles population is one of the few regions in the country where Gaelic is still widely spoken and taught, and still adheres to a set of cultural norms and traditions, which may be vulnerable to dilution by influxes of population. However, inward migration is actively progressed at a strategic level within CnES to combat the trend of depopulation from the Western Isles. Employment predictions indicate that there will be 12.0 FTEs over 25 roles associated with the Spaceport by Year 3 of operation.

Mitigation or Enhancement

No mitigation proposed for this impact.

Assessment of Residual Effects

Magnitude

Personnel predictions covers a 'core' Spaceport team of 25 people on the payroll, accounting for 12.0 FTEs, considering indirect jobs this figure increased to 23 FTE equivalents. The core team comprises a mixture of full time and part time roles. Jobs will be advertised both locally and nationally and it is expected that a small number will be filled from candidates not resident in the Western Isles, based on the nature of skills required and requirements for full time roles. In terms of launch preparation, launch mobilisation, and launch demobilisation (security, site clearance, site monitoring) posts, these are more likely to be sourced locally. Indirect roles associated with the supply chain may not be located in North Uist, for example, consent and licensing support is currently based on the Isle of Lewis. It is not possible to predict the apportionment of roles to local and non-local employees; however, it is possible some roles may be filled by non-local candidates. Overall, a **low** magnitude of net inward migration at the local scale is expected over time.

Significance of residual effects – Beneficial Impacts

The sensitivity / importance of the social and cultural composition of the population and community is assessed as **high**. The magnitude change associated with net inward migration is **low**. The overall significance of effect is assessed as both **minor (beneficial)** at a local level and **not significant.** Beneficial effects may be generated from diverse and alternative job creation on the island, retaining islanders and addressing issues relating to the trend of depopulation and outward migration.

Significance of residual effects – Adverse Impacts

The sensitivity / importance of the social and cultural composition of the population and community is assessed as **high**. The magnitude change associated with net inward migration is **low**. The overall significance of effect is assessed as both **minor (adverse)** at a local level and **not significant.** Adverse effects may be generated by increased tensions associated with new residents not aligned with cultural norms or standards and pressure on services.

7.9.6 Changes to education, training, skills, and diversification opportunities

Impact (without Mitigation)

Supply chain demands associated with the Spaceport and each sub-orbital launch event may necessitate new skills and development. New skills and demands are associated with planning, site operation, administration, regulation, and R&D, are anticipated requirements

of the launch system. The project is expected to support the sub-orbital and microgravity research market providing flight opportunities for payload customers who wish to launch their payloads, instrument and experiments to an altitude and then recover them on a turnkey basis.

Mitigation or Enhancement

As part of the Project, an education outreach programme will be developed with the commitment to build a clause into MoUs with launch operators to develop and deliver a STEM (or other youth focused) education project for the community of the Western Isles. The Consortium is also developing an educational programme for local school children in conjunction with the Education Authority and UK Space Agency and is also in consultation with Skills Development Scotland (SDS) in regard to skills requirements. In addition to this, Spaceport 1 will work with the TalEntEd Islands Programme, which aims to support and create innovative opportunities for education, skills and work-based learning through entre and intrapreneurship programmes. These initiatives will be monitored to validate predicted impacts arising from educational programmes (COM07).

Part of the licensing regime for spaceports is the legal obligation to develop and implement a training programme. A training programme is currently in development on the premise that the stated aim is to offer local jobs for local people. Where skills gaps are identified, the Consortium has committed to working with Highlands and Islands Enterprise (HIE) and other partners to ensure that training and education programmes are provided to address these gaps locally. The benefits of such training programmes have been demonstrated at Hebrides Range, with several people who were initially taken on as apprentices now in prominent, highly paid professional roles (COM08).

Similar principals apply to the local supply chain. Although there are a range of local micro businesses offering expertise in areas such as welding and electronics, the Consortium will work with potential customers to identify the range of skills required on-island and develop appropriate skills development and diversification opportunities in collaboration with HIE (COM09).

Assessment of Residual Effects

Magnitude

The project is expected to increase the range and diversity of training opportunities to more than one demographic / social group (school children, school leavers, professional training for staff and skills development for the supply chain) through the enhancement measures outlined above including an educational outreach programme, a mandatory training programme, joint working with HIE to address direct skills gaps and indirect skills gaps (supply chain). The magnitude of impact of the measures are expected to represent a **medium** increase of local training, education, skills, and development opportunities.

Significance of residual effects

The sensitivity / importance of this receptor is assessed as **medium**. The magnitude of change to education, training and skill diversification is expected to be **medium**. The changes in education, training and skills are expected to be **moderate (beneficial)** and **significant.**

7.9.7 Change to access / nature of industries reliant on natural resource use

Impact (without mitigation)

Several sectors rely on natural resources with key sectors including crofting, fishing, and tourism. The proposed development has potential to disrupt marine users due to marine safety restrictions during a launch event. Marine users cover commercial fisheries, shipping, MOD activities and marine recreational users. Marine recreational users along the Scolpaig coast may be temporarily inconvenienced during the day of a launch and will be restricted within the Exclusion Zone for the duration it is active, in the worst-case over four hours during the day of a launch, following which access to the marine area can resume. The change of use of Scolpaig Farm from a farm to rocket launching facility also has potential to remove agricultural land from use. Loss of access to, or modification of natural heritage resources

(beach and landscape) for tourism purposes may also occur because of the project. Tourism / recreation impacts are assessed in Section 7.9.3.

Mitigation or Enhancement

Agricultural Land

With input from RSPB, CnES has developed a programme of seasonal livestock grazing and crop growing at Scolpaig Farm under a tenancy agreement, initiated in 2022. A process for awarding a Short-Limited Duration Tenancy of Scolpaig Farm was developed in consultation with the Scottish Agricultural College (SAC), Scottish Crofting Federation (SCF) and RSPB in 2021. The selection criteria favoured new entrants, people under 40 years and those who had limited or no access to other croft land. This tenancy agreement is based on traditional agricultural practices and aims to enhance habitats around Scolpaig Farm for wildlife including corncrake, wetland birds, and species rich grasslands and maintains the farm as an agricultural production unit (COM01).

Project design has attempted to maximise the use of existing infrastructure, including the existing access track and farm complex. The total area of the development site is less than 2 ha, within the context of the wider farm ownership area of 276 ha, equivalent to 0.7 % of the total area of Scolpaig Farm (GM01).

Commercial Fisheries

Commercial Fisheries may be subject to disruption during launch events. Mitigation is set out in Chapter 13 of the 2021 EIA Report and includes development of Maritime Management Procedures to ensure the safety of marine users (MU01), and to provide sufficient notifications to reduce potential impacts to 'not significant'. A dedicated fisheries forum will be convened to provide direct communications between the local fisheries sector and the Spaceport to highlight issues and address them as they arise, in addition to maximising opportunities for vessel use as part of Spaceport operations e.g., guard or patrol vessels.

Assessment of Residual Effects

Magnitude

The farm will retain agricultural use under the current tenancy agreement. The magnitude of change is assessed as **negligible**. The magnitude of the impact on marine users is fully assessed in Chapter 13 of the 2021 EIA Report. Disruption to any fishing activity is likely to be infrequent, with no more than 10 launches in a year, for a short and temporary duration over a limited area where jettisoned stages (payloads) will be deposited, including an additional safety buffer. Fishing will be able continue throughout available grounds within the wider study area (Space Launch Hazard Area). Notification and management measures will ensure advanced warning to enable fisheries to make alternative arrangements, where possible, and timely updates to mariners on completed launches to allow fishing to resume at the earliest opportunity. Ongoing issues associated with aspects relating to Spaceport operations and notifications will be raised directly via a dedicated fisheries forum. Therefore, the magnitude of impact on commercial fisheries and marine tourism is considered **low**.

The impacts on tourism as a local industry based on natural resources is broadly assessed in Section 7.9.3. In summary, access disruptions are likely to be for a temporary, reversible, and limited duration for each launch event (up to 10 launches proposed each year), with prior notifications of launch activities, which will ensure the local community and recreational users are notified in advance. There are several comparable areas of open space for recreational activities (notably, fishing, walking and beach visits) around the area and several mitigations are proposed to offset, enhance, and improve access to the public (including tourists) during Tier 1 operations. The magnitude of this impact, with mitigation and enhancement measures to offset impacts is evaluated as **low**.

Significance of residual effects

The reliance and cultural importance of natural resources, indicates natural resources in the context of North Uist and wider Western Isles region is **high**. The magnitude of impact, with the proposed mitigation measures in place is assessed as **low** across marine users (including commercial fisheries) and **negligible** for agricultural use. Overall, a **minor (adverse)** impact is predicted, which is assessed as **not significant**.

7.9.8 Impacts on housing availability and social infrastructure

Impact (without mitigation)

Small populations subject to rapid increases in population may place pressure on existing social infrastructure, including health services, schools and housing. The Project is expected to generate 12 direct FTE direct jobs across 25 posts and 23 FTE across the wider supply chain (Table 7-8), the assessment in Section 7.9.5 suggests that a small number of individuals will be introduced to the community.

Mitigation or Enhancement

Spaceport 1 and the Comhairle, through the Settlement Officer, will support any off-island appointments to source appropriate housing. Due to the nature of the operations, there is not an immediate requirement for anyone to move permanently to the islands. Temporary arrangements such as hotel / guest house / self-catering accommodation could be utilised during launch events until such time as permanent housing becomes available (COM10).

Assessment of Residual Effects

Magnitude

Personnel predictions indicate that there will be approximately 12.0 direct FTE across 25 jobs associated with the Spaceport by Year 3 of operation. Indirect job creation is expected to result in 23 FTE. The intention of the Spaceport is to recruit and train candidates locally, as much as possible. An introduction of a small number of individuals represents a negligible increase in the local population and represents a **low** magnitude increase in net inward migration at the local scale.

Significance of residual effects

The sensitivity / importance of housing is assessed as **high,** the sensitivity / importance of social infrastructure is assessed as **medium**. The magnitude change associated with net inward migration is **low**. The overall significance of effect is assessed as **minor (adverse)** at a local level.

7.9.9 Changes to digital connectivity

Impact (without mitigation)

Within the west of North Uist area (data zone S01009021), 29% of premises (approximately 90 houses) do not have access to superfast broadband (defined as a minimum of 30 Mbit/s download speed) (SIMD; Scottish Government 2020). A BT broadband fibre extension will be extended in North Uist to service communication requirements. The purpose of this cable installation is to ensure security and reliability of communications undertaken at the Project site.

Mitigation or Enhancement

A BT broadband fibre extension will be extended to the project site. The purpose of this cable installation is to ensure security and reliability of communications undertaken on site. It is recognised that, at present, there are no plans under the R100[49] programme or by other parties to install fibre connections in the vicinity of the site and as such, residents will receive the benefit of access to improved connectivity within the area as a direct result of the development (COM05).

[49] Reaching 100% programme; the Scottish Government's commitment to ensuring access to superfast broadband coverage across Scotland.

Assessment of Residual Effects

Magnitude

The installation of the fibre extension will be subject to a separate design process; however, a proportion of the local population will receive the benefit of access to improved connectivity within the area. There are no plans under the R100 programme or by other parties to install fibre connections in the vicinity of the site. The exact number of properties that will benefit from the upgrade is unknown but a conservative evaluation the magnitude of the impact on digital connectivity is assessed as **low.**

Summary of residual effects

Connectivity is assessed as **high** sensitivity receptor; the project will not impact digital connectivity but will result in increased access to high-speed internet for a small number of the local population and is considered **low** magnitude. Overall changes to connectivity are assessed as **minor (beneficial)**.

7.9.10 Changes to geographic connectivity

Impact (without mitigation)

New staff and movement of personnel and equipment to the site will require the use of transport infrastructure (ferries / flights), with potential to place additional pressure on existing transport infrastructure network. Local connectivity may be compromised by traffic restrictions associated with the Spaceport.

Mitigation or Enhancement

Changes outlined in Section 7.5.12 (upgraded transport infrastructure) are expected to reduce existing transport pressure. In terms of local connectivity, spectators will be actively discouraged, and launch day traffic management measures (GM08) will be in place to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads.

Assessment of Residual Effects

Magnitude

Transport connections to the Uists can be compromised by poor weather, ferry mechanical issues and high demand by tourists during the summer period. Transport / personnel requirements for relatively small sub-orbital launches are expected to be nominal and complex launch requirements are likely to involve the use of chartered vessels to Loch Carnan, the route currently adopted by QinetiQ. Existing issues relating to ferry pressures are expected to reduce in the future, with a recent announcement (BBC, 2022) indicating that budget has now been allocated for two new ferries for the Skye triangle route (Skye, North Uist, Harris). This upgrade is expected to be in service by 2026 to improve reliability. Section 11.5.2 describes the likely scenarios of phased arrival of equipment and personnel during a launch campaign. Launch mobilisation requirements are expected to be phased with personnel, equipment, and materials likely to be moved incrementally. The magnitude of changes to geographic connectivity are assessed as **low.**

Summary of residual effects

Geographic connectivity is assessed as **high** sensitivity receptor; and the magnitude is assessed as **low**. Overall changes to connectivity are assessed as **minor (adverse)** and **not significant**.

7.10 CUMULATIVE AND IN COMBINATION EFFECTS

No other proposed or recently consented projects with potential for cumulative effects to arise have been identified within the study area. Cumulative effects have been scoped out of the assessment for this topic. In combination effects are assessed separately in Section 23 of the SEI.

7.11 ASSESSMENT SUMMARY AND CONCLUSIONS

Previously, the economic impacts of the project were presented in Appendix 7.1: Socio-Economic Analysis of the 2021 EIA Report, undertaken by MKA Economics in support of the planning application. The report has been updated in line with feedback from CnES Planning and an externally commissioned review. The updated assessment has been expanded to provide greater consideration of the potential social impacts and includes clarifications relating to the assessment methodology and access to the site during construction and operation. The original socio-economic analysis undertaken by MKA Economics has also been updated.

Economic Impacts

Beneficial economic effects are associated with both the construction and operation of the development. Capital investment costs for construction are anticipated to be around £3.1 million. It is estimated that the Development will directly generate £1.0 million GVA and 21.4 job-years in the Outer Hebrides. The economic impact of construction on GVA / employment at both a regional and local level is concluded as minor (beneficial) is concluded. In terms of the operational benefits, the net direct, indirect, and induced economic impacts of the operational Spaceport 1 in Year 3 of operation are estimated to be:

- Employment – 23.26 FTEs (direct and indirect)
- Turnover - £6.45 million
- GVA - £2.73 million
- Income - £1.18 million

The economic impact of the project on employment and income from operation is assessed to be moderate (beneficial) and significant at the local scale and minor (beneficial) and not significant at the regional scale. Similarly, the overall impact on GVA / economy is evaluated as moderate (beneficial) and significant at both the local and regional scale.

Social Impacts

Other effects relating to the potential social and community impacts were evaluated to understand the potential impacts associated with construction and operational phases.

Construction

The main potentially significant impact during construction is disruption or severance of access to Scolpaig Farm, an important tourism and recreational receptor. Access to Scoping Farm will be subject to restrictions during construction. To reduce the duration of access restrictions, new mitigation commitments include restricting access from the A865 during the upgrade of the access track only (i.e., between week 5 and week 11 of the construction timetable). Alternative access to Scolpaig Bay and the wider path network will continue to be available during this period. Access restrictions outwith the access track upgrade period will be limited to the farm complex only and normal access via the A865 will resume. The assessment concludes that during the construction phase, adverse residual effects to the local community, tourism amenity and recreational activity is minor (adverse) and not significant.

There are 520 traffic movements expected over the duration of the construction period. Mitigation has been proposed to stagger the movement of construction vehicles, which will avoid convoy scenarios on the A865. No road closures or other measures likely to disrupt the free flow of traffic are proposed. The disruption to access and potential journey delay is likely to be temporary in duration and limited in extent to the construction traffic route. The potential impact associated with disruption to the local community due to increased traffic volumes is evaluated as minor (adverse) and not significant.

Operation

During the operational phase of the Project, four tiers of access arrangements will be in place corresponding to the status of launch events. Of these, only one of these access tiers will result in prohibited access to the wider Scolpaig Farm site and will be implemented during launch events only for site security purposes and public safety. Launch events are expected to last part of one day (with possible ‘back

up days should a launch be delayed / aborted). Prior notification of launch activities will be issued to ensure the local community and recreational users are notified in advance to be able to make alternative arrangements to access the wider path network, where possible. Temporary disruption will be unavoidable and mitigation measures to offset disruption include improved access (parking, pedestrian access) in addition to the development of a Habitat and Amenity Management Plan to explore and implement environmental and community use of Scolpaig Farm in partnership with an Advisory Group. Disruption and severance of access to recreational and tourism amenities during the operations phase is assessed as minor (adverse) and not significant.

Impacts arising from traffic have been mitigated by the implementation of a clearway system (i.e., a police presence to avoid spectators parking on the single-track road or laybys) to ensure free flow of traffic during a launch event. The police will have power to close the road as an emergency measure only. Access to the St Kilda Viewpoint Visitor Centre, will not be affected during normal operations. The potential to disrupt the local community from traffic management measures, with the proposed mitigation is assessed as minor (adverse) and not significant.

Impacts arising from the potential increase of population arising from new staff recruited outwith the Uists was assessed in the context of social / cultural composition of the population and impacts on housing / social infrastructure. A total of 25 roles will be filled over 12 FTEs for direct Spaceport operations and a total of 23 jobs (direct) and a further 11 FTEs are expected to be generated as part of the supply chain (indirect). Commitments to recruit and train locally, in addition to the part time nature of many of the proposed roles indicate that the number of employees recruited from outwith the Uists is likely to be limited. Impacts are assessed as minor (adverse) in the context of impacts relating to increased housing demand, pressure on social infrastructure but minor (beneficial) in terms of supporting policies to increase, attract and retain economically active population on the island. Impacts are not significant in the context of EIA.

Beneficial impacts are anticipated from changes to education, training, skills and diversification opportunities. The Consortium is developing an educational programme for local school children in conjunction with the Education Authority and UK Space Agency and is in consultation with Skills Development Scotland (SDS) in regard to skills requirements. The Developer has committed to work with the TalEntEd Islands Programme, which aims to support and create innovative opportunities for education, skills and work-based learning through entre and intrapreneurship programmes. These initiatives will be monitored to validate predicted impacts arising from educational programmes. Other initiatives are in place to address supply chain and Spaceport specific training needs. Impacts on education, training, skills and diversification opportunities are assessed as moderate (beneficial) and significant.

Existing access through the site to the wider path network, which is currently indicative only, will require a minor rerouting between the Scolpaig farmhouse and planned vehicle turning area. Inconvenience to the public through the access limitations are acknowledged and measures to offset impacts include improved community access through provision of additional parking spaces (including users' space for users of limited mobility) and a pedestrian gate. While the Project will improve long-term improvements to access and amenity, implementation of a Habitat and Amenity Management Plan will ensure responsible access to protect habitats for sensitive species and agricultural tenancy at Scolpaig Farm. Impacts on the site as a community and access resource, with mitigation, are evaluated as minor (adverse) and not significant.

Changes to access and nature of industries reliant on natural resources were assessed. Key receptors include crofting / farming (loss of agricultural land) and marine users, notably commercial fisheries. The farm will retain agricultural use under the current tenancy agreement, developed to maximise nature conservation benefits. Disruption to any fishing activity will occur over a short duration over a limited area where jettisoned stages (payloads) may be deposited. Fishing will be able continue throughout available grounds within the wider study area (Space Launch Hazard Area). Notification and management measures will ensure advanced warning to enable fisheries to make alternative arrangements, where possible, and timely updates to mariners on completed launches to allow fishing to resume at the earliest opportunity. Any ongoing issues associated with aspects relating to Spaceport operations and notifications will be raised directly via a dedicated fisheries forum, and proposals are made to mitigate impacts through the use of local vessels to support patrol operations. The reliance and cultural importance of natural resources, indicates natural resources in the context of North Uist and wider Western Isles region is high. Overall, a minor (adverse) impact is predicted, which is assessed as not significant.

Geographic connectivity and digital connectivity was assessed, both considered sensitive / important receptors in the wider Western Isles region and particularly north Uist. An extended BT Fibre connection is expected to result in a minor (beneficial) impact to the local area which is not significant. Pressure on transport system may result from increased personnel and equipment movement requirements, Transport / personnel requirements for relatively small sub-orbital launches are expected to be nominal and complex launch requirements are likely to involve the use of chartered vessels to Loch Carnan, the route currently adopted by QinetiQ. Existing issues relating to ferry pressures are expected to reduce in the future with two new ferries proposed for the Skye triangle route (Skye, North Uist, Harris). This upgrade is expected to be in service by 2026 to improve reliability. Launch mobilisation requirements are expected to be phased with personnel, equipment, and materials likely to be moved incrementally. Impacts to geographic connectivity are assessed as minor (adverse) and not significant.

No other proposed or recently consented projects subject to EIA have been identified within the study area and cumulative effects have been scoped out of the assessment for this topic.

7.12 REFERENCES

David Henderson (2022) Press Release: £115 ferry contract for two CalMac ships for Western Isles. BBC News [online]. https://www.bbc.co.uk/news/uk-scotland-63399160.amp

CalMac (2022) Corporate Route Performance: Uig – Tarbert / Lochmaddy [online]. https://www.calmac.co.uk/corporate/route-performance

CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland. Version 1.1 – Updated September 2019. Terrestrial, Freshwater, Coastal and Marine [online]. https://cieem.net/resource/guidelines-for-ecological-impact-assessment-ecia/

CnES (2010) Outer Hebrides Core Paths Plan [online]. https://www.cne-siar.gov.uk/media/4309/corepathsplan.pdf

CnES (2018a) Outer Hebrides Local Development Plan. Supplementary Guidance: Marine Fish Farming [online]. https://www.cne-siar.gov.uk/media/12605/sg-marine-fish-farm-final-for-adoption-nov-web-version.pdf

CnES (2021a) Communities Department: Socio Economic Update no. 43 [online]. https://www.cne-siar.gov.uk/media/17314/se-update-43.pdf

CnES (2021b) Population overview [online]. https://www.cne-siar.gov.uk/strategy-performance-and-research/outer-hebrides-factfile/population/overview/
wester
CnES (2022) Agriculture and Crofting [online] https://www.cne-siar.gov.uk/strategy-performance-and-research/outer-hebrides-factfile/economy/agriculture-and-crofting/

CnES Visit Scotland (2018) The Outer Hebrides Visitor Survey 2017 [online]. https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers/outer-hebrides-report---may-18.pdf

Crofting Commission (2022) Crofting Development [online]. https://www.crofting.scotland.gov.uk/crofting-development

Experian (2020) Preliminary results for the year ended 31 March 2020 [online]. https://www.experianplc.com/media/3992/experian-fy20-presentation-20-may-2020.pdf

Glasson J *et al.* (2020) Guidance on assessing the socio-economic impacts of offshore wind farms (OWFs) [online]. Guidance on assessing the socio-economic impacts of offshore wind farms (OWFs) | openEQUELLA (brookes.ac.uk)

Highlands and Islands Enterprise (2020) The Impact of COVID-19 on the Highlands and Islands [online]. https://www.hie.co.uk/media/9646/the-impact-of-covid-19-on-the-highlands-and-islands.pdf

Highlands and Islands and Enterprise (2022) My Life in the Highlands and Islands Research, Innse Gall Summary Report

Historic Environment Scotland (2022) Dun Scolpaig, dun (site of) and tower [online]. http://portal.historicenvironment.scot/designation/SM7640

Homes and Communities Agency (2015) Calculating Cost Per Job | Best Practice Note 2015 (3rd Edition) [online]. http://www.nwueu.ac.uk/NWUEU/LatestUpdates/PDF/CPJ%20BPN%20%202015%203rd%20Edition%20-%20Final.pdf

Marine Scotland (2016) Scottish Marine Recreation and Tourism Survey 2015 [online]. https://data.marine.gov.scot/dataset/scottish-marine-recreation-and-tourism-survey-2015

NatureScot (2018) Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment process in Scotland [online]. https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf

Nomis (2022) Labour Market Profile – Na H-Eileanan Siar. [online]. https://www.nomisweb.co.uk/reports/lmp/la/1946157417/report.aspx

North Uist Angling Club (2022) North Uist Angling Club Waters [online]. https://www.google.com/maps/d/viewer?mid=1FM2yzo7iuGw9i9UlyS76gmvcXHna5lRC&ll=57.64423021521517%2C-7.269343855275851&z=11

North Uist Development Company (2018) North Uist Community Development Plan.

North Uist Development Company (2018) Uist Affordable Housing Study Final Report [online]. www.isleofnorthuist.com/.../housing_report_31.1.18_final_report_1.pdf

OHCPP (2018) North Uist and Benbecula Locality Plan [online]. https://www.cne-siar.gov.uk/media/9738/I%20Item%209D%20-%20Appendix%203%20North%20Uist%20and%20Benbecula%20Locality%20Plan%20v2.3a.pdf

Outer Hebrides Tourism (2021) Tourism Strategy for the Outer Hebrides: Creating a Leading 21st Century Tourism Destination [online]. https://www.visitouterhebrides.co.uk/dbimgs/Outlook2030%20Final%20April%2021.pdf

Place Standard (2022) Place Standard: How Good is our Place? [online]. https://www.ourplace.scot/tool

Scotland's Annual Business Statistics (2020) [online]. https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2020/06/scottish-annual-business-statistics-2018/documents/sabs-2018-key-facts/sabs-2018-key-facts/govscot%3Adocument/SABS%2B2018%2BKey%2Bfacts.pdf

Scottish Government (2011) 2011 Data Zone: Benbecula and North Uist – 03 [online] https://statistics.gov.scot/atlas/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fid%2Fstatistical-geography%2FS01009021

Scottish Government (2015) Scotland's Economic Strategy. Edinburgh: The Scottish Government [online]. https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2015/03/scotlands-economic-strategy/documents/00472389-pdf/00472389-pdf/govscot%3Adocument

Scottish Government (2016) Urban Rural Classification [online]. https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/documents/

Scottish Government (2020a) Scottish Index of Multiple Deprivation 2020 [online]. https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/

Scottish Government (2020b) SIMD 2020 Technical Notes [online]. https://www.gov.scot/publications/simd-2020-technical-notes/ Accessed 20/08/22

Scottish Government (2021) National Development Plan for Crofting: Island Communities Impact Assessment.

Scottish Government (2021) Scotland's Economic Strategy – Growth Sector Statistics [online]. https://www.gov.scot/publications/growth-sector-statistics/

Tourism Leadership Group (2018) Tourism in Scotland: The Economic Contribution of the Sector [pdf] Edinburgh: The Scottish Government [online].

Uist Community Archaeology Group (2022) [online]. https://uistcommunityarchaeology.weebly.com/

UKSA (2022) Size and Health of the UK Space Industry 2021 [online]. Size and Health of the UK Space Industry 2021 - GOV.UK (www.gov.uk)

UK Space Agency Annual Report 2021-22 (2022) [online]. https://www.gov.uk/government/publications/uk-space-agency-annual-report-and-accounts-2021-2022/uk-space-agency-annual-report-2021-22

Visit Outer Hebrides (2022) Scolpaig [online]. https://www.visitouterhebrides.co.uk/hebrideanway/things-to-do/scolpaig-p523391

Zoopla (2022) Prices on North Uist and Western Isles [online]. House prices in Western Isles - sold prices and estimates - Zoopla

8 LANDSCAPE AND VISUAL

8.1 INTRODUCTION

This assessment has been collated to support the request for Supplementary Environmental Information (SEI) under Regulation 26 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, issued by Comhairle nan Eilean Siar (CnES) Planning on 1 September 2022. The assessment supersedes the original Chapter 8. Landscape and Visual Assessment of the Environmental Impact Assessment Report (the 2021 EIA Report) submitted to support the planning application for a spaceport in North Uist.

Potential impacts on landscape and visual amenity from permanent infrastructure associated with the spaceport were previously scoped out of the EIA, in consultation with the planning authority. However, following the provision of further information around spaceport activities during a launch, the Developer has commissioned a further assessment of potential incremental effects of launch activities, in addition to an assessment of effects during the temporary construction phase.

A Landscape and Visual Appraisal is provided in SEI Appendix 8.1 and is supported by the SEI Visualisation Pack (Volume 2C of the SEI). The assessment has been undertaken by Carol Anderson Landscape Associates Ltd.

8.2 CONSULTATION

Following submission of the planning application, feedback relating to the assessment were received from CnES Planning based on an external review of the EIA, and as part of a formal request for Supplementary Environmental Information (SEI). Key responses are listed in Table 8-1.

Table 8-1 Key issues raised by stakeholders during consultation

Stakeholder	Comment	Response/Action taken	Section
CnES Planning (SEI request) 01/09/2022	Provide an assessment of the potential impact of the proposal on landscape character (including nonvisual impacts upon character) together with potential visual impact, including in relation to the definitive extents of the South Lewis, Harris and North Uist National Scenic Area (per NatureScot); in addition to permanent impacts, incorporate potential temporary construction impacts and intermittent operational impacts, including in relation to activities related to individual launch events (such as fencing and lighting).	An appraisal of the potential effects of the proposed spaceport project on coastal/landscape character and visual amenity has been undertaken. The appraisal accords with the methodology set out in the Guidelines for Landscape and Visual Impact Assessment (GLVIA) produced by the Landscape Institute and the Institute of Environmental Management and Assessment.	SEI Appendix 8.1
CnES Planning (SEI request) 01/09/2022	Provide a clear indication of the likely duration of the impacts and an assessment of the likely cumulative impact of a series of launch campaigns taking place (based on each event lasting up to 14 days in duration, up to ten times a year).	The appraisal assesses the worst-case scenario of 10 launches per year and up to 14-day launch campaign, including all temporary infrastructure and activity on site and their incremental effects.	SEI Appendix 8.1

Stakeholder	Comment	Response/Action taken	Section
NatureScot 11/08/2022	The formal map (such as it is) [of the South Lewis, Harris and North Uist National Scenic Area] is in the attached designation order. Words take precedent if there is any confusion/discrepancy with the map, and the description of the boundary suggests it would go to the north of the road and farm. This is the boundary on our GIS system, which will be what Scottish Government digitised at the time. Commissioned report 374 used the digitised boundary before amendments were made to the final direction and GIS boundary. Amendments made included the exclusion of Scolpaig Bay. For the purposes of this proposal impacts on the NSA would be considered irrespective of whether the development was just within or just outwith the NSA.	The Project boundary is outwith but adjacent to the NSA. NatureScot has confirmed that the proposed Project lies outside the NSA. While the description of the special qualities of this NSA set out in NatureScot Commissioned Report 374 makes specific mention of Scolpaig and the accompanying map in this document indicates the inclusion of the Scolpaig area in the NSA, it has been explained by NatureScot that this was drafted prior to final amendments being made to the boundaries of the NSA. However, the effects of the proposed Project on the NSA are considered in the appraisal, as irrespective of whether it lies in the designated area or not, there is potential for significant effects to arise directly or indirectly on some of its special qualities.	SEI Appendix 8.1, SEI Figure 8.3

In addition, representations made by the public in response to the planning application were also received, including issues relating to:

- Visual damage to the pristine and irreplaceable wild scenic coastline and landscape.
- Destruction of small-scale farms and crofts and is at odds with the character of this part of the island.
- The proximity of the site to the NSA, with previous SNH guidance indicating the site to lie within the NSA.
- Loss of existing view towards site from public road, destroying views of folly (Scolpaig Tower) and St Kilda.
- View from the proposed Shealladh Hiort (St. Kilda Viewpoint Visitor Centre) will be compromised.

A full response to each of the collated representations is provide in SEI Appendix 5.2. Potential landscape and visual impacts on all relevant receptors, including landscape and coastal character, key views and special qualities of the NSA have been assessed in SEI Appendix 8.1. Landscape and Visual Appraisal.

9 LAND USE AND UTILITIES

9.1 INTRODUCTION

Land use and utilities were assessed in Chapter 9 of the 2021 EIA Report, no changes to the assessment have been made. Table 9-1 Summarises the feedback received from statutory and non-statutory consultees and includes the information requested as part of the Request for Supplementary Environmental Information. Representations from the public raised queries in relation to this assessment. SEI Appendix 5.2 provides the collated responses of the representations and response of the Spaceport 1 Consortium and EIA Contributors. Public representations focused on the inappropriate use and loss of agricultural land.

Table 9-1 Consultee responses in relation to Land Use and Utilities (Chapter 9 of the 2021 EIA Report)

Consultee	Feedback	Response	Section
SEPA	Drawing (00)22 indicates that the water storage tank is connected to mains water supply, however, this is not clear as reference is made to "new underground water supply from farmhouse" (Drawing 0022 and 0039) and "sprinkler deluge system…. fed from an existing private water supply serving the Scolpaig farmhouse" (Drawing 0022). We would request clarification on whether the water on site is coming from a) an existing abstraction, b) a new abstraction or c) mains water supply. If abstractions are required, further information indicating volumes should be provided.	The current arrangements are to bring tankered water to site. Drawing (00)22.8 submitted in the 2021 EIA Report has been updated and is submitted as part of the SEI Addendum (Drawing (00)22.13).	Drawing (00)22.13). SEI Appendix 17.4. Water supply options.
CnES Planning (SEI Request) 01/09/2022	Provide confirmation of the existing water supply to the site and clarify whether further works or infrastructure may be necessary in this regard.	The current arrangements are to bring tankered water to site. The main water requirement is for accidental events only, for firefighting or dilution of a hydrogen peroxide fuel spill and is not required for day-to-day operations. Once the water storage tank is full it will only require re-filling following an unlikely accidental event. Longer term water storage options will be considered for the spaceport, but do not form part of the current proposals, these are outlined in Water Supply Options, which is provided as part of the SEI Addendum.	SEI Appendix 17.4. Water supply options.

9.2 FUTURE BASELINE

A planning application has been submitted and approved for the proposed St Kilda Viewpoint Visitor Centre (21/00184/PPD) at Beinn Riabhach, south-east of the Project. The development is to comprise a visitor centre, access road, vehicle parking and turning area, waste treatment plant, and fire-fighting pond. Access to the development is proposed approximately 0.5 km east of the development site access, heading towards Sollas. No changes to the assessment approach for land use and utilities are proposed.

10 ARCHAEOLOGY AND CULTURAL HERITAGE

10.1 INTRODUCTION

This section updates and expands aspects of the Chapter 10. Archaeology and Cultural Heritage of the 2021 EIA Report undertaken by Guard Ltd. Section 10 of the SEI should be read in conjunction with Chapter 10 of the EIA Report. The aim of this assessment is to provide supplementary information in response to representations submitted regarding the 2021 EIA Report by: Historic Environment Scotland (HES), Western Isles Council Archaeology Service (WICAS), the public; and CnES Planning via a request for Supplementary Environmental Information. Consideration has also been made to other representations by the public, collated in SEI Appendix 5.2. The updates and revisions to Chapter 10 have been undertaken by Headland Archaeology Ltd.

This section should be read in conjunction with Chapter 10. Cultural Heritage and Archaeology of the EIA Report and the Vibration Technical Note (SEI Appendix 19.2). New and / or updated appendices that support this section are:

- SEI Appendix 10.1 – Archaeology Gazetteer.
- SEI Appendix 10.2 – Stage 1 Setting Assessment.
- SEI Appendix 10.3 – Structural Survey.

Key updates to the 2021 EIA Report include a revised assessment of setting, with potential indirect (setting) effects on non-designated heritage assets within a 5 km Study Area buffered from the Project Site considered as part of a 'Stage 1' setting assessment (SEI Appendix 10.2), with the structures that comprise Scolpaig Farmstead (CHS6) retained for detailed setting assessment. Further detail is presented regarding potential impacts within the Project Site and the 200 m Study Area as a result of additional baseline data sources becoming available.

10.2 CONSULTATION

Previous consultation with statutory consultees is outlined in Table 10.1 of the 2021 EIA Report. Subsequent responses submitted regarding the 2021 EIA Report have been provided by HES, WICAS, a member of the public referred to throughout this addendum as 'Contributor No.59', and CnES Planning. Other representations made by the public are collated in SEI Appendix 5.2. HES stated that they do not object to the proposed development but recommended that the mitigation outlined in section 10.11 of the 2021 EIA Report should include monitoring of the structural stability of Scheduled Monument Dun Scolpaig, dun (site of) and tower (SM 7640) during the construction and operational phases of the proposed development.

Table 10-1 Summary of consultation responses in relation to Chapter 10. Archaeology and Cultural Heritage

Consultee	Summary Response	Response	Section
HES (April 2022)	Stated that they do not object to the proposed development and agreed with the conclusion that any impact on the setting of Dun Scolpaig, dun (site of) and tower (SM 7640) would be temporary, resulting in a negligible magnitude of impact on the cultural significance of the monument. They stated that the current state of Dun Scolpaig, dun (site of) and tower (SM 7640) should be taken into consideration with regard potential impact from vibration and that the monitoring programme outlined in the 2021 EIA Report should be extended to include the monument.	A structural survey of Dun Scolpaig (SM 7640) has been undertaken. A vibration addendum has been produced and has assessed that there would be no impact on Dun Scolpaig (SM 7640) as a result of construction and operational phase vibration.	SEI Appendix 10.3. Structural Survey, SEI Appendix 19.2. Vibration Technical Note

Consultee	Summary Response	Response	Section
WICAS	**Item 1**: General - There is no reference to the SNH/HES Environmental Impact Assessment Handbook; Appendix 1 Cultural Heritage Impact Assessment.	Appropriate EIA methodologies have been adopted in this addendum. It is, however, acknowledged that the SNH/HES Environment Impact Assessment Handbook was referred to in section 10.7.2 of the 2021 EIA Report.	Section 10.4
	Item 2: General - The potential for palaeo-environmental information has been omitted.	A palaeo-environmental impact section has been included in this revision.	Section 10.8.5
	Item 3: 10.3.3 – Local Planning Policy and Guidelines. This should have included other relevant policies such as NBH5 Archaeology, NBH6 Historic Areas and NBH7 St Kilda.	These policies have now been consulted and are referenced in this addendum.	Section 10.3
	Item 4: 10.4.2 – The Local Authority Historic Environment Record (HER) should have been included here. It is the primary data source for all undesignated historic environment assets in the Western Isles. It is noted that it is referenced elsewhere in the chapter.	An extract of the HER extending to 5 km from the proposed development was obtained in July 2022 and used to inform this addendum.	SEI Appendix 10.1. Archaeology Gazetteer.
	Item 5: Page 13 - Indirect Impacts (Setting) – The EIA states that undesignated cultural heritage sites were excluded from the setting assessment. The Archaeology Service does not agree with this approach. All relevant historic assets should have been considered in the assessment.	Non-designated cultural heritage sites out to a distance of 5 km from the proposed development have been considered as part of a 'Stage 1' setting assessment with detailed setting assessment of Scolpaig Farmstead carried out in this addendum.	SEI Appendix 10.2. Stage 1 Setting Assessment.
	Item 6: Page 20 – Statement of Cultural Heritage Sensitivity – The final sentence should read 'there is a high potential for the survival of previously unrecorded cultural heritage'.	This addendum considers this to be the case and has been updated on this basis.	Section 10.8.5
	Item 7: 10.10.1 – Mitigation of Direct Impacts table. ARC02, this could be presented more clearly. It is recommended that the Design Mitigation column reads 'Evaluation' only. All archaeological mitigation including Historic Building Recording comes under the heading of 'program of archaeological works and each aspect of the 'program' will require an agreed (WSI). The 'Description' column should be amended to reflect this.	Whilst not seeking to replace the table provided in the 2021 EIA Report, mitigation of direct impacts is presented in the chapter and in the updated Schedule of Mitigation.	Mitigation described in Section 10.11. Updated Schedule of Mitigation in SEI Annex C.
	Item 8: 10.13 – The report states 'Scolpaig Farmhouse is noted as having a unique set of outbuildings'; 'rare', is a more appropriate term.	This addendum considers this to be the case and the assessment has been carried out on that basis.	n/a

Consultee	Summary Response	Response	Section
Contributor No.59	**Item 1**: CHS 10C This site of a former thatched house lies immediately to the west of the farm access bell-mouth where it meets the public road and was not identified in the GUARD report. Proposal drawings show it being largely removed to make way for car parking.	This asset has been assessed for direct impacts in this addendum. Evaluation of the asset is proposed in the Mitigation section of this addendum.	Section 10.9.1 Section 10.11.1 SEI Annex C. Schedule of Mitigation
	Item 2: CHS 27 This building (Byre 2) is that being altered and upgraded to provide storage etc. The SFG (Scolpaig Farmstead Gazetteer) identifies the foundation of an earlier building located at its NE end which the launch pad access road passes by very close to (or possibly just over?) and also a drain leading to a soakaway possibly cutting through it.	Asset has been recorded as part of a programme of Historic Building Recording and the 'foundation of an earlier building' at the north-east end of the structure will be evaluated during trial trenching as outlined in the Mitigation section in this addendum.	Section 10.11.1 SEI Annex C. Schedule of Mitigation
	Item 3: CHS 28 This building (Byre 3) also has the foundation of an earlier building located at its NW end which the launch pad access road passes right over, and through which a track is being excavated for a cable duct. The SFG suggests that the back (NE facing) wall of this building may be one of the earliest remaining sections of walling in the farmyard.	Asset has been recorded as part of a programme of Historic Building Recording and the 'foundation of an earlier building' at the north-west end of the structure will be evaluated during trial trenching as outlined in the Mitigation section in this addendum.	Section 10.11.1, SEI Annex C. Schedule of Mitigation
	Item 4: CHS 29 The E corner of this ruined building or pen is also very closely passed by the launch pad access road and it will need protecting and stabilising to prevent its collapse. Note that the ground level rises between the front and back elevations of both this building and for CHS 28, Byre 3 too.	Asset has been recorded as part of a programme of Historic Building Recording as outlined in the Mitigation section in this addendum.	SEI Annex C. Schedule of Mitigation
	Item 5: CHS 30 CHS30 may contain stack stands or other structures beneath its surface and, as both the launch pad access road and the pipe duct pass over/through it, and despite the proposed mitigation of a sand layer, it is suggested it is selected as a target for pre-development excavation work.	Asset has been recorded as part of a programme of Historic Building Recording as outlined and will be evaluated during trial trenching as outlined in the Mitigation section in this addendum.	SEI Annex C. Schedule of Mitigation
	Item 6: CHS 31 The same level change issue will arise with the access road crossing the field dyke CHS 31.	Asset has been recorded as part of a programme of Historic Building Recording as outlined in the Mitigation section in this addendum.	SEI Annex C. Schedule of Mitigation

Consultee	Summary Response	Response	Section
	Item 7: CHS 1, Scolpaig Tower A proper assessment needs to be undertaken as to the risks posed to the structure from collapse because of vibration from launch activity. HES posed the question during earlier consultations referring to 'the monuments', but although GUARD address the underlying question in section 10.11.2 and 3, Dun Scolpaig, CHS 1, is omitted from the commentary	A vibration addendum has been produced and has found that any impact from vibration during construction and operation of the proposed development would be negligible and would not lead to any impacts on CHS 1.	SEI Appendix 19.2. Vibration Technical Note
	Item 8: CHS2 Although the farmhouse is included in the mitigation list for HBR survey and monitoring, this only implies that action will be taken if the building is damaged by the spaceport activity, not through a lack of general repairs and maintenance. Although not specifically mentioned, it is assumed that its future will be considered within the proposed Amenity Management Plan under the responsibility of the Advisory Forum, but this is no guarantee that its future will be secured.	CHS2 Scolpaig House has been recorded as part of a Historic Building Recording of the wider CHS6 Scolpaig Farmstead.	SEI Annex C. Schedule of Mitigation
	Item 9: Assessment of cultural impacts The SFG (Scolpaig Farm Gazetteer) explains why (Scolpaig Farm) …is far more significant culturally than is suggested in the GUARD report, and it is suggested that the impact of the current proposals should be reassessed in this light.	This addendum has upgraded the sensitivity of CHS6 Scolpaig Farmstead (including the assets which comprise it) from low (local) to medium (regional).	Section 10.8

Consultee	Summary Response	Response	Section
	Item 10: CHS 1 Dun Scolpaig Tower In conjunction with HES, it is suggested that the owners/applicants should revive the CnES 2007/8 proposals for the building's restoration. As it is accepted that this will take time to bring to fruition, it is recommended that any planning consent be subject to the following conditions: Full reconstruction costs of the building to be insured using a named insurance provider without delay. Before works commence, Dun Scolpaig Tower to be the subject of an updated professional structural condition survey and report. Depending on the report's content, and in conjunction with HES, an updated scheme for its restoration should be prepared, perhaps including improved pedestrian access. Before the spaceport becomes active, the tower should be structurally stabilised and secured by whatever means recommended in the structural survey. This might include full scaffolding or temporary buttressing.	A visual structural condition survey was undertaken on Dun Scolpaig on 30 August 2022. The condition of Dun Scolpaig tower is evaluated to have poor structural integrity, extremely sensitive to loads (wind) which could lead to full or partial collapse. It is recommended that access to the public is prohibited. The vibration addendum has found that the proposed development (construction or operation) would not impact CHS1. Any reconstruction, restoration or stabilisation is not proposed as mitigation for this proposed development. However, the appropriate management of the feature by the landowner (CnES) will be agreed with the Advisory Group as detailed in the Outline HAMP (Appendix 7.2 of the EIA Report).	The report is presented as SEI Appendix 10.3. Structural Survey SEI Appendix 19.2. Vibration Technical Note
	Item 11: CHS 2: Scolpaig Farmhouse Applicants agree to support the building's listing process by HES and its long-term conservation. This should include an agreement that it will have some kind of future use. As it is accepted that this will take time to bring to fruition, it is recommended that any planning consent be subject to the following conditions: 1. Full reconstruction costs of the building to be insured using a named insurance provider without delay. 2. Before works commence, Scolpaig Farmhouse to be the subject of a professional structural condition survey and report. 3. Before works commence Scolpaig Farmhouse HES listing process to be completed. 4. Depending on the report's content, a scheme to make it wind and watertight should be proposed and implemented as part of the spaceport construction works and completed before spaceport becomes active.	A visual structural condition survey was undertaken on the Scolpaig Farmhouse on 30 August 2022. The farmhouse is reported to be subject to some structural distress and the survey provides options for ongoing management. Asset has been recorded as part of a programme of Historic Building Recording as outlined in the Mitigation section in this addendum.	SEI Appendix 10.3. Structural Survey. SEI Annex C. Schedule of Mitigation

Consultee	Summary Response	Response	Section
	Item 12: CHS 3 Cup-marked stone It is important that during any construction work around the farm buildings this lost artefact should be constantly looked for. It is also important that the other three carved stones in the farmhouse garden (SFG pp. 9 and 10) should be secured and plans made for their conservation and future display. The following conditions to any planning consent are recommended: 1. Before works commence Scolpaig Farmhouse Garden and its walls and tumbled stonework to be the subject of a full archaeological survey. 2. Before works commence the three carved stones present in Scolpaig Farmhouse garden plus any other artefacts recorded during the survey should be removed for recording and conservation.	The cup-marked stone will be searched for during trial trenching works in this area. The three carved stones in the farmhouse garden have already been removed by WICAS and members of local museum staff (Murphy, *pers comm*). The garden of Scolpaig House (CHS2) has been recorded as part of a programme of Historic Building Recording.	SEI Annex C. Schedule of Mitigation
	Item 13: CHS 7 Scolpaig Midden Because of the likely significantly increased human presence in the area around the farm, the extent of the midden (SFG p. 19) should be established, and its importance assessed. If it is viewed as significant, proposals should be made for its protection. The following conditions to any planning consent are recommended: 1. Before works commence the Scolpaig Midden to be the subject of a full archaeological survey. 2. Before works commence any necessary protection to secure its long-term conservation should be implemented.	The asset lies outwith the 50 m buffer within which there is the potential for construction phase vibration impacts. The asset lies considerably outwith the area in which any activity associated with the proposed development would take place and it is considered that there would be no impact on this asset during the construction phase. It is unlikely that operational phase vibration would significantly impact the asset and no mitigation is recommended. Any conservation of the midden is not proposed under the remit of the proposed development.	n/a

Consultee	Summary Response	Response	Section
	Item 14: CHS 10 Ardanroin Township If increased public access is anticipated in this area of the farm then the long-term preservation of this set of 19th C buildings is at risk, and it is therefore recommended that this set of remains should be included within the development of an Amenity Management Plan by the Advisory Forum.	The extent to which the proposed development would increase public access to an already well used area is not defined. This falls outwith the scope of this addendum, however, it is considered that any increase in footfall is unlikely to result in significant effects on this asset. The assets fall outwith the area in which activity associated with proposed development would take place. The Habitat Enhancement and Amenity Plan is designed to provide a consultative approach to ongoing management of the site and may include the ongoing management of this feature subject to input form the Advisory Forum and any other Consultations associated with the wider management of the site.	2021 EIA Report, Appendix 7.2 Habitat and Amenity Management Plan
	Item 15: CHSX 38: Loch Scolpaig It was noted that WIME Ltd do not appear to pick up the 200-year history of Loch Scolpaig in their hydrology report which is available to understand through historic mapping and other documentation. (See SFG CHSX 38 pp. 36-40.) This is fundamental to the understanding of the farm's hydrology because there is a possibility that un-controlled actions could lead to catastrophic results.	It is considered this lies outwith the scope of the Cultural Heritage assessment. However, the existing mitigation HHG06 has been developed to reflect the importance of an appropriate maintenance scheme for the drainage channel.	Mitigation HHG6b, SEI Annex C. Schedule of Mitigation
	Item 16: Reducing the proposal's direct physical impact The positioning of the proposed car park between the farm buildings and farmhouse seems to lack any acknowledgement of the long-term cultural relationship between the two. As does the driving of the launch pad access road right through the farm yard and buildings and the destruction of the base of the cattlefold to install a liquids storage tank and soakaway. Apart from the actual and potential damage of the proposed works, the requirement for a site fence to enclose the area also physically separates the farmhouse from the farm buildings with a permanent barrier. And, if the spaceport ceases to operate, it will have permanently altered the general setting of the whole farm.	Mitigation for the direct physical impact of the proposed development is proposed in this addendum (trial trench evaluation, Historic Building Recording of Scolpaig Farmstead and a watching brief) and would reduce the significance of any effects. Whilst the setting of CHS6 Scolpaig Farmstead would alter, it is considered it would remain possible to understand, appreciate and experience the asset as an agricultural complex. Mitigation for any future decommissioning is presented in the 'Mitigation' section of this addendum.	Section 10.11, SEI Annex C. Schedule of Mitigation

Consultee	Summary Response	Response	Section
	Item 17: C.5.2 Project drift and future change of use	It is considered this lies outwith the scope of this addendum.	n/a
	Item 18: C.5.3 Additional viewpoint visualisation It would be useful for a fully rendered post-development image to be produced for the view from the public road lay-by at NF 73222 74758 (fig 4) as this is regularly used as a photo opportunity stopping point by the public especially visitors to the island.	Three example viewpoints are provided, which demonstrate how the proposed development would appear in relation to all the heritage assets within the Project Site and wider 200 m Study Area. There is no evidence that the viewpoint suggested is a culturally significant viewpoint with intentional views towards the heritage assets in the Project Site and 200 m Study Area. Instead, it is a conveniently placed layby where it is possible to take a photograph and not a viewpoint from where the assets were historically intended to be viewed.	Example Viewpoints, Volume 2 Cultural Heritage Visualisations
CnES Planning SEI Request 1/09/2022	Provide an assessment of the likely impact of the proposal on the setting of heritage assets, including non-visual impacts, such as the nature of the use of and activity within the site and the potential effect on tranquillity; further assessment of the likely direct and indirect impacts on the range of non-designated heritage assets highlighted in representation responses, within and in proximity to the application site (please refer to the consultation response by the Archaeological Service of Comhairle nan Eilean Siar).	A 'Stage 1' setting assessment on non-designated remains and detailed setting assessment (designated remains) have been carried out in this addendum (Section 5.6.2). Potential impacts on additional heritage assets identified in representation responses have been considered.	SEI Appendix 10.2. Stage 1 Setting Assessment
	Confirm that the use of land as a Spaceport, if consented, would not preclude non-residential uses of the farmhouse and farm complex (as non-designated heritage assets) and any works proposed to secure these for the longer-term	Consent would not preclude the use of the farmhouse and farm complex structures provided they are restored and secured in a manner sympathetic to their historic form. It is assumed any such works would be the subject of a separate planning application.	n/a
	Item 3: Provide further evidence on the potential for noise and vibration impacts on designated and non-designated heritage assets, during the construction and operational phases of the development, including from HGVs and launch operations.	The impact of noise has been considered as part of the setting assessment. The impact of vibration is covered in the vibration addendum, the results of which have informed this addendum.	SEI Appendix 10.2. Stage 1 Setting Assessment SEI Appendix 19.2. Vibration Technical Note

WICAS, 'Contributor No.59', other public representations in response to the 2021 planning application and CnES Planning have highlighted omissions within the original EIA Report, including areas where they disagree with the methodology employed and where they

believe additional information is required to fully assess the predicted impacts on cultural heritage assets within both the 200 m and 5 km Study Areas. A further representation from the public highlighted an inaccuracy relating to location rendering of the launch tower in the wireframes accompanying the 2021 EIA Report. The location on the wireframes have been corrected and the wireframes re-rendered in the SEI (SEI Figure 10.4 and SEI Figure 10.5).

Comments raised and additional information requests made by consultees following submission of the 2021 EIA Report in Table 10-1. These comments are addressed within the main body of this SEI addendum, where appropriate.

10.3 LEGISLATION POLICY AND GUIDELINES

Section 10.3 of the 2021 EIA Report outlines the relevant legislation, policy and guidance relating to cultural heritage, which remain relevant for this addendum. In addition to these, relevant excerpts of National Planning Framework 3 (NPF3) are considered.

10.3.1 Outer Hebrides Local Development Plan

Relevant excerpts of policies within the Outer Hebrides Local Development Plan (adopted 2018) are also considered. These include:

Policy NBH5: Archaeology

'Development proposals which preserve, protect, or enhance the archaeological significance of heritage assets, including their settings, will be supported.

Development Impact on Scheduled Monuments or their Setting

Scheduled Monuments (scheduled archaeological remains) are nationally important monuments or archaeological sites. Where there is potential for a proposal to have a direct impact on a scheduled monument, the written consent of Historic Environment Scotland is required in addition to any other consent required.

There is a presumption in favour of the in-situ preservation of all scheduled archaeological remains and the Comhairle will support proposals that seek to protect, enhance, and interpret them. Development proposals that will adversely impact upon scheduled archaeological remains or the integrity of their settings will only be permitted in exceptional circumstances where there is no practical alternative site and where there are imperative reasons of overriding public interest.

Development proposals that may adversely impact upon the cultural significance of scheduled archaeological remains or the integrity of their settings will require to be supported by:

a) an assessment of the significance of any heritage assets which are affected by the development; and
b) the measures that will be taken to mitigate any adverse effect on the archaeological significance; and
c) the measures that will be taken to preserve and protect the special interest of the heritage asset; and
d) a justification that demonstrates the social; economic; environmental, safety or other imperative reasons of overriding public interest that would outweigh any adverse effect which cannot be mitigated.

Development Impact on other Sites of Archaeological Importance

Where a development proposal is likely to negatively affect any regionally or locally important archaeological remains, applicants may be required to undertake archaeological assessment.

Where, on the advice of the Comhairle Archaeology Service, information or evidence available indicates that significant archaeological remains may exist; a predetermination evaluation may be required in accordance with an approved Written Scheme of Investigation (WSI). The evaluation may include desk-based assessment (DBA); geophysics; field survey; trial trenching; or other methods of gathering

information. The findings of such evaluations will help define the character and extent of any remains and their likely significance and inform what further archaeological mitigation may be required.

Where further archaeological investigation is required, or in cases where archaeological remains of lesser significance are considered likely to be present, archaeological investigation of the site and/or mitigation may, on the advice of the Comhairle Archaeology Service, be secured by archaeological planning conditions or through use of a planning agreement.

On receipt of the findings of an archaeological investigation, further investigation and/or mitigation may be required on the advice of the Comhairle Archaeological Service. Development that would affect unscheduled sites of archaeological interest or potential will be permitted where the significance of the remains does not justify their physical preservation on site. Where archaeological features provide potential for amenity, cultural tourism, place-making, or as an in situ educational or research resource, the Comhairle will support proposals for long term management, access and interpretation of the historic environment assets on the site.'

NBH6 Historic Areas

All Development should preserve or enhance the settings of Historic Areas.

World Heritage Site

Where a development proposal has the potential to affect the World Heritage Site of St Kilda, or its setting, the Comhairle will protect and preserve the site's Outstanding Universal Value.

NBH7 St Kilda

Policy NBH7: St Kilda Development proposals will only be permitted where the developer can demonstrate that the proposal will have no adverse impact upon all the following:

a) visual aspects - arising from scale, form, materials and detailing.
b) historically significant boundaries and other elements of importance to the character of the site.
c) important landscape features of the site.
d) views into and out of the World Heritage Site.
e) the outstanding Universal Value of the World Heritage Site.

Developers should ensure the proposal accords with the approved St Kilda World Heritage Site Management Plan'.

Other Guidance

In addition to the guidance outlined in section 10.1 and 10.3.2, 10.7.2 of the 2021 EIA Report, the following guidance has informed this addendum:

- NatureScot and Historic Environment Scotland, 2018 Environmental Impact Assessment Handbook.
- IEMA, IHBC and CIfA's July 2021 publication Principles of Cultural Heritage Impact Assessment in the UK. This document presents the principles of, and suggests good practice for, assessment of the impact of a development proposal on cultural heritage assets.
- New Design in Historic Settings provides a guide to ensuring the quality of new-design buildings matches that of their surroundings (HES 2010).

10.4 METHODOLOGY

The 'Assessment Methodology' for direct and indirect effects as outlined in Section 10.7 of the 2021 EIA Report has largely been followed for this addendum. It is assumed 'direct effects' relate to both:

- Direct physical impacts on a heritage asset arising from its total or partial removal as a result of construction works; and/or
- Potential degradation of a heritage asset over time caused by changes to its surrounding environment (e.g., changes to soil moisture content or vibration caused by construction traffic).

It is assumed 'indirect effects' equates to 'setting' effects. The following revision has been made to the methodology:

- All heritage assets (including non-designated heritage assets) within a 5 km Study Area buffered from the proposed development have been considered as part of a 'Stage 1' setting assessment (SEI Appendix 10-2. Stage 1 Setting Assessment).
- In line with the results of the vibration addendum, all heritage assets within 50 m of the construction footprint have been assessed for potential construction phase impacts.
- In line with the results of the vibration addendum, all heritage assets within 100 m of the proposed launch pad (SEI Figure 10.1) have been assessed for potential operational phase impacts.

Likely significant effects on the settings of heritage assets have been identified from an initial desk-based appraisal of data from HES, the HER and consideration of current maps and aerial images available via online sources. The methodology adopted for the identification and assessment of potential effects on setting follows the approach set out in Managing Change in the Historic Environment: Setting (Historic Environment Scotland, 2016, updated 2020) and the Environmental Impact Assessment Handbook (Ver 5, NatureScot & HES, 2018, Appendix 1). The guidance sets out three stages in assessing the impact of development on the setting of a heritage asset or place as follows:

- Stage 1: Identify the historic assets that might be affected by a development.
- Stage 2: define and analyse the setting by establishing how the surroundings contribute to the ways in which the historic asset or place is understood, appreciated, and experienced; and
- Stage 3: evaluate the likely significant effect of the proposed changes on the setting, and the extent to which any negative impacts can be mitigated."

The 'Stage 1' setting assessment considers designated and non-designated heritage assets in the 5 km study area in turn to identify those assets in the Zone of Theoretical Visibility (ZTV) which have a wider landscape setting that contributes to their cultural significance and whether it is likely that cultural significance would be harmed by the proposed development. Potential viewpoints within the ZTV looking towards heritage assets which are outwith the ZTV have been considered to identify any potentially culturally significant views that may be impacted by the proposed development.

In addition to theoretical visibility, heritage assets within the 5 km study area from which the proposed development would theoretically be audible have been assessed to determine whether this would impact how they are understood, appreciated, and experienced. The results of the 'Stage 1' setting assessment are presented in SEI Appendix 10-2. Stage 1 Setting Assessment.

It is noted that Item 3 of WICAS's response to the 2021 EIA Report states that NBH7 St Kilda of the Outer Hebrides Local Development Plan should be referred to; however, as outlined in the 'Stage 1' setting assessment (SEI Appendix 10-2. Stage 1 Setting Assessment), the long intervening distance between St Kilda and the proposed development (65 km) is such that it is considered there would be no impact on its setting. St Kilda is therefore excluded from detailed setting assessment in this addendum.

10.5 STUDY AREA

The same Study Areas outlined in used in Chapter 10 of the 2021 EIA Report have been used to inform this addendum. These areas are defined as follows:

- The Project Site: the footprint of the proposed development.
- 200 m Study Area from the proposed development to assess potential direct and indirect (setting) impacts.
- 5 km Study Area from the proposed development to assess potential indirect (setting) impacts.

For the purposes of this addendum, non-designated heritage assets have been considered for setting assessment within the Study Areas.

10.6 DATA SOURCES

In addition to the data sources referred to in the 2021 EIA Report Chapter 10, the following data sources have been consulted in this addendum:

- Extract of the Historic Environment Record (HER) obtained from WICAS.
- Information provided by 'Contributor No.59' (public response to planning application[50]).

10.7 SITE VISIT

In addition to the walkover survey carried out in May 2021 (see section 10.4.2 of 2021 EIA Report), a second site visit and walkover survey was undertaken on the 9th-10th of August 2022 by an experienced archaeologist. The weather was fine with good visibility. The walkover survey was undertaken to fully assess the potential for direct and indirect impacts on the heritage assets within the Project Site and 200 m Study Area. Heritage assets within the 200 m Study Area retained for detailed setting assessment in this addendum, as outlined in the 'Stage 1' setting assessment (SEI Appendix 10-2. Stage 1 Setting Assessment), were visited to assess potential indirect setting impacts arising from the proposed development.

10.8 BASELINE DESCRIPTION

In addition to the baseline provided in section 10.8 of the 2021 EIA Report, previously unidentified heritage assets on the HER, National Record for the Historic Environment (NRHE) and by 'Contributor No.59' have been added to the addendum gazetteer (SEI Appendix 10-1. Archaeology Gazetteer).

Appendix 10.1 of the 2021 EIA Report details all other identified heritage assets (all of which are prefixed with 'CHS') and are not repeated in the SEI Appendix 10.1. Heritage assets identified during research for this addendum within the 200 m Study Area or any additional assets identified by 'Contributor No.59' are prefixed with 'CHX'. Additional non-designated heritage assets outwith the 200 m Study Area which have been added to the gazetteer are referred to either by their HER number or NRHE (Canmore) ID number and have not been assigned a CHX prefix. Similarly, any additionally considered designated heritage assets added to the addendum gazetteer (SEI Appendix 10-1) are referred to by either their Scheduled Monument number or Listed Building number.

Following the structure of section 10.8 of the 2021 EIA Report the additional heritage assets within the Study Areas are discussed by period below. Additional contextual information is also added, where appropriate.

10.8.1 Prehistoric and Early Medieval Sites (8000 BC – AD 600)

The Project Site

There are no additional heritage assets of prehistoric or medieval date within the Project Site.

[50] Individual public response to planning application (Ref: 21/00646/PPD) available on the CnES Planning portal: https://planning.cne-siar.gov.uk/PublicAccess/

200 m Study Area

There are no additional heritage assets of prehistoric or Early Medieval date within the 200m Study Area.

Prehistoric remains identified in the 2021 EIA Report within the 200 m Study Area include Dun Scolpaig (CHS1), a cup marked stone (CHS3), a possible souterrain (CHS5) and a beaker sherd (CHS7). These assets are discussed in section 10.8.1 of the 2021 EIA Report, however, additional context to how these assets may inform on archaeological potential is provided in light of excavations that took place approximately 10 km to the north-east at Udal which uncovered extensive prehistoric evidence (Ballin Smith, 2018). Whilst outwith the Study Areas, the results of these excavations are pertinent to informing the prehistoric potential of the Project Site and wider 200 m Study Area due to the similarities between the two sites in terms of their locations both within machair environments and in close proximity to the sea. The excavations at Udal revealed evidence of settlement dating from the Neolithic through to the Iron Age, with clear evidence that settlement was often interrupted by episodes of wind-blown sand. The inhabitants of this area appear to have abandoned their settlements following inundations of wind-blown sand, which would have covered areas of cultivation and built structures, completely altering their lived environment (Ballin Smith, 2018).

As such, in light of the results of the excavations at Udal, it is considered that the Project Site has the potential for well-preserved sub-surface prehistoric remains to exist, preserved by layers of rapidly accumulated wind-blown sand. The presence of prehistoric remains within the 200 m Study Area suggests there is a high potential for similar remains to exist within the Project Site and 200 m Study Area.

The SEI Addendum also considers the 19th century tower element which forms part of the scheduled area of SM7640, CHS1. Scolpaig Tower (SM7640, CHS1) is a 19th century structure built on top of a prehistoric dun site. It derives its cultural significance from its intrinsic architectural interest, and its historical interest as a later addition to a prehistoric site. The tower is interpreted as being a folly which was constructed in 1830 as a job creation scheme (Beveridge 1901, 193). An alternative interpretation according to local tradition is that the tower was built as a shooting lodge ('Contributor 59's' review). A structural survey was carried out of Scolpaig Tower (SEI Appendix 10.3), which indicated poor structural integrity of the tower and highlighted the extreme sensitivity to loads which may lead to a collapse.

5 km Study Area

Within the 5 km Study Area, there are a further 34 non-designated heritage assets of prehistoric or Early Medieval date which have been added to the addendum gazetteer (SEI Appendix 10-1). The 25 prehistoric assets comprise evidence of settlement such as buildings, huts, a wheelhouse, middens, burnt mounds and dun sites. There is also evidence of ritual and funerary sites such as standing stones and burial cairns. The variety of prehistoric assets in the 5 km Study Area shows the suitability of the wider area of the proposed development for settlement in the prehistoric periods. There are 10 other duns within the wider 5 km Study Area, and it is notable that, with the exception of two, these are located on islets within lochs, as is the case with Dun Scolpaig (CHS1), pointing to a regional trend for how centres of local power were established in the prehistoric period. The Early Medieval assets are all cross sites associated with religious worship, showing the importance of Christian worship in the wider area at this time.

10.8.2 Medieval Sites

The Project Site and 200 m Study Area

There are no additional heritage assets of Medieval date within either the Project Site or 200 m Study Area.

5 km Study Area

There are a further six non-designated heritage assets of Medieval date within the 5 km Study Area comprising: a boundary dyke, an enclosure, a burial ground, a field system and two examples of cultivation remains. These remains demonstrate the continued use of the wider area for settlement and cultivation.

10.8.3 Post-Medieval and Modern Sites

The Project Site

Three additional non-designated heritage assets of post-medieval date identified by 'Contributor No.59' within the Project Site have been added to the addendum gazetteer (SEI Appendix 10.1). These include three assets that form part of Scolpaig Farmstead CHS6, which were not labelled separately in the 2021 EIA Report: a byre (CHSX33), a cattlefold (CHSX34) and a roadway (CHSX35). Potentially earlier phases of structures CHS27 and CHS28 as identified by 'Contributor No.59' were noted during the site visit and are considered below. There are no further heritage assets of modern date within the Project Site.

200 m Study Area

A further 16 non-designated heritage assets of post-medieval date identified by 'Contributor No.59' and through research for this addendum have been added to the addendum gazetteer (SEI Appendix 10.1). Of these, nine (CHS10A-CHS10H and CHSXJ) are structures that comprise the Ardanroin township, which were collectively labelled as CHS10 in the 2021 EIA Report. The remaining assets comprise three farmsteads, an enclosure and building and a well. The assets broadly reflect the wider post-medieval use of the landscape. There are no further heritage assets of modern date within the 200 m Study Area.

5 km Study Area

There are a further 341 non-designated heritage assets of either post-medieval or modern date within the 5 km Study Area. Of the 322 post-medieval assets, the majority comprise sites associated with agriculture or livestock grazing, with assets such as farmsteads, dykes, shielings, field systems, enclosures, and clearance cairns present. In addition, there are assets associated with domestic settlement such as townships, blackhouses, huts and other structures. There is also evidence of industrial processes such as stone and sand extraction activities as seen by the gravel and sand pits which are present within 5 km Study Area. Other assets include corn drying kilns, mills, houses, a schoolhouse, roads, a dam, a jetty, a pier and a milestone. All these assets are broadly typical of post-medieval settlement in the Outer Hebrides.

The 19 assets recorded as being modern comprise blackhouses, a country house, a commemorative monument, a decoy pond, an enclosure, a hut, a dam, poultry houses, sand and gravel workings, a findspot, sheep dips, a naust, a radar station, a village/township and a wall. One additional Listed Building of modern date with the 5 km Study Area omitted from the 2021 EIA Report has been included in the addendum gazetteer: LB52583, a mansion house and associated boundary wall.

10.8.4 Undated Sites

There are 324 non-designated heritage assets that have not been assigned a date on the HER or NRHE. Based on their description, it is considered 33 of these are likely to date to the prehistoric period. These comprise assets such as a cairn, cists, duns, mounds, a shell midden, a cup marked stone, souterrains, standing stones and wheelhouses, further demonstrating the suitability of the wider area of the proposed development for prehistoric settlement. It is likely the remaining undated assets date to the post-medieval or modern periods, with the asset types broadly reflecting the agricultural and later industrial activities outlined above.

10.8.5 Paleoenvironmental Potential

The proposed development is located within a machair environment; a machair generally comprises an area of low lying, fertile ground located between moorland and sand dunes. Such areas were cultivated in both the prehistoric and historic periods and there is evidence from nearby excavations at Udal that occupation of these areas was episodic, driven by episodes of inundations by wind-blown sand. Such episodes of wind-blown sand resulted in large quantities of sand being deposited on top of both settlement and areas of cultivation, forcing populations to move elsewhere (Ballin Smith 2018). Sites were often re-occupied at a later date once conditions had stabilised to allow for re-settlement, although further episodes of wind-blown sand often resulted in frequently interrupted periods of occupation. As a result, sequences of settlement can potentially be sealed within wind-blown deposits in machair environments.

Given the potential for sealed wind-blown deposits to exist within the site, it is considered there is a high potential for associated intact paleoenvironmental remains to survive. Episodes of wind-blown sand may have preserved episodes of occupation, potentially along with plant remains, bones, molluscs, insects and organic deposits.

At the south-east of the Project Site, from the proposed upgraded track's junction with the A865 to the causeway which leads over Loch Scolpaig, the environment is notably boggier in nature, suggesting sub-surface peat deposits may exist in places. However, trial pit evaluations (SEI Appendix 17-3. Test Excavations and Soil Profiles) confirmed that peat was either absent or very shallow in nature, suggesting there is limited potential for paleoenvironmental remains in this area of the proposed development. It is considered that, except for the south-eastern area, the site has a high paleoenvironmental potential. Such remains, should they exist, would be considered of at least medium importance due to their potential to inform on the nature of settlement in the area during both the prehistoric and historic periods.

10.9 POTENTIAL IMPACTS (WITHOUT MITIGATION)

A comparison of the impacts presented in the 2021 EIA Report has been undertaken in light of the additional baseline information provided in this addendum. Updated vibration modelling has assessed that construction phase vibration impacts on heritage assets within 50 m of the Project are possible, with operational phase vibration impacts also possible on heritage assets up to 100 m from the proposed launch pad.

The 2021 EIA Report assessed potential impacts from construction and operational phase vibration as 'negligible' within the Project Site, wider 200 m and 5 km Study Areas, however, it is acknowledged that there are high levels of uncertainty associated with the conclusions and a precautionary scheme of monitoring and mitigation was suggested. A dedicated analysis has since been undertaken and the findings of the assessment are re-evaluated in this addendum.

10.9.1 Construction Phase (Direct Effects)

Likely construction phase direct impacts could result from topsoil stripping and excavation associated with the following elements of the proposed development:

- Upgrade and widening of the access track leading to the proposed launch pad.
- The construction of car park at the junction of the A865.
- Installation of stock proof fencing around the north-eastern structures of Scolpaig Farmstead (CHS27, CHS28, CHS29, CHS30, CHS31, CHS32, CHSX33 and CHSX34).
- The construction of a car park and area of hardstanding north-east of Scolpaig Farmhouse (CHS2).

There is also a risk of accidental damage to heritage assets outside the construction footprint from uncontrolled plant movement. In addition. SEI Appendix 19.2 Vibration Technical Note concluded that construction phase vibration impacts are possible on heritage assets within a 50 m buffer of the Project. Assets within 50 m of the Project Site include:

- CHS3, cup marked stone.
- CHS10 A, B and D, structures which form part of Ardanroin Township.
- Assets comprising CHS6 Scolpaig Farmstead, namely: CHS2, CHS27, CHS28, CHS29, CHS30, CHS31, CHS32, CHSX33, CHSX34 and CHSX35.
- CHSX38, Loch Scolpaig.

Although located outwith the 50 m buffer, CHS2 Scolpaig Tower and CHS7 Scolpaig Midden have also been assessed for potential construction phase vibration impacts in order to address HES's response, Items 10 and 13 of 'Contributor No.59's' response and Items 1 and 3 of CnEs Planning's response to the 2021 EIA Report.

The 2021 EIA Report identified construction phase direct effects on heritage assets within the Project Site. In the gazetteer for the 2021 EIA Report (Appendix 10.1 of the 2021 EIA Report), CHS6 is described as the collection of structures which comprise Scolpaig Farmstead in line with the HER and NRHE entries for the asset. Within the 2021 EIA Report chapter, however, CHS6 is referred to as an individual structure (the same structure as CHSX33) and is assessed as such. For the purposes of this addendum, CHS6 is considered to be the overarching asset for Scolpaig Farmstead features comprising CHS2, CHS27-32, CHSX33-35 and CHS39. CHS6 as described in the 2021 EIA Report chapter (i.e., an individual structure), is referred to here as CHSX33. Additional heritage assets associated with CHS6 Scolpaig Farmstead (as outlined above) are considered in this addendum. Similarly, for the purposes of this addendum, CHS10 refers to the overarching asset number which comprises structures CHS10A-H, and CHS10J-K.

CHS6 and CHS10 have been assessed as single assets composed of several individual structures; the results presented below present the cumulative impact on the assets as a whole caused by predicted direct impacts to the individual structures which comprise them. In the case of CHS6, the 2021 EIA Report presented both magnitude of impacts and significance of impacts for each of the assets which comprise CHS6. This addendum presents only magnitude of impacts for each component asset of CHS6 with an overall significance of impacts for the asset as a whole presented at the end of Section 10.13.

CHSX38 Loch Scolpaig, whilst included as an additional heritage asset in 'Contributor No.59's' gazetteer due to its historic draining and re-flooding, is not considered in this addendum. As a natural, instead of cultural heritage, feature, any potential impacts on the Loch as a result of the proposed development fall outwith the scope of this addendum.

CHS6, Scolpaig Farmstead (comprising CHS2, CHS27-32, CHSX33-35 and CHSX39 (SEI Figures 10.1 and 10.7)

CHS6 is considered to comprise the individual built elements noted above. The 2021 EIA Report considered CHS6 to be of low sensitivity. In light of a revision of baseline information relating to Scolpaig farmstead, this addendum considers CHS6 to be of medium sensitivity given the relative rarity of farmsteads of this type in North Uist and the asset has been re-assessed on this basis. Potential impacts on possible earlier phases of structures CHS27 and CHS28 as identified by 'Contributor No.59' are also considered in this section.

Table 10.8 of the 2021 EIA Report predicted no impacts on CHSX33 (labelled as CHS6 in the 2021 EIA Report) and CHS27 due to the proposed development not directly impacting these assets and due to the stability of the structures and their likely ability to withstand construction phase vibration. In light of the results of the vibration addendum (SEI Appendix 19-2), the proposed upgrading of CHS27, and the presence of a potentially earlier phase of CHS27 identified by 'Contributor No.59', this conclusion is revised.

CHS27 would be upgraded and used as a storage facility as part of the proposed development. Despite predicting no impact in Table 10.8 (of the 2021 EIA Report), the 2021 EIA Report also states on page 10-23 that '*the upgrading of farm building CHS27 would result in permanent material alterations to the fabric of the structure that would represent a slight change to the pre-project conditions, resulting in a minor direct effect upon this structure*.'

Whilst not explicitly stated in the 2021 EIA Report, it is assumed, based on the 2021 EIA Report assignation of low importance to CHS27 that a moderate impact was predicted on the asset, resulting in the minor significance of effect predicted on page 10-23. This addendum considers that any potential loss in the historical fabric of the structure would be offset by the upgrading of the building, which would result in its continued use and contribute to its long-term security.

This addendum also predicts additional construction phase direct impacts on CHS27 as a result of the proposed access track which would pass immediately to the east of a possible earlier phase of CHS27 located immediately to its north-east. In addition, the proximity of construction traffic to the structure is such that construction phase vibration impacts are possible. Taken as a whole and in light of the beneficial impact of the upgrading of CHS27 and the potential adverse impact on the earlier phase of the structure, this addendum predicts a slight magnitude of impact on CHS27. The proximity of CHSX33 to the construction footprint is also such that it could potentially be impacted by construction phase vibration. As such, this addendum predicts a slight magnitude of impact on CHSX33.

The 2021 EIA Report predicted slight construction phase direct impacts resulting in a significance of effect of negligible for:

- CHS28, Scolpaig farm building.
- CHS29, Scolpaig farm building.
- CHS30, Scolpaig, possible stack yard.
- CHS31, Scolpaig stone dyke.
- CHS32, Scolpaig farm building.

It was considered in the 2021 EIA Report that the ruined nature of these assets made them more susceptible to direct impacts caused by construction phase vibration. As noted above, the vibration technical note (SEI Appendix 19-2) has assessed that construction vibration has the potential to impact assets within 50 m of the construction footprint. The slight impact predicted in the 2021 EIA Report on these assets therefore remains unchanged in this addendum.

In addition to construction phase vibration impacts, further direct impacts on CHS28, CHS29, CHS30 and CHS31 are predicted (SEI Figure 10.1 and 10.7). The proposed access track could partially truncate a potentially earlier phase of CHS28 which exists immediately to the north-west of the structure. Similarly, the proximity of the proposed access track to CHS9 is such that it may truncate the eastern extent of the structure. The proposed access track would remove sections of CHS30, possible stack yard and potentially any below ground elements of the assets which may exist. A section of CHS31 stone dyke would be removed as a result of the construction of the proposed access track. In addition to being directly impacted by the proposed access track, it is considered there would be direct impacts upon small sections of CHS31, Scolpaig stone dyke as a result of the installation of a stock proof fence and the installation of a drain leading from the launch pad to CHS27.

This addendum agrees with the 2021 EIA Report assessment of slight impact magnitude predicted on assets CHS28-32 and it is considered the potential additional direct impacts on CHS28-31 as outlined above are not sufficient to increase this magnitude of impact. Additional direct construction phase impacts on the following additional heritage assets which comprise CHS6 Scolpaig Farmstead have been considered in this section of the addendum:

- CHS2, Scolpaig House.
- CHSX34, cattlefold.
- CHSX35, roadway.

CHS2, Scolpaig House lies within 50 m of the construction footprint and could be directly impacted by construction phase vibration. It is considered this would result in a slight impact on the asset.

CHSX34 cattlefold would be directly impacted by construction of the proposed access track, by the installation of a liquid storage tank and below ground soakaway and by the installation of a drainage channel leading from the launch pad to CHS27 (SEI Figures 10.1 and 10.7). CHSX35 roadway would be directly impacted by the proposed access track and potentially by the installation of the stock proof fence. As there are no clearly identifiable above ground remains of these assets present within the footprint of the development, in both cases it is more likely that any below ground remains which may exist in this area would be impacted. Given the likely below ground nature of these assets, it is considered that construction phase vibration is unlikely to have a significant effect on their integrity. A slight impact is therefore predicted for both assets.

Table 10-2 below summarises the predicted construction phase impacts on the assets which comprise CHS6. The table outlines the impacts predicted in the 2021 EIA Report and those predicted in this addendum; any change in predicted impact is outlined in the 'Addendum Magnitude of Impact' column with explanatory commentary provided where required in the 'Revised Impact Assessment Comment' column. The 2021 EIA Report provided a Significance of Impact for some of the assets which comprise CHS6.

Table 10-2 Summary of potential impacts arising from construction.

CHS No	Type of impact	Importance	2021 EIA Report Magnitude of Impact	Addendum Magnitude of Impact	Revised Impact Assessment Comment
CHS2	Direct construction impact arising from construction phase vibration.	Medium	Not assessed	Slight	SEI Appendix 19-2. Vibration Technical Note has found that heritage assets within 50 m of construction activities could be impacted by construction phase vibration. The magnitude of impact for CHS2 has therefore been revised to **slight**.
CHS27	Direct construction impact: potential loss of historic fabric during upgrading works, truncation of possible earlier phase of structure as a result of the proposed access track, construction phase vibration.	Medium	Moderate	Slight	Beneficial impact from the proposed upgrade of the structure would offset loss of historic fabric. This, along with the potential adverse impact on the possible earlier phase of the structure as a result of the proposed access track and potential adverse impact from construction phase vibration, has resulted in the magnitude of impact being revised to '**slight**'.
CHS28	Direct construction impact arising from construction phase vibration and truncation of possible earlier phase of the structure from the proposed access track.	Medium	Slight	Slight	2021 EIA Report predicted an impact as a result of construction phase vibration. SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. This addendum agrees with the 2021 EIA Report magnitude of impact. An additional direct impact on an earlier phase of the structure is predicted because of the proposed access track, however, it is considered this is not sufficient to increase the magnitude of impact predicted in the 2021 EIA Report.

CHS No	Type of impact	Importance	2021 EIA Report Magnitude of Impact	Addendum Magnitude of Impact	Revised Impact Assessment Comment
CHS29	Direct construction impact arising from construction phase vibration and possible truncation from the proposed access track.	Medium	Slight	Slight	2021 EIA Report predicted an impact because of construction phase vibration. SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. This addendum agrees with the 2021 EIA Report magnitude of impact. This addendum agrees with the 2021 EIA Report prediction of a possible direct impact on the structure due to its proximity to the proposed access track.
CHS30	Direct construction impact arising from construction phase vibration and truncation from the proposed access track.	Medium	Slight	Slight	2021 EIA Report predicted an impact as a result of construction phase vibration. SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. This addendum agrees with the 2021 EIA Report magnitude of impact. Addendum agrees with 2021 EIA Report prediction of direct impact on the structure as result of the proposed access track. Potential direct impacts on any below ground remains of the asset which may exist are possible.
CHS31	Direct construction impact arising from construction phase vibration.	Medium	Slight	Slight	2021 EIA Report predicted an impact as a result of construction phase vibration. SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. This addendum agrees with the 2021 EIA Report magnitude of impact. Addendum agrees with 2021 EIA Report prediction of direct impact on the structure as result of the proposed access track.

CHS No	Type of impact	Importance	2021 EIA Report Magnitude of Impact	Addendum Magnitude of Impact	Revised Impact Assessment Comment
CHS32	Direct construction impact arising from construction phase vibration	Medium	Slight	None predicted	2021 EIA Report predicted an impact as a result of construction phase vibration. SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. This addendum agrees with the 2021 EIA Report magnitude of impact.
CHSX33 (labelled as CHS6 in 2021 EIA Report)	Direct construction impact arising from construction phase vibration	Medium	None predicted	Slight	The vibration addendum SEI Appendix 19-2. Vibration Technical Note concluded that impacts arising from construction phase vibration for assets within 50 m of the construction footprint are possible. The magnitude of impact for CHSX33 has therefore been revised to **slight**.
CHSX34	Direct construction impact arising from construction of proposed access track	Medium	Not assessed	Slight	Potential direct impact on undiscovered below ground remains of the asset is possible. The magnitude of impact for CHSX34 has therefore been revised to **slight**.
CHSX35	Direct construction impact arising from construction of proposed access track	Medium	Not assessed	Slight	Potential direct impact on below ground remains of the asset is possible. The magnitude of impact for CHSX35 has therefore been revised to **slight**.

In addition to CHS6, Scolpaig Farmstead, potential direct construction phase impacts on the following heritage assets have been considered as part of this addendum:

- CHS1 (SM7640), Scolpaig Tower.
- CHS3 cup-marked stone.
- CHS7, Scolpaig Midden.
- CHS10, Ardanroin Township.

CHS1 (SM7640), Scolpaig Tower

No construction phase impacts are predicted on CHS1 (SM7640), Scolpaig Tower. The asset lies outwith the construction footprint and as outlined in SEI Appendix 19-2. Vibration Technical Note, there would be no impact on the tower as a result of construction phase vibration due to its location over 140 m to the west of the construction footprint.

CHS3 cup-marked stone

CHS3, a cup-marked stone of prehistoric date initially found 11 km to the north-east of the Project Site and previously in the possession of former occupant of Scolpaig House (CHS2), was raised by ‘Contributor No.59’ as a potentially being directly impacted during the construction phase of the proposed development. The NRHE entry for CHS3 states that the occupants of Scolpaig House in the 1960s had no knowledge of the stone’s whereabouts and whilst its continued survival cannot be categorically ruled out, it is considered likely that the artefact has been removed from Scolpaig House. The proposed development would, in any case, not extend to Scolpaig House

and it is considered that construction phase vibration would have no impact on the integrity of stone should it exist within 50 m of the construction footprint. It is therefore considered there would be a negligible impact on CHS3. In addition, 'Contributor No.59' suggests direct construction phase impacts are possible on a further three carved stones in the garden of Scolpaig House, labelled in 'Contributor No.59's' gazetteer as CHS7A, B and C. These stones have, however, already been removed from the garden by representatives of WICAS and the local museum (Murphy, *pers comm*) and there would be a negligible impact as a result of the proposed development.

CHS7 Scolpaig Midden

CHS7 Scolpaig Midden is a midden of likely prehistoric date located approximately 170 m north-west of the Project Site within the dune at Bagh Scolpaig. 'Contributor No.59' located the midden (see page 30 of 'Contributor No.59's' gazetteer), although it was not appreciable during a subsequent site survey carried out by Headland Archaeology in August 2022. The midden is located considerably outwith the 50 m buffer within which construction phase vibration impacts are possible; it is therefore considered there would be a negligible impact on the asset.

CHS10 Ardanroin township (CHS10A-H, and CHS10J-K (SEI Figure 10.8)

CHS10 is a township comprising 10 structures (referred to in this addendum as CHS10A-H, and CHS10J-K), located to the south of Loch Scolpaig and to the east and west of the existing access track leading to Scolpaig Farmstead. The 2021 EIA Report considered CHS10 to be of low sensitivity and this remains unchanged in this assessment. A slight impact was predicted resulting in a negligible significance of effect due to the potential for the widening of the existing track to truncate remains of the asset which may exist below ground.

In addition, one of the structures comprising CHS10 (CHS10C) would be truncated during construction of a proposed car park at the south-east of the proposed development Project Site. CHS10A, B and D are within 50 m of the construction footprint and could potentially impacted by construction phase vibration. However, it is considered that the ruined nature of these structures, which survive as low, unbonded, largely grass covered walls less than 1 m in height, is such that construction phase vibration is unlikely to have a significant effect on their integrity. This addendum considers that overall, without mitigation there would be a moderate impact on CHS10, an asset of low sensitivity, resulting in a minor significance of effect, which is not significant in EIA terms.

Palaeoenvironmental Remains

An assessment of impact and significance cannot be meaningfully evaluated for unknown palaeoenvironmental remains, as neither the extent of potential remains, or their sensitivity can be known without intrusive investigation. Consequently, only the likelihood of construction effects is considered. It is considered that the Project Site is of high palaeoenvironmental potential; any such remains, should they exist, could potentially be truncated during ground breaking works for the proposed development. Any such remains, assuming they are associated with past human settlement, would be of at least medium sensitivity. Based on the assessment of likely palaeoenvironmental potential of the Project Site, truncation of intact palaeoenvironmental remains associated with human settlement is possible; without mitigation it is considered that a magnitude of impact of at least moderate is possible resulting in a significance of effect of moderate, which is significant in EIA terms.

10.9.2 Construction Phase (Indirect)

The assessment of potential setting effects upon heritage assets within the Site and wider Study Areas as a result of the construction stage of the proposed development, through the introduction of increased traffic, construction noise/dust is the same as those assessed under 'operational effects' below. Construction effects would be temporary and therefore not significant in EIA terms due to their very short duration.

10.9.3 Operational Phase (Direct Effects)

The 2021 EIA Report indicated that direct operational impacts could arise from vibration caused by traffic required for transportation of rockets and associated infrastructure and from rocket launches.

CHS6, Scolpaig Farmstead (comprising CHS2, CHS27-32, CHSX33-35 and CHSX39)

The 2021 EIA Report predicted slight direct operational impacts resulting in a significance of effect of negligible on the following assets which comprise CHS6, Scolpaig Farmstead:

- CHS28, Scolpaig farm building.
- CHS29, Scolpaig farm building.
- CHS30, Scolpaig enclosure.
- CHS31, Scolpaig stone dyke.
- CHS32, Scolpaig farm building.

SEI Appendix 19-2. Vibration Technical Note has assessed that heritage assets within 100 m of the proposed launch site could potentially be impacted by operational phase vibration caused by rocket launches. The slight impacts predicted on the above heritage assets which comprise CHS6, Scolpaig Farmstead therefore remains unchanged in this addendum. In addition to these assets, CHSX34, cattlefold, which also forms part of CHS6, Scolpaig Farmstead and is within 100 m of the proposed launch pad, have been assessed for potential operational phase impact in this addendum.

CHSX34 survives as a depression, enclosed by a drystone dyke (CHS31), and survives only as a below ground feature. As such, operational phase vibration would be very unlikely to impact its integrity and a negligible impact is predicted. Overall, it is therefore considered that overall, there would be a slight impact arising from operational phase activities (i.e., vibration caused by rocket launches) on CHS6, an asset of medium importance, resulting in a significance of effect of minor, which is not significant in EIA terms.

CHS1, Scolpaig Tower

Although outwith the 100 m buffer within which vibration impacts from rocket launches are possible, CHS1 Scolpaig Tower is also assessed in order to address HES's response, Item 10 of 'Contributor No.59's' response and Items 1 and 3 of CnES Planning's response to the 2021 EIA Report. As noted in SEI Appendix 19.2 Vibration Technical Note, any heritage asset outwith 100 m of the proposed launch pad would remain unaffected by vibration during launches. CHS1 Scolpaig Tower lies over 470 m to the south-east of the proposed launch pad and would not be subject to operational phase vibration arising from rocket launches. A negligible impact is predicted on an asset of high importance resulting in a significance of effect of negligible, which is not significant, in EIA terms.

CHS10, Ardanroin Township

An increase in public access was raised as potentially resulting in operational direct impacts on CHS10 Ardanroin Township by 'Contributor No.59'. However, it is unknown the extent to which the proposed development would increase public access to an area which is already well used by the public (Section 7.5.5). Assuming a worst-case scenario, it is unlikely that an increase in public access would lead to any direct impact on the structures which comprise this asset given that they almost entirely fall outwith the footprint of the proposed development. It is considered that the locations of the structures which comprise CHS10 Ardanroin Township are such that they do not offer convenient places from which to view the rocket launches and are unlikely to be subject to any notable increase in public access.

A negligible operational phase impact is therefore predicted on CHS10 Ardanroin Township, an asset of low sensitivity, resulting in a significance of effect of negligible, which is not significant in EIA terms.

10.9.4 Operational Phase (Indirect Effects)

A 'Stage 1' setting assessment has been carried out for all heritage assets (designated and non-designated) within the 5 km Study Area. The methodology is presented in SEI Appendix 10-2, with the locations of the heritage assets shown in SEI Figure 10.3 against the Zone of Theoretical Visibility (ZTV). The 'Stage 1' setting assessment has identified two heritage assets whose wider landscape contributes to cultural significance and as such are retained for detailed setting assessment in this addendum: CHS6, Scolpaig Farmstead and CHS1 (SM7640), Scolpaig Tower. An updated wireframe illustrating the impact on Scolpaig Tower is presented on SEI Figure 10.4. An updated

wireframe is also provided for the Cille Pheadair feature (SEI Figure 10.5) which has been scoped out of the setting assessment (SEI Appendix 10.2)[51].

CHS6, Scolpaig Farmstead

As outlined above, for the purposes of this assessment, CHS6 Scolpaig Farmstead is considered to comprise the following heritage assets:

- CHS2: Scolpaig house
- CHS27: Scolpaig byre
- CHS28: Scolpaig byre
- CHS29: Scolpaig structure
- CHS30: Scolpaig possible stack yard
- CHS31: Scolpaig stone dyke
- CHS32: Scolpaig structure
- CHSX33: Scolpaig byre
- CHSX34: Scolpaig cattlefold
- CHSX35: Scolpaig road
- CHSX39: Scolpaig walled garden

Scolpaig Farmstead (CHS6) derives its cultural significance from its intrinsic archaeological remains and potential, and from its historical interest. Four other farmsteads in the wider area broadly correspond to Scolpaig Farmstead (CHS6) in that they shared similar features including a large farmhouse, an associated walled garden and associated farm buildings. Scolpaig Farmstead (CHS6) can therefore be seen as one in a group of similar farmsteads which characterise 19th century land use in the north-west of North Uist.

Scolpaig House (CHS2) is notable as it comprises the remains of an early 19th century farmhouse with an extension to the north-west which itself has evidence of different phases of construction. The extension is notable as having a small upper level which was recently discovered to have been used for accommodation for people working on the farm (Murphy, *pers comm*), an unusual feature for such buildings in the Outer Hebrides. Items dating to the early 20th century were noted within the room, showing how the building was used at this stage of the modern period. The house was considered for Category C listing by HES; however, it was decided that any such listing should be deferred pending the result of the planning application or the proposed development.

The byres and structures to the north-east of Scolpaig House (comprising CHS27, CHS32, CHSX33, CHS28 and CHS29) are typical examples of such structures in the Outer Hebrides and provide contextual significance to the farmstead. Comparison of the First Edition Ordnance Survey map of 1881 and the Second Edition map of 1904 indicates that various structures were added and removed between these times, with the most notable changes being the extension of CHSX33 and CHS28 and the construction of CHS29.

To the north-east of the byres and structures are two enclosures (CHS30 and CHSX34) a drystone dyke (CHS31) and the remains of a trackway (CHSX35). CHS30 comprises a raised area to the north-east of CHS28 and CHS29 enclosed by a drystone dyke and interpreted as being a stack yard by 'Contributor No.59'. CHSX34 comprises a depression enclosed by a drystone dyke (CHS31), labelled as a cattlefold on the First Edition Ordnance Survey map of 1881, and located immediately west of CHS30. To the east of CHS30 is the remains of a trackway dating to the early 19th century. These features are all broadly typical of post-medieval features common in the wider area and provide contextual significance to the farmstead.

[51] Note the 2021 EIA Report rendered the location of the launch tower incorrectly, and the wireframe has been amended / updated as part of the SEI.

The walled garden (CHSX39) comprises three distinct sections representing the original garden at the north-east and two later extensions comprising the central and south-western elements of the asset. A small enclosure at the northern corner of the original walled garden is possibly the site of a greenhouse or conservatory. It would have provided the inhabitants of Scolpaig House and the farm workers with produce and would have been an important feature of the farmstead.

Contextually, CHS6 as a whole derives cultural significance from its local setting within a machair environment characterised by land suitable for both cultivation and grazing livestock. Loch Scolpaig to the south would have provided a readily available water source and is likely to have been a contributing factor to the farmstead's location in the landscape; albeit the loch was drained in 1829 (Beveridge 1901, 193) and the area would have been marshy before water began to re-flood the area sometime in the 1870s ('Contributor 59's' review). The presence of other post-medieval features in the wider landscape such as Scolpaig Tower (CHS1) and Ardanroin Township (CHS10) provide wider historical context to Scolpaig Farmstead.

As a whole, it is considered that Scolpaig Farmhouse is of medium sensitivity (following Table 10.6 of Chapter 10 of the 2021 EIA Report) as an example of a relatively well-preserved 19th century farmstead complex with notable features and a development that can be charted through its surviving built elements.

From the A865 to the south, Scolpaig House, the walled garden and the byres to the north-east are largely visible, example views are provided in Volume 2, B – Visualisations: Cultural Heritage. It is possible to understand their relationship to the machair and the ground suitable for grazing to the north-east in the vicinity of the proposed launch pad. It is possible to understand and appreciate the relationship between the walled garden (CHSX39) and the rest of the farmstead as a place which would have provided produce to the inhabitants of Scolpaig House. Visibility of Scolpaig Tower (CHS1) and Ardanroin Township (CHS10) allow for an understanding of the wider contemporary post-medieval landscape. On the approach to the farmstead from the south along the existing track, the walled garden appears to the west, with Scolpaig House the most prominent building in views north-west. From the walled garden, views are largely drawn to Scolpaig Tower (CHS1) and Loch Scolpaig, with views towards the farmstead generally peripheral in nature. The location of the walled garden is, by its nature, a contained feature functioning within its own boundaries rather than in relation to the wider landscape.

From Scolpaig House (CHS2) there are clear views back towards the walled garden (CHSX39), further reinforcing the relationship between the two features. Views to the structures and features to the north-east from the north-east of Scolpaig House (CHS2) are broadly limited to the south-western elevation of CHS6, the south-western gable end of CHS27, with CHS29 also visible. The space between Scolpaig House (CHS2) and these structures creates a sense of division, with Scolpaig House (CHS2) representing the domestic element of the farmstead and the structures and features to the north-east representing the working elements of the farmstead characterised by working byres and structures (CHS32, CHSX33, CHS27, CHS28, CHS29), the cattlefold (CHSX34) and stack yard (CHS30).

Views north-east from the north-eastern structures and features take in ground suitable for grazing in the vicinity of the proposed launch pad and it is possible to understand how this land would have been used in this capacity. The structures and features here are experienced within this local setting, with views of the trackway (CHSX35) allowing for an understanding of the means of transport available to the inhabitants of Scolpaig Farmstead when it was in use. From the area of the proposed launchpad, it is possible to see all of the features which comprise Scolpaig Farmstead allowing for an appreciation of how they function within their local setting and in relation to one another. The following infrastructure would be constructed within Scolpaig Farmstead and immediate vicinity:

- A car park between Scolpaig House (CHS2) and the structures to the north-east with an area of hardstanding located immediately south-west of CHSX33 (labelled as Byre 1 on Drawing (00)22.13).
- A water storage tank in front of the north-west elevation of CHS27, with a below ground soak away for roof drainage from CHS27 (labelled as Byre 2 on Drawing (00)22.13).
- A proposed access track running past CHS27, between CHS28 (labelled as Byre 3 on Drawing (00)22.13) and CHS29 and through both CHS30 and CHSX34.
- A below ground soak away and liquid storage tank located within cattlefold CHSX34.
- A proposed launch pad located approximately 30 m north of CHS31.

- A stock proof fence 1.1 m in height which would enclose CHS27, CHSX32, CHSX33, CHS28, CHS29, CHSX34, CHSX31 and CHSX35.

The car park between Scolpaig House and the structures to the north-east would, along with the stock proof fence, introduce visual change in views between these two elements of the farmstead and to an extent change how the farmstead is experienced. However, there is already a sense of division between these two elements, with the ground between Scolpaig House (CHS2) and the structures to the north-east contributing to a sense of division between the domestic and working parts of the farmstead. As such, whilst the car park and fence would further separate these two elements of the farmstead and introduce modern infrastructure, it would remain possible to understand how both elements of the farmstead functioned and inter-related. The height of the proposed fence is such that it would not interfere with views between these two elements of the farmstead. Views back to the walled garden (CHSX39) from Scolpaig House (CHS2) would remain unaffected by the proposed development, and it would remain possible to understand the relationship between these two parts of Scolpaig Farmstead.

The proposed water storage tank in front of the north-west elevation of CHS27, the soak away and liquid storage tank within cattlefold CHSX34 would, along with the proposed access track, introduce modern infrastructure which would change how these features are experienced in their immediate vicinity. However, whilst the experience of this part of the farmstead would change, the development would not fundamentally change how the cultural significance of these features are understood and appreciated as parts of a formerly working farm; the relationship between the buildings in this area and the cattlefold (CHSX34), possible stack yard (CHS30), stone dyke (CHS31) and trackway (CHSX35) would remain appreciable. It was not uncommon for farmsteads in the post-medieval period to add new outbuildings over time and comparison of the First and Second Edition OS maps provides evidence that this took place in this north-eastern area of Scolpaig Farmstead. As such, the introduction of new buildings within the farmstead is not unusual in terms of its historical development and would not significantly change how it is understood and appreciated.

The construction of the proposed launch pad 30 m to the north of CHS31 would also introduce visual change to this area of the landscape which was, and continues to be, used for grazing livestock. Views to this area from Scolpaig Farmstead are informative only insofar as it shows that the land was used in this capacity and despite the introduction of the launchpad, it would remain possible to understand the relationship between the wider former agriculturally exploited landscape and the farmstead. Views from this area are informative insofar as all the structures which form the farmstead can be seen and appreciated; whilst this view would change as a result of the proposed development, it is not a historically important view, and nevertheless it would remain possible to view and appreciate all the structures which form the farmstead.

In addition to the permanent infrastructure the following temporary infrastructure would be introduced prior to and during rocket launches:

- Mobile fuel filling system.
- LV Launch Tower and Transportation – a temporary launch tower may be integrated in the LV transport system or assembled on the launch pad. The tower will comprise a steel lattice structure or rail of a maximum 20 m height.
- Command/Control Centre – a mobile type unit designed for the centralised control of launch.
- Oxidiser filling system – mobile unit designed for the short-term storage, filling and draining of oxidiser.
- Compressed gas supply – a compressed helium gas system.
- Staff and welfare units – up to two mobile welfare units and portable toilets installed at site for each launch event.
- Shipping containers placed on the hardstanding between Scolpaig House (CHS2) and CHSX33. Launch events may require the additional temporary installation of up to two 6.1 m x 2.5 m x 2.6 m containers for the storage of the launch operator's equipment. These containers will be removed from the site during extended periods of site inactivity.
- Mobile standby diesel generation.
- Temporary lighting – there will be no permanent operational lighting on site. Low-level flood lighting (portable tripod lighting) may occasionally be required around the launch pad during launch set-up and periods of low light during winter months.

It is expected that no more than 10 launches will take place per year; Landscape Visualisations and Cultural Heritage Visualisations in Volume 2 illustrate how a rocket and/or associated tower along with the temporary shipping containers would appear on launch days. The figures show that the addition of further modern infrastructure within Scolpaig Farmstead would change how it is experienced on launch days, however, any such change would be temporary and would have no significant effect on the setting of the farmstead.

Similarly, there would be temporary impacts on the setting of the farmstead caused through noise generated from rocket launches and associated operational phase activity. The farmstead is experienced within a rural, quiet setting and this would be altered during launches. It should, however, be noted that the farmstead was constructed to be a functional agricultural area, and a sense of tranquillity, whilst a factor in how it is experienced in the present day, is not a key aspect in understanding and appreciating the asset as a working farmstead and does not make any substantial contribution to its cultural significance.

The noise generated from the rocket launches would last no more than 120 seconds (see section 19.9.1, Chapter 19 Noise and Vibration of the 2021 EIA Report) and limited to the days on which launches take place. As such, it is considered there would be no significant effect on the setting of the farmstead arising from noise. Similarly, any potential impact from vibration would be limited to the time of the rocket launch and would have no significant effect on the setting of the tower the farmstead.

The factors of setting which contribute to the cultural significance of Scolpaig Farmstead (CHS6), thus allowing for an understanding, appreciation, and experience of the asset, are considered to be:

- Its location within a machair environment, suitable for cultivation and livestock grazing, close to Loch Scolpaig.
- Its relationship to this immediate landscape.
- Its location within a wider post-medieval landscape.
- The division between the working and domestic elements of the farmstead.

Whilst the proposed development would introduce modern infrastructure into Scolpaig Farmstead, changing how it is experienced in its immediate vicinity it is considered that the above factors of setting which contribute to its significance would be largely retained. The infrastructure and noise associated with the rocket launches would be temporary and would have no significant effect on the cultural significance of the farmstead. It is therefore considered that there would be a slight impact on Scolpaig Farmstead (CHS6), an asset of medium sensitivity resulting in a **minor** significance of effect, which is **not significant** in EIA terms.

CHS1 (SM7640), Scolpaig Tower

The dun element of this asset was assessed in the 2021 EIA Report (see section 10.11.4) and is not repeated here. The SEI Addendum takes into account the 19th century tower element which forms part of the scheduled area of SM7640, CHS1. Scolpaig Tower (SM7640, CHS1) is a 19th century structure built on top of a prehistoric dun site. It derives its cultural significance from its intrinsic architectural interest, and its historical interest as a later addition to a prehistoric site. The tower is interpreted as being a folly which was constructed in 1830 as a job creation scheme (Beveridge 1901, 193). An alternative interpretation according to local tradition is that the tower was built as a shooting lodge ('Contributor 59's' review).

Contextually, the tower derives cultural significance from its location on a small islet within Loch Scolpaig, albeit the loch was likely to have been drained by the time of its construction. Regardless of its interpretation as either an aesthetically pleasing folly or a functional shooting lodge, its position on a natural islet is such that it would have been intended to be seen as a locally prominent feature in the landscape. Its location on top of an earlier prehistoric monument but set within a wider post-medieval landscape provides an element of continuity between these two time periods and provides further contextual significance to the monument, in that the prehistoric monument may have been sited for similar reasons. As part of a Scheduled Monument, Scolpaig Tower (SM7640, CHS1) is of high sensitivity (following Table 10.6 of Chapter 10 of the 2021 EIA Report).

The tower is a prominent landmark when viewed from the A865 to the south. Example views are provided in Volume 2D. Cultural Heritage, and a wireframe rendering of the launch tower from Scolpaig Tower is provided in SEI Figure 10.4. These demonstrate how the proposed

development would appear on the day of a rocket launch from this area, it is possible to appreciate how it would have functioned within the wider post-medieval landscape, with Ardanroin Township (CHS10) and Scolpaig Farmstead (CHS6) both visible in north facing views from the road. The position of the tower on a natural islet in Loch Scolpaig further enhances its position and highlights its intentional visibility across a wider area.

When standing on the causeway leading to the tower and in this immediate vicinity, it is possible to appreciate its architectural details as well as the elements of the earlier prehistoric dun upon which it is built. From here, there are clear views in all directions, allowing for an understanding of the wider post-medieval landscape which was used for habitation and agriculture.

There are clear views to the tower from the main area of Scolpaig Farmstead (CHS6) and the surrounding area although when returning south along the existing track from Scolpaig Farmstead (CHS6), a rise in the topography screens the tower from view. It remains out of sight for approximately 280 m before it re-emerges into view at the causeway which crosses Loch Scolpaig. As such, the tower is best experienced from within its immediate vicinity and when viewing it from the A865; from these locations it is possible to understand and appreciate of the intentionally prominent nature of the tower and its relationship to the wider post-medieval landscape.

The permanent and temporary infrastructure that would be introduced by the proposed development is outlined in the assessment of Scolpaig Farmstead (CHS6) above. A wireframe representation of the launch tower is presented in SEI Figure 10.4. The permanent infrastructure of the proposed development would not be visible in views from the tower or towards it from the A865 and it is considered they would have no impact on the cultural significance of the tower. The most visually apparent elements of the proposed development in views from and to Scolpaig Tower (SM7640, CHS1) would be the rocket launch tower and the rocket itself as well as two temporary storage containers. Whilst these elements of the proposed development would temporarily introduce modern infrastructure into the wider post-medieval landscape, any impact on the setting of Scolpaig Tower (SM7640, CHS1) would be temporary and would be reversed following the rocket launches.

Similarly, there would be temporary impacts on the setting of the tower caused through noise and vibration generated from rocket launches which would distract a visitor's appreciation of the area's cultural heritage, including the tower. However, noise generated from the rocket launches would last no more than 120 seconds (see section 19.9.1, Chapter 19 Noise and Vibration of the 2021 EIA Report) and it is considered there would be no significant effect on the setting of the tower arising from noise. Similarly, vibration would be limited to the time of the rocket launch and would have no significant effect on the setting of the tower.

The key factors of setting which contribute to the cultural significance of Scolpaig Tower (SM7640, CHS1) thus allowing for an understanding, appreciation and experience of the asset, are considered to be:

- Its prominent position on a natural islet within Loch Scolpaig allowing the tower to be visible across the local area; and
- Its location on top of an earlier prehistoric monument and within a wider post-medieval landscape.

Whilst there would be temporary changes to the wider setting of Scolpaig Tower (SM7640, CHS1), it is considered that the above factors of setting that contribute to its significance would be retained. The infrastructure and noise associated with the rocket launches would be temporary and would have no significant effect on the cultural significance of the tower. It is therefore considered that there would be a negligible impact on Scolpaig Tower (SM7640, CHS1) an asset of **high** sensitivity resulting in a significance of effect of **none**, which is **not significant** in EIA terms.

10.10 DECOMMISSIONING PHASE

Decommissioning of the proposed development would not directly impact upon any known cultural heritage assets, assuming that all land-take for the decommissioning works, including access, lies within the same footprint as the proposed construction works. These areas would have previously been mitigated and would have no remaining archaeological potential.

Any identified indirect operational effects in respect of the setting of heritage assets would partially remain as stated for the operational effects above, assuming the car park, area of hardstanding immediately north-east of Scolpaig House (CHS2) and launchpad remain in place following decommissioning.

10.11 MITIGATION

The below mitigation should be read in conjunction with Table 10.10.1 and Section 10.11 of the 2021 EIA Report.

10.11.1 Construction Phase

It is considered that the mitigation measures proposed to ameliorate construction phase direct impacts (including accidental impacts) on known or unknown buried archaeological remains as outlined in Section 10.11 of the 2021 EIA Report are largely appropriate and are not repeated here. In addition to the mitigation programme already proposed in the 2021 EIA Report, following subsequent consultation with WICAS, the following additional mitigation is recommended:

- CHS10C, a structure which forms part of the Ardanroin Township, will be recorded during the trial trench evaluation with further excavation to take place if necessary.
- The potentially earlier phases of CHS27 and CHS28, byres which form part of Scolpaig Farmstead CHS6, will be recorded during the trial trench evaluation with further excavation to take place if necessary.
- CHSX34, cattlefold will be included in the Historic Building Recording of CHS6 Scolpaig farmstead and will be subject to trial trench evaluation with further excavation to take place if necessary.
- CHSX35, roadway will be included in the Historic Building Recording of CHS6 Scolpaig farmstead and will be subject to trial trench evaluation with further excavation to take place if necessary.
- All heritage assets within the Project Site and immediately adjacent will be demarcated with temporary fencing to protect these assets from accidental damage during construction, and a toolbox talk highlighting their presence will be given to contractors prior to work commencing.
- In addition to these measures and in light of Item 12 of 'Contributor No.59's' response to the 2021 EIA Report, and following further consultation with WICAS, the following mitigation is also recommended.
- CHS3 cup marked stone will be searched for during the trial trench evaluation and during the Historic Building Recording of CHS6 Scolpaig farmstead.
- CHSX39 walled garden will be included in the Historic Building Recording for CHS6 in order to provide a full record of the structures which comprise this asset.

It is considered that the proposed watching brief of ground-breaking works as outlined in Section 10.11 of the 2021 EIA Report is appropriate mitigation for potential direct impacts on previously unknown archaeological and palaeoenvironmental remains. Advice from a geoarchaeologist will be sought should any palaeoenvironmental remains associated with human settlement be encountered and samples taken and analysed as appropriate to characterise the palaeoenvironmental resource.

No significant construction phase effects are predicted on CHS10A, B and D and no further mitigation is recommended. No significant indirect construction phase effects are predicted, and no mitigation is recommended.

10.11.2 Operational Phase

The 2021 EIA Report outlined operational phase mitigation on the basis that the levels of operational phase vibration was unknown and as a precautionary measure recommended that Historic Building Recording is carried out after every 10 rocket launches or every 18 months (see Section 10.11.3 of the 2021 EIA Report). In light of additional assessment of the potential impact of operational vibration, it is considered this mitigation is not proportionate to the low level of predicted impact arising from operational phase vibration. It is considered this proposed mitigation is no longer required.

No significant direct or indirect effects arising from the operational phase are identified and no further mitigation is recommended

10.12 RESIDUAL EFFECTS

10.12.1 Residual Construction Phase Effects

Following re-assessment in this addendum, residual construction phase effects are presented in Table 10-3. This accounts for the change in receptor sensitivity of CHS6 (Scolpaig Farm) from low to medium.

Table 10-3 Residual construction phase effects.

CHS No.	Site Name	Potential Impact	Significance of Effect (without mitigation)	Proposed Mitigation	Residual Significance of Effect (after mitigation)
6 (including CHS2, CHS27-32, CHSX33-35 and CHSX39)	Scolpaig farmstead	Damage caused by construction of new access track (accidental damage from machinery, truncation from excavation of new access track), installation of stock proof fence, upgrade of CHS27, potential accidental construction phase damage. Potential impact from construction phase vibration.	Minor	All buildings which form Scolpaig Farmstead (CHS2, CHS27-32, CHSX33-35 and CHSX39) to be subject to Historic Building Recording prior to construction commencing. Potential earlier phases of a byre (CHS27) and a farm building (CHS28) which form part of CHS6 Scolpaig Farmstead will be recorded during trial trench evaluation with further excavation to take place if necessary. All buildings which form Scolpaig Farmstead to be demarcated with fencing throughout construction and a toolbox talk highlighting their presence given to contractors prior to work commencing.	Negligible
10	Ardanroin Township	Damage to any elements of the township which may exist as below ground features during construction phase. Accidental damage during construction phase. Damage caused to CHS10C by installation of a new car park. Potential impact from construction phase vibration.	Minor	A watching brief will be carried out on ground-breaking works in the vicinity of CHS10. All above ground structures which form CHS10 to be demarcated with fencing throughout construction and a toolbox talk highlighting their presence given to contractors prior to work commencing. CHS10C will be recorded during trial trench evaluation with further excavation to take place if necessary.	Negligible
		Potential damage to undiscovered archaeological and palaeoenvironmental remains should they exist.	Moderate	Trial trench evaluation will take place within the Project Site and a watching brief of ground-breaking works along the proposed upgraded access track, car parking and launch pad will be carried out. Excavation of any remains noted will be carried out in agreement with WICAS. Advice from a geoarchaeologist will be sought where appropriate should palaeoenvironmental remains associated with settlement be encountered and environmental samples taken and analysed as appropriate.	Minor

Following mitigation, no significant residual construction phase effects are predicted.

10.12.2 Residual Operational Phase Effects

In light of substantial new information regarding launch vibration provided in the vibration addendum, it is considered that the existing mitigation which has been proposed in the 2021 EIA Report is, with the exception of the requirement for Historic Building Recording work after every 10 launches or every 18 months, appropriate. It is considered that this, along with the additional mitigation outlined in this addendum would result in any residual adverse effects on the cultural heritage assets within the Project Site, 200 m Study Area and 5 km Study Area being of no greater than minor effect significance.

The residual adverse effects on the setting of cultural heritage assets assessed as minor, which are not significant.

There will be no significant operational effects on cultural heritage assets during the operation of the proposed development.

10.13 SUMMARY

This Supplementary Environmental Information (SEI) addendum should be read in conjunction with Chapter 10 of the 2021 EIA Report. The aim of the revised assessment was to update the results of the 2021 EIA Report in light of consultation responses received from HES, WICAS, 'Contributor No.59', general representations to the 2021 planning application and CnES Planning.

Appropriate and proportionate additional baseline information is considered regarding potential impacts within the Project Site and 200 m Study Area as a result of additional data sources becoming available. In addition to the construction phase direct impacts outlined in the 2021 EIA Report, this addendum has identified construction phase direct impacts upon the following heritage assets:

- CHS10C, Ardanroin Township
- CHS27, Scolpaig byre
- CHS28, Scolpaig farm building
- CHS29, Scolpaig farm building
- CHS31, Scolpaig stone dyke
- CHSX34, cattlefold
- CHSX35, roadway

Mitigation measures for direct construction impacts and the assessment results of residual construction effects remain generally as presented in the 2021 EIA Report. CHS27, CHS28, CHS29 CHS31 were proposed for Historic Building Recording in the 2021 EIA Report and this proposed mitigation remains unchanged in this addendum. The following additional mitigation is recommended:

- CHS10C, a structure which forms part of the Ardanroin Township (CHS10C), will be recorded during the trial trench evaluation with further excavation to take place if necessary.
- The potentially earlier phases of CHS27 (Scolpaig byre) and CHS28 (Scolpaig farm building) which form part of CHS6 Scolpaig Farmstead will be recorded during the trial trench evaluation with further excavation to take place if necessary.
- CHSX34, cattlefold will be included in the Historic Building Recording of CHS6 Scolpaig farmstead and will be subject to trial trench evaluation with further excavation to take place if necessary.
- CHSX35, roadway will be included in the Historic Building Recording of CHS6 Scolpaig farmstead and will be subject to trial trench evaluation.
- All heritage assets within the Project Site and immediately adjacent will be demarcated and a toolbox talk highlighting their presence will be given to contractors prior to work commencing.

In addition to these measures and in light of Item 12 of 'Contributor No.59's' response to the 2021 EIA Report and following further consultation with WICAS the following mitigation is also recommended:

- CHS3 cup marked stone will be searched for during the trial trench evaluation and during the Historic Building Recording of CHS6 Scolpaig farmstead;
- CHSX39 walled garden will be included in the Historic Building Recording for CHS6 in order to provide a full record of the structures which comprise this asset.

Residual construction phase effects are not significant in EIA terms.

All heritage assets within a 5 km Study Area have been considered as part of a 'Stage 1' setting assessment (SEI Appendix 10-2). Following this, detailed setting assessment is presented in this addendum for CHS1 (SM7640) Scolpaig Tower and CHS6 Scolpaig Farmstead. No significant indirect effects on the cultural significance through development within the setting of these heritage assets are predicted. The results of the setting assessment presented in the 2021 EIA Report remain unchanged. The residual operational effect predicted on the setting of CHS6 Scolpaig Farmstead cultural heritage assets would be no greater than minor significance and therefore not significant in EIA terms.

10.14 REFERENCES

Ballin Smith, B 2018 Life on the Edge: The Neolithic and Bronze Age of Iain Crawford's Udal, North Uist

Beveridge, E. 1911. North Uist: Its Archaeology and Topography. Edinburgh: William Brown & Co

CnES 2018 Outer Hebrides Local Development Plan https://www.cnesiar.gov.uk/media/12598/ohldp-adopted-plan.pdf

Historic Environment Scotland (HES) 2019. Designation Policy and Selection Guidance

Historic Environment Scotland (HES) 2010. New Design in Historic Settings

IEMA, IHBC, CIfA, 2021. Principles of Cultural Heritage Impact Assessment in the UK https://ihbc.org.uk/brighton2021/resources/Principles-of-CHIA-V2%5B4%5D.pdf

NatureScot and Historic Environment Scotland, 2018. Environmental Impact Assessment Handbook: Guidance for competent authorities, consultation bodies, and others involved in the Environmental Impact Assessment Process in Scotland

11 TRAFFIC AND TRANSPORT

11.1 INTRODUCTION

This assessment has been collated to support the request for Supplementary Environmental Information (SEI) under Regulation 26 of the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017, issued by Comhairle nan Eilean Siar (CnES) Planning on 1 September 2022. The assessment supersedes and expands the original Chapter 11. Traffic and Transport of the Environmental Impact Assessment Report (the 2021 EIA Report) submitted to support the planning application for a spaceport in North Uist.

11.2 CONSULTATION

Following submission of the planning application, feedback relating to the assessment were received from CnES Planning based on an external review of the EIA, and as part of a formal request for Supplementary Environmental Information (SEI). Key responses are listed in Table 11-1.

Table 11-1 Key issues raised by stakeholders during consultation

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Planning (SEI request, 01/09/2022)	Clarify the level and type of estimated operational traffic likely to be generated during launch events together with the maximum number of personnel likely to be on site.	Estimated operational traffic profiles for the range of LV size (smallest, typical and largest) is presented in this section.	Section 11.5.2
CnES Planning (SEI request, 01/09/2022)	Following the proposed increase in width of the access road, provide an updated assessment of the number and type of construction vehicles likely, and clarify the proposed HGV traffic routing, for both construction and operational phases, ideally supported by maps.	Construction traffic movements have been recalculated to account for the increased material required to accommodate the access widening. HGV routes are providing in accompanying SEI figures.	Section 11.5.1, Drawing 00(45).0 Material Delivery Movements
CnES Roads (Planning response, 16/03/2022)	Will the access itself be managed during launch events? Please continue discussions with Comhairle Roads section when considering the effectiveness of the proposals prior to making any changes in relation to the clearway. Please notify Comhairle Roads section of when clearway will be in action.	Access will be managed as part of spaceport launch operations by security personnel. The efficacy of the proposed clearway system (GM08), which will reinforce existing Highway Code (no stopping on single track roads or parking in passing places), will be reviewed following initial launches with the Western Isles Emergency Planning Committee Group (which includes CnES Roads). CnES Roads is also a key stakeholder under the notification plan (GM05, GM06).	Section 11.3

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Roads (Planning response, 16/03/2022)	There is a dip and bend in the A865 road south of the access, around 50 m from the access, which partially obscures oncoming vehicles although they will still be visible from the access junction. As a general benefit to the applicant and the development site, visibility and HGV access could be further improved by raising the road at the dip and/or reducing the high verge to the east of the road at the summit north of the dip.	The Developer has no remit over road improvements other than repairing any damage caused during construction. However, a topography survey commissioned to confirm visibility splay requirements has resulted in the site entrance being widened to improve access to and from the junction. A restriction on HGV exit routes from the site will require all HGVs to depart westwards towards Clachan only.	SEI Appendix 4.1 Topography Survey Vehicle tracking drawings: (00)47.0, (00)48.0 and (00)49.0 Section 11.3
CnES Roads (Planning response, 16/03/2022)	The number of parking spaces allowed appears to be satisfactory, but it is difficult to assess without information on the maximum number of personnel on site at any one time and the likely number of vehicles needed. A statement from the applicant on the provision of parking spaces would be appreciated to assist our review. What number of staff and vehicles (and type of vehicles) are needed on site at different times of the launches, i.e. before, during and after launches? Could indicative details be provided on this?	Further information around operational vehicle traffic has been collated and is provided as part of the SEI Addendum. A worst-case maximum of three HGVs will be on site in any one day to transport infrastructure and equipment during a launch campaign (representative of the largest launch vehicle type). These are unlikely to be on site at the same time; however, there is sufficient capacity to accommodate this scenario. Personnel are expected to be transported in mini-bus and/or car-share, adequate spaces are provided on site to accommodate within the spaceport complex.	Section 11.5.2, 11.5.5
	A swept path analysis and statement on the types of vehicles and information on the radii and turning circles needed would be useful to assist our review of the access and hardstanding arrangements, particularly for a lorry and trailer entering the site and turning at the hardstanding area.	Vehicle tracking outputs and swept path analysis are provided as part of the SEI Addendum. The site entrance has been widened to meet articulated lorry turning requirements. Articulated lorries will be able to enter from east or west but will be required to turn west only on departure. Vehicle tracking confirms that the turning area at the hardstanding area is sufficient.	Vehicle tracking drawings: (00)47.1, (00)48.1 and (00)49.1 Section 11.3

Stakeholder	Comment	Response/Action taken	Section cross-reference
CnES Roads (Planning response, 16/03/2022)	Laybys should be long and wide enough to cope with whatever vehicles are likely to need to use them. Please advise on largest vehicles and layby sizes. Also, if one layby is used for parking it will not be available for use as a passing place, please advise on whether two passing place laybys will be adequate for the expected traffic use.	Three passing place laybys are provided plus an additional layby for locating launch control vehicles, if necessary, and are considered adequate, particularly given that any vehicle on the access track will be visible to any other user of the track and site users will be briefed on the passing protocols when using the site (GM11). The sizing allows for articulated lorries on site.	Section 11.5.5, 11.3
CnES Roads (Planning response, 16/03/2022)	All affected road surfaces should be reviewed and repaired where any damage occurs due to the construction traffic. If the developer is hauling from an area with a public road that could be affected by HGV traffic this road should also be included in the survey. A road condition survey must be carried out along the single track sections on which construction traffic will run prior to the start of any construction works on the site. Furthermore, regular checks should be made to assess the road condition with any damage attributable to the construction works repaired in a timeous manner.	The Developer commits to undertaking a pre-construction and post-construction survey of the public road routes used by construction traffic. Should any damage occur as a result of HGV activity the Developer will contribute to relevant repairs (GM09 Road Maintenance).	Section 11.3
CnES Roads (Planning response, 16/03/2022)	Construction traffic management will include all necessary signage and notices. HGVs to be sheeted as appropriate to reduce dust and stop spillage on public roads and wheel cleaning will be carried out as necessary. Construction traffic movements will be restricted to set hours to minimise night-time disturbance to nearby residents. Please keep CnES Road section informed of traffic management plans. The developer will commit to undertaking a pre and post construction survey of the public road routes used by construction traffic and have committed to carrying out any repairs as a result of any damage caused by construction traffic. Please share survey information with Comhairle roads section and provide a contact for notifying the developer or contractor of any issues if necessary.	All measures to be incorporated into Construction Mitigation Register (CMR) and construction method statements and management plans. Comhairle Roads will be consulted throughout the construction planning and works phase.	Section 4. Project Description

Stakeholder	Comment	Response/Action taken	Section cross-reference
Scottish Fire and Rescue Service (Planning response, 14/02/2022)	The access route would require improving to meet regulation BST 2.12, the minimum road width being 3.7 m from kerb to kerb, with any gateways etc being a minimum of 3.5 m, with suitable turning area for vehicles	The access track through Scolpaig Farm has been widened to 3.7 m to meet the regulation. Site plans have been updated, construction material volumes have been re-calculated, and HGV loads revised. These changes are presented in the SEI Addendum. No material change to the construction timetable is anticipated.	Section 11.3, 11.5.1, Section 4. Project Description

In addition, representations made by the public in response to the planning application were also received, including issues relating to:

- traffic volumes and related disruption and congestion.
- suitability of roads for increased traffic.
- disruption caused by operational traffic management measures.
- HGV traffic noise and emissions.

A full response to each of the collated representations is provide in Appendix 5.1.

11.3 PROJECT COMMITMENTS

The Developer is committed to implementing standard best practice mitigation measures during the Project, which will include:

Table 11-2 Management and mitigation measures

Ref.	Title	Description
COM02	Public access and users of limited mobility	Pedestrian access to the area will be enhanced through the upgrading and widening of the existing access road from the A865 to Scolpaig Farm and additional layby adjacent to Loch Scolpaig. An additional 10 parking spaces will be installed which will be available to the public, including one accessible space and two extended spaces for larger vehicles. The existing 'kissing gate' will be replaced by standard pedestrian access to facilitate access for users of limited mobility.
GM01	Design Mitigation – road widening	The site access road from the A865 to launch pad has been widened to 3.7 m in line with Scottish Fire and Rescue requirements to ensure sufficient access for fire vehicles and equipment.
GM04	Site Access Management and Safety (Construction)	• Provision of appropriate signage, notices during construction period and information on operational launch activities. • Best practice construction traffic measures to minimise material/dust on public roads i.e. All HGVs to be sheeted to reduce dust and stop spillage on public roads; and wheel cleaning arrangements in place, where necessary.

Ref.	Title	Description
GM05	Pre-Launch Communications: Advance Alert and Community Notifications	An Advance Alert / Pre-Launch Contact Service will provide advance notice of activities relevant to key stakeholders including emergency services, fishermen, hauliers and closest residential receptors. Stakeholders can register for the alert service on a dedicated email address and can view the range activity programme on a dedicated website. Additionally, the Spaceport Operator will publish notifications in local/social media, their website and at key information points in the surrounding locality to the wider community and stakeholders informed of key project activities and any associated restrictions. Measures are likely to include: • Regular updates via e-mail to local community groups. • Website – showing schedule of planned activity. • Social Media – posts about planned activity.
GM07	Construction Hours	Movement of HGVs will be restricted to 0700-2000 Monday to Friday and 0700 – 1800 on Saturdays. There will be no Sunday working.
GM08	Launch day traffic management measures	Traffic management measures are not required in terms of the management / operations of the Spaceport site from a launch safety perspective. However, Western Isles Emergency Planning Coordinating Group (WIEPCG) has stipulated that precautionary measures be put in place to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads. Police Scotland will be responsible for monitoring the route and have stated that for each launch event management measures will include: • A dedicated police patrol to monitor traffic during a launch event. • A temporary clearway (no stopping) along the A865 (from Clachan to Lochmaddy via the west-side of North Uist) during each launch day. This is to ensure traffic flow is maintained along this route for the benefit of all road users and will promote the existing Highway Code responsibilities for vehicles on single track roads - i.e., no stopping on the single-track road, the verge or in passing places and will be strictly enforced with the police having power to move/remove vehicles. • Proactive media releases to notify local community of planned launch days and discourage motorists from causing congestion along the route. • As an emergency planning measure only, a Temporary Traffic Regulation Order (TTRO) will be applied for, which will include powers for the police to invoke a road closure, in the unlikely event that traffic congestion could lead to potential obstruction or danger for road users. The efficacy of these measures will be reviewed following initial launches with the WIEPCG, with the opportunity to step-down measures, if appropriate for future launches.
GM09	Road Maintenance	The Developer commits to undertaking a pre-construction and post-construction survey of the public road routes used by construction traffic. Should any damage occur as a result of HGV activity the Developer will contribute to relevant repairs.
COM06	Construction Traffic Convoy Management	The Contractor will be required, under the terms of their Contract, to have a minimum time of 15 minutes between heavy goods vehicle deliveries to the site and 15 minutes between heavy goods vehicles leaving the site. This restriction will limit the risk of large vehicles causing disruption on the single-track A865. The upgraded Scolpaig track junction from the A865 has been designed to allow articulated heavy good vehicles to access the site from either the east or west. Heavy goods articulated vehicles will be required to leave the site in a westerly direction only. This restriction will be part of the Contract specification during the construction work and will form part of the lease agreement with spaceport operators.

Ref.	Title	Description
GM11	Operational traffic – toolbox talk	All site users will be briefed on layby use and passing protocols when using the site, including delivery of equipment and materials, to ensure safe access and to avoid congestion along the access track, including use of laybys and vehicle turning areas.

11.4 BASELINE DESCRIPTION

The development site, which is located on part of the former Scolpaig Farm, is situated in the northwest corner of North Uist off the A865. The A865 route passes through the Uist chain of islands, running from Lochmaddy on North Uist, initially north and westwards around the west coast, past Scolpaig, before proceeding south across Benbecula to Lochboisdale on South Uist. The A867 provides a shorter route to the south from Lochmaddy joining the A865 at Clachan-a-Luib (Figure 11.1 in the 2021 EIA Report). Much of the A865, particularly down the west coast comprises a narrow single track with passing places. An unclassified road, the Committee Road, traverses through North Uist from Botarua to Knockline and provides a shortcut for local traffic between Sollas and Knockline. The road has a weight limit and HGVs are therefore not permitted to use this route.

There are few settlements in the vicinity of Scolpaig, with most settlement concentrated predominantly to the south from Balemartin to Hosta, Balranald and Bayhead, and then further northeast towards Ceann Traigh Vallay and Sollas. Traffic on the A865 in the vicinity of Scolpaig is very low, compared to other roads around North Uist, and is predominantly used for local access to individual dwellings, Griminish Pier and agricultural land. Traffic is likely to increase towards the tourist season by those taking scenic routes around North Uist. There may also be some limited cycling traffic along the Hebridean Way. The route will also be used to access the St Kilda Viewpoint Visitor Centre (approximately 0.5 km east of the Project), should it be constructed[52].

11.5 SUMMARY ASSESSMENT

11.5.1 Construction phase

Project construction works and traffic associated with the construction phase are detailed in Chapter 4: Project Description of the EIA Report, updates are provided in Section 4. Project Description of the SEI Addendum. Traffic movements associated with the construction of the infrastructure will primarily relate to the delivery of materials and components to the site together with construction staff travel. The majority of traffic to site will be HGV, while LGV and cars are likely to be minimal to transfer on-site construction personnel.

In summary, it is anticipated that over the construction period there will be approximately 520 HGV deliveries of materials to the site. It is anticipated that construction traffic will use a number of routes: two routes from main quarries Druim Reallasger (Route 01) and Ruabhal (Route 02); and three routes for deliveries from ferries, Lochmaddy via A867 (Route 03), Lochmaddy via A865 (Route 04), and Berneray (Route 05). These routes are illustrated in Drawing (00)45.0 Material Delivery Movements in the SEI Addendum. Based on a 20–24-week overall construction phase timetable, HGV movements are anticipated to be required over a 16-week period.

Material deliveries and loads are detailed in Table 4-5 in Section 4. Project Description of the SEI Addendum. Deliveries across the 16-week construction works are estimated at an average of 32 deliveries per week. Weekly deliveries in excess of 50 occurs on weeks 2, 3, 6 and 7 of the on-site works. Maximum weekly movements will peak at an average of 69 - 70 deliveries in week 3, 6 and 7. Peak daily deliveries are anticipated to be up to 14 per day during these weeks. Based on an 8-hour working day, there will be a heavy goods vehicle delivery every 34 minutes during this period. The average daily material deliveries across the 16-week period are six deliveries per day. An estimation of the distribution of construction traffic over the 16-week period is illustrated in Image 11-1. The same number of total HGV movements will depart from site along the A865 and A867, via Routes 01-03 (approximately 520 HGVs). HGVs will be required to leave the site in a westerly direction only, therefore will not utilise Routes 04 and 05 on departure from site.

[52] Planning ref: 21/00184/PPD, secured planning permission on 21 January 2021, but is - at the time of writing - not constructed.

Summary of effects

Project commitments will ensure disruption to public road users is minimised through safe site access management (GM04), traffic management to restrict timing and routing of HGVs on public roads and avoid a convoy of traffic building (GM10), and any damage to public roads is avoided during or rectified following completion of construction works (GM09). Given the relatively low volume of HGV construction traffic across the temporary 16-week construction works period, and measures in place to ensure any congestion and disruption to other road users is minimised, **no likely significant effects** are anticipated.

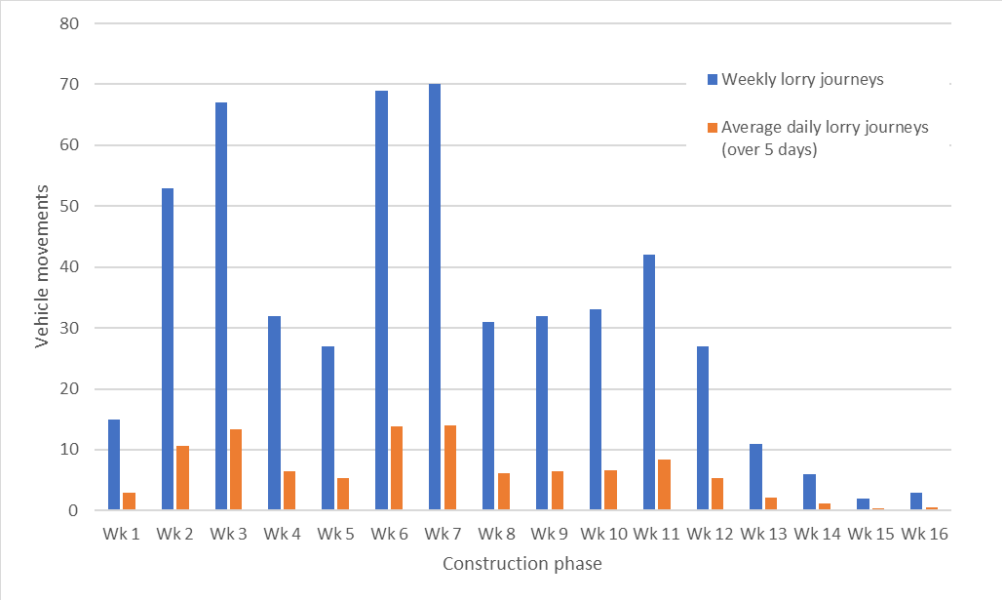

Image 11-1 Indicative distribution of construction phase HGV deliveries to site.

11.5.2 Operations phase

Project-related traffic

The site preparations for each launch will vary between launch operators and launch vehicles; site mobilisation will require the delivery of a range of containerised and portable infrastructure. These may include fuelling systems, staff and welfare units, shipping containers, launch vehicle and tower. It is likely that many of the deliveries will be combined, for example, the launch vehicle and the tower are often integrated into one complete system. Material deliveries are also likely to be integrated into the mobilisation; however, in some cases may require separate deliveries. Daily personnel movements during the week are expected to be restricted to a small number of standard vehicles or Light Goods Vehicles (LGV) each day. A launch campaign is likely to last no more than two weeks, from site mobilisation to the launch day, and finally, site demobilisation, where all containers are removed from site.

The main vehicle types expected to support a launch campaign may include HGV, pick-up/ van or LGV, minibus, cars and fire vehicle. Main operational traffic activities will comprise:

- Delivery of containers, portacabins, equipment and materials.
- Arrival and departure of spaceport, security and launch operator teams (which may include invited spectators).
- Removal of containers, portacabins, equipment and materials.

Spectators will be actively discouraged and launch day traffic management measures (GM08) will be in place to manage against the risk of potential congestion arising from incidental spectators or vehicles (more generally) stopping or parking in laybys causing obstruction on single track roads.

Key routes for launch traffic will generally be from Lochmaddy ferry terminal (Route 01), the MOD Hebrides Range in South Uist (Route 02) and a route from Lochmaddy to the Range for temporary storage of supplies (Route 03). These routes are illustrated in Drawing (00)46.0 Operational Vehicle Movements in the SEI Addendum.

Full details of all vehicle movements each day during a representative launch campaign, including type and number of vehicles and their purpose, are presented in Image 4-5 of Section 4. Project Description of the SEI Addendum. Anticipated movements for the largest vehicle type likely to launch on-site, a typical launch vehicle and a smaller launch vehicle are presented. Anticipated movements for each scale of launch vehicle project are summarised here.

A large vehicle project, which is unlikely to launch more than once per year, will result in an anticipated 88 trips to site (176 including return) over the 2-week launch campaign; averaging at 7-8 per day (14-16 including return), based on Monday to Saturday working (Table 11-3). The maximum trips to site in any one day by all vehicle types is anticipated to be 12 (24 including return) (see Image 4-5 in Section 4. Project Description for daily combined traffic). Up to 13 HGV trips to site are anticipated throughout the launch campaign (26 including return), with no more than three arriving on a single day.

Table 11-3 Large vehicle project

Vehicle type	Total trips to site	Average trips per day	Max. trips in any one day
HGV	13	1	2-3
Pick-up/van	11	1	3
Minibus	30	2-3	4
Car	31	2-3	3
Fire vehicle	3	<1	1
All vehicles	**88**	**7-8**	**12**

A typical vehicle project will result in an anticipated 63 trips to site (126 including return) over a launch campaign, averaging at 5-6 per day (10-11 including return), based on Monday to Saturday working (Table 11-4). The maximum trips to site in any one day by all vehicle types is anticipated to be 9 (18 including return) (see Image 4-5 in Section 4. Project Description for daily combined traffic). Up to six HGV trips to site are anticipated throughout the launch campaign (12 including return), with no more than two arriving on a single day.

Table 11-4 Typical vehicle project

Vehicle type	Total trips to site	Average trips per day	Max. trips in any one day
HGV	6	<1	2
Pick-up/van	6	<1	1
Minibus	28	2	4
Car	20	1-2	3
Fire vehicle	3	<1	1
All vehicles	**63**	**5-6**	**9**

A small vehicle project will not require any HGVs on site, with all equipment delivered by LGV/van or pick-up type vehicles (Table 11-5). Up to 43 trips to site by LGV and cars are anticipated over a launch campaign (86 including return), with a maximum of six in any one day (see Image 4-5).

Table 11-5 Small vehicle project

Vehicle type	Total trips to site	Average trips per day	Max. trips in any one day
HGV	0	0	0
Pick-up/van	5	<1	1
Minibus	20	2	4
Car	18	1-2	3
Fire vehicle	0	0	0
All vehicles	**43**	**3-4**	**6**

Summary of effects

Project-related traffic is anticipated to result in a limited and negligible increase in operational traffic on public roads for temporary and incremental periods during a launch campaign, with no convoy of HGVs or other vehicles to site. Measures are also in place to notify the community and other road users in advance of launch activities (GM05). Therefore, no **likely significant effects** from project-related operational traffic are anticipated.

11.5.3 Public traffic management

The A865 at Scolpaig is a lightly trafficked main road, which is partially single-track with passing places. The road could be at risk of becoming congested in the vicinity of the Spaceport at Scolpaig on a launch day, should there be a substantial increase in traffic associated with incidental spectators or other road users stopping or parking along the road, the verges or in passing places. This could lead to disruption to local road users.

Traffic management measures have been stipulated following consultation with WIEPCG, including Police Scotland and CnES Roads, to ensure traffic flow is maintained on the A865 in the vicinity of Scolpaig for all users on the day of a launch (GM08). Traffic management measures are not required in terms of the operations associated with the Spaceport activities, but as a precautionary measure to avoid any potential congestion caused by incidental spectators or vehicles obstructing access along the route for all road users, including the local community and emergency services.

Police Scotland will be responsible for monitoring the route during a launch event with a dedicated police patrol. A temporary clearway will be enforced along the A865 from Clachan, via the west side of North Uist to Lochmaddy during each launch day (Figure 11.1 of the 2021 EIA Report). A clearway system comprises a stretch of road monitored by the police to ensure normal and free flow of traffic. A Temporary Traffic Regulation Order (TTRO) will be secured for each launch event (and the public informed in advance). This enforces existing Highway Code responsibilities for vehicles on single track roads i.e., no stopping on the single-track road, the verge or in passing places. The police will have powers to move/remove vehicles obstructing safe passage.

In the unlikely event of traffic congestion on the road, which could lead to potential obstruction for emergency vehicles or danger to road users, the TTRO provides powers to the police to invoke a road closure for a short period as an emergency planning measure only. During normal operations the clearway system will continue to ensure a free flow of traffic throughout the launch event. With the provision of the proposed clearway measures, it is not anticipated that any road closures would be required.

Up to 10 launches per year are proposed for the Spaceport; however, there may be instances where a launch cannot proceed on the day as planned and is rescheduled to a subsequent back-up day, in the worst case resulting in a further 1-2 days where a launch may be reattempted. It is anticipated that clearway measures would be in place for only part of a single day in most cases. Proactive media releases will ensure advanced notification to the local community of planned launch days and discourage motorists from causing congestion along the route (GM05).

These measures will be reviewed following initial launches with the WIEPCG to ensure they are effective, and disruption is minimised as far as practicable, with the opportunity to step-down measures, if appropriate for future launches. Therefore, **no likely significant effects** on public road users are anticipated.

11.5.4 Transport of hazardous materials

The transport of fuels and propellants, including hazardous materials is strictly regulated under separate regimes. Transport of fuels and propellants will be the responsibility of the Launch Operator; however, the Spaceport Operator will assess proposals to ensure they comply with relevant regulations, understood to include the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009 (CDG Regs) and the European agreement (ADR). A dedicated Hazardous Materials Management Plan (Appendix 17.1) outline proposals for the transport, storage and pollution control associated with the proposed material inventory at the site. The management of materials will form part of a detailed Safety Case, which will form part of the licence submission to the Civil Aviation Authority (CAA) and will be subject to ongoing review under the relevant regulations, including requirements of the Space Industry Regulations 2021. A detailed risk assessment as part of a ground safety analysis will also be required for every launch, for the identification and elimination/reduction of hazards and risks associated with the operation of the Spaceport under the principles of ALARP (as low as reasonably practicable). An outline risk register is provided in Appendix 21.1 Risk Register and includes control measures to ensure safe transit of materials to the Spaceport.

The most appropriate method of transportation of any materials to the islands will be determined by the Spaceport Operator and Launch Operators, on a case-by-case basis, in consultation with stakeholders, including CalMac and WIEPCG. Certain equipment and materials will require to be transported by dedicated charter vessel to avoid impacting on existing ferry services.

11.5.5 Parking for operational traffic

The spaceport will have provision for up to ten vehicles to park at the site entrance (including one accessible space and two extended spaces that could accommodate minibuses). HGVs attending site will generally be delivering equipment to the hardstanding areas and departing; those intended to stay on site will be parked at the launch pad hardstanding area or dedicated layby. There is also provision for two car parking spaces and one accessible parking space at the vehicle turning area (hardstanding) within the farm complex, adjacent to the byres. Four laybys will facilitate passing vehicles (each of which can accommodate at least one articulated HGV or three cars), in addition to one to be utilised for parking for launch control and emergency vehicles during a launch.

Sufficient parking is available to accommodate the worst-case (largest) launch vehicle campaign between the site entrance, laybys, hardstanding and launch pad area. The maximum number of vehicles likely to be on site in a single day during a launch campaign is expected to be no more than 10 (noting that some vehicles detailed in Table 11-3 are making return trips to site); however, it is unlikely that all vehicles will remain on site at the same time as some will be delivering materials, or dropping off personnel and departing. There is sufficient parking available to accommodate all anticipated vehicle parking requirements between the launch pad, vehicle turning area with parking, four laybys and parking at the site entrance (parking provision is detailed in Section 4.10.1).

11.6 FUTURE BASELINE

No changes to future baseline in terms of traffic and transport are anticipated.

11.7 CONCLUSIONS

Given the relatively small scale of the Project, limited infrastructure requirements, and the commitment to best practice traffic management measures for both the construction and operational phases, **no likely significant effects** on traffic and transport receptors are anticipated.

12 AVIATION, TELECOMMUNICATION AND RADAR

Aviation, telecommunication and radar were assessed in Chapter 12 of the 2021 EIA Report, no changes to the assessment have been made. The SEI request did not identify any required updates or clarifications in relation to Aviation, Telecommunications and Radar. Statutory and non-statutory consultee responses are listed in Table 12-1 below. No relevant representations were made by the public on this topic.

Table 12-1 Statutory and non-statutory feedback relating to Chapter 12 Aviation, Telecommunication and Radar

Consultee	Feedback	Response	Section
HIAL	It is required that HIAL is notified before a proposed launch takes place, as soon as practicable, to coordinate notice to HIAL Aerodromes. Any launch will require coordination with NATS, MOD and other critical stakeholders.	HIAL is a key stakeholder in the operational launch notification procedures (GM05, GM06), which includes NATS, MOD and other critical stakeholders. Notice to Airmen (AR02) will be issued 14 days prior to launch.	SEI Annex C. Schedule of Mitigation
MoD	In order to minimise the impact of the development on operational capability, the MOD request that the following condition is added to any planning consent granted: No rocket shall be launched, or radar operated from the site unless and until a Spaceport Programme Schedule specifically relating to that instance has been submitted to and approved in writing by Comhairle nan Eilean Siar in consultation/conjunction with the MOD. Programme schedules should be submitted no less than three months prior to the commencement of any launch and should contain at least: • Specification and elevation drawings of any launch tower or launch infrastructure: • Specification and details of any ground-based support equipment including communications, surveillance or telemetry equipment; • Specification and details of any rocket to be used and any communications or telemetry equipment to be carried/utilised during any flight; • A schedule setting out the date and timeframe for the arrival of any rocket on site, for the siting of the rocket on any launchpad, for the launch of that rocket, and the estimated duration of the flight; • Diagrams showing the anticipated trajectory of the rocket to include landing/impact points for any detached stages of any rocket and any payload; • A schedule setting out the recovery procedure for any, and all parts of the rocket that are to be recovered, and Operations shall be carried out strictly in accordance with the details approved.	Mitigation AR03 is proposed to engage MOD and agree schedule and notification procedures. This will be developed post-consent and throughout the licensing process under the Spaceport Industry Regulations 2021. It is important to note that all the requested details will be shared with the MOD via the Range as part of the launch project processes and, in the majority of cases, ahead of the 3-month timeline mentioned as part of MODs own processes to consent to use of the Range on a launch-by-launch basis.	SEI Annex C. Schedule of Mitigation

Consultee	Feedback	Response	Section
MoD	In addition, it is requested that the following informatives are attached to any consent issued: • Rocket launches should only take place where requisite notice has been given to the appropriate agencies and organisations to minimise the risks for other air/maritime users. • It is anticipated that Notice to Airmen (NOTAMs), Notice to Mariners (NMs) or similar will be issued prior to any launch and these notices will contain sufficient information to ensure air and maritime users can operate safely during the preparation, launch and removal of infrastructure and support structures.	Mitigation AR03 proposes to engage MOD and agree schedule and notification procedures. This will be developed post-consent and throughout the licensing process under the Spaceport Industry Regulations 2021. Mitigation AR02 commits to issue a Notice to Airmen (NOTAM) 14 days prior to launch.	SEI Annex C. Schedule of Mitigation

12.1 FUTURE BASELINE

No changes to future baseline in terms of Aviation, Telecommunications or Radar are anticipated.

13 MARINE USERS AND ASSETS

Marine Users and Assets were assessed in Chapter 13 of the 2021 EIA Report, no changes to the assessment have been made. The SEI request did not identify any required updates or clarifications in relation to Marine Users and Assets. Consultee responses are listed in Table 13-1 below. Representations made by the public on this topic expressed concern around the potential negative impacts on the inshore commercial fisheries sector. Collated responses to representations on this topic are provided in Appendix 5.1.

Table 13-1 Consultee responses in relation to Marine Users and Assets (Chapter 13 of the 2021 EIA Report)

Consultee	Comment	Response	Section
Northern Lighthouse Board (NLB)	Notice to Mariners should be issued prior to the commencement of any launches, clearly stating the danger zone area and nature of the activities.	NLB is a key stakeholder for the Maritime Management Procedures and Notification Plan Mitigation (GM05, GM06), including Notice to Mariners (AR02). Space Industry Regulations require a letter of agreement to be in place between the spaceport and prescribed relevant authorities to address how they will work together to ensure maritime impacts are avoided or minimised as far as practicable. The NLB will form part of this agreement (Mitigation R03).	SEI Annex C. Schedule of Mitigation
WIFA	Consideration must be given to the recovery of any debris created during launch periods, with vessels reporting having had their gear damaged with entanglement debris from MOD exercise operations in the Minches.	Recovery protocols are presented in the EIA Report as part of proposed Maritime Management Procedures (MU01), safety areas around launch splashdown zones are designed to accommodate potential drift for floating debris and will be recovered where practical to do so. Debris not designed for recovery designed to sink, with a reporting procedure in place with MCA. All proposed stage deposits must be licensed by Marine Scotland.	SEI Annex C. Schedule of Mitigation
WIFA	If the proposed Spaceport station is to proceed then consideration should be given to structure launch periods during the period from 1 November – 31 March, during the period when the inshore shellfish grounds are already closed to fishing with pots for conservation purposes.	Marine users may be subject to access restrictions within defined exclusion zones to ensure safe navigation. A suite of measures to minimise impacts on the maritime community have been defined in the EIA Report including prior notification of launches, live communications during a launch, following launch completion, NavWarnings and Notice to Mariners (MU01).	SEI Annex C. Schedule of Mitigation
WIFA	Any launching during the period from 1 April – 31 October should be targeted to weekends, when most of the inshore fleet will be landing their catch and economic impact would be greatly reduced during that period.	Potential impacts assessed and mitigation proposed in Chapter 13. Marine Users and Assets, including the timescales for potential disruption. Fishing sector engaged and invited to comment on potential impacts to fishing grounds and explore	

Consultee	Comment	Response	Section
WIFA	The inshore shellfish sector expects to be compensated for any losses that they would incur during the summer months, if they are forced away from their productive grounds during the period of the season when their catches are highest and compensation should be based on evidence-based landings for any vessels loss of earnings during the corresponding launch period in the previous year.	options to resolve issues. Mitigation has been developed independently to formalise a forum to address impacts arising from operations and ensure disruption is minimised (MU02) and explore options to offset impacts e.g., use of local fishing vessels as patrol of recovery boats.	
WIFA	Compensation must be provided to any industries that the development will displace and that can be overcome by consideration being given to have seasonal launches during the period from November until end of March when the inshore grounds are of less importance to the fishing industry.		
WIFA	Further research should be undertaken to ascertain whether the noise from launching will have any adverse impact on lobsters or other shellfish in inshore grounds, as reductions in catches are reported following thundery weather periods.	No pathway for significant effects identified in relation to underwater noise - agreed with Marine Scotland Licensing and Operations Team - and is scoped out of the assessment. Assessment on benthic ecology undertaken in Chapter 16. Marine Ecology.	

13.1 FUTURE BASELINE

No changes relating to future baseline in relation to Marine Users and Assets have been identified.

14 ORNITHOLOGY

14.1 INTRODUCTION

This section updates some aspects of Chapter 14, Ornithology of the 2021 EIA Report, which describes the baseline ornithological environment and the potential impacts arising from launch activities. Since the EIA was submitted in December 2021, no further information has been collected on baseline ornithology conditions. There have been some changes to habitat management on the site to benefit breeding birds set out in Section 14.4, Future Baseline.

This section should be read in conjunction with the original EIA Chapter.

14.2 CONSULTATION

Consultations were received from statutory and non-statutory consultees including RSPB, NatureScot and public representations to the planning application. The request for Supplementary Environmental Information has been informed by the statutory consultee responses, non-statutory consultee responses and examination by CnES Planning (Table 14-1). Responses to collated public representations are provided in Appendix 5.1. Responses received relating to ornithology relate to concerns over potential disturbance to breeding land birds; a concern was also raised with regard to the potential for impacts on seabirds breeding on St Kilda. Representations made by the public on this topic highlighted issues relating to the following themes:

- Impacts to vulnerable bird species.
- Loss or change to habitat.
- Noise impacts on breeding birds.

Table 14-1 Summary of consultation responses relating to Chapter 14. Ornithology of the 2021 EIA Report.

Consultee	Consultation	Response	Section (SEI)
RSPB Planning Response	Raised concerns about the timing of activities and the potential impact on breeding waders. Potentially 40 breeding pairs of birds, mainly waders, could experience breeding failure because of construction work. Seventeen pairs could be adversely affected by pre- and post-launch activities, for up to two weeks, with an additional 17 pairs estimated to suffer breeding failure because of the launches themselves.	The EIA considers a worst-case scenario for both construction and operation activities and concluded that all impacts on bird receptors were not significant. However, it is acknowledged that any level of disturbance to breeding birds is undesirable. The actuals levels of disturbance to breeding birds will depend on, amongst other things, the timetabling of construction work, the dates of launch events and the type of launch vehicles used. Additional information is presented in the SEI report on how disturbance will be managed. Following implementation of these measures, the actual levels of disturbance to breeding birds is anticipated to be appreciably lower than predicted for the worst-case scenario examined in the EIA.	Section 14.3.1 (Construction Effects) Section 14.3.2 (Launch Effects)

Consultee	Consultation	Response	Section (SEI)
RSPB Planning Response	There appears to be no critical need to carry out any of the activities during the bird breeding season. The mitigation hierarchy should be followed, and adverse impacts avoided where possible. If launches can be carried out outside the bird breeding season, then harm to breeding birds could be avoided or at least minimised. Furthermore, 'low intensity scaring' (proposed measure ORN03), such as a person walking through the 150 m zone, is suggested as a means of clearing the site of birds prior to launches. We think that this would be ineffective during the breeding season, as birds are likely to return to their nests as soon as the threat has gone away and for health and safety reasons the person would not be able to remain in the area.	The SEI report presents additional information on how disturbance will be managed. This includes consideration of the timing of construction and operational activities including focusing commitments to undertake specific aspects of construction work outside the breeding season. Each launch will be individually regulated under the Space Industry Act 2018 or for smaller launches, under an Air Navigation Order. For Launch Licences, a launch-specific assessment of the potential impact on environmental receptors, including wildlife, forms part of the submission in the form of a detailed Assessment of Environmental Effects (AEE). The requirement for a launch licence from the CAA provides a further layer of scrutiny, and one which would potentially prevent the launches that are deemed to potentially cause high levels of disturbance going ahead in the breeding season.	Section 14.3.1 (Construction Effects) Section 14.3.2 (Launch Effects)
RSPB Planning Response	A condition should be attached prohibiting launches during the most sensitive part of the bird breeding season (May to end of June). We are mindful of the likely constraints with weather conditions and think that avoiding activities during May and June would suffice in protecting breeding birds during the time when most pairs will be incubating eggs and tending small chicks. Furthermore, the baseline bird surveys show that overall bird usage of the site peaked during May, with a maximum of c.1000 birds recorded during surveys, which may otherwise be impacted by disturbance.	A total prohibition on all launches in the breeding season is not possible for operational reasons. The requirement for a launch licence, regulated separately under the Space Industry Act 2018, provides a mechanism to assess each proposed launch in light of the type of launch vehicle, nature of disturbance and launch date and all relevant information available at the time.	Section 14.3.2 (Launch Effects)

Consultee	Consultation	Response	Section (SEI)
RSPB	The described mitigation for corncrake, which RSPB has previously advised on, is deemed suitable mitigation, whilst provision of habitat in alternative locations has the potential to increase the local population. We are keen to work with the Environmental Officer and Advisory Group to further develop the Habitat and Amenity Management Plan for the benefit of species and the local community. We are satisfied with proposed measures to provide alternative nest sites for displaced starlings and in general with the Breeding Bird Protection Plan.	Noted. The Advisory Group will include representatives from a number of organisations. The RSPB would be invited to the Advisory Group.	n/a
RSPB	Question how realistic it would be to carry out any construction work during the peak of the bird breeding season whilst avoiding disturbance to all active nests, as is stated in the Plan. Any activity would be seriously impacted, given there are likely to be birds nesting within the buildings and along the access track to the launch pad. Therefore, we recommend that should permission be granted, a condition should be attached prohibiting construction, as well as launches, during the main breeding season (May to June).	The construction period is expected to last 16-20 weeks. Additional mitigations are proposed to reduce potential disturbance to birds during the construction period.	Section 14.3.1 (Construction Effects) Mitigation ORN01 – Breeding Bird Protection Plan
	Concerned that the issue of public interest in watching launches has not been fully considered and could result in wildlife disturbance, including Schedule 1 breeding birds in the area surrounding the launch site. We question whether information signs would be sufficient to deter spectators from the area and suggest other measures are considered at this stage.	Chapter 4. Project Description of the 2021 EIA Report details extensive measures to manage spectators at the site, spectators will not be encouraged. Control measures include a police-monitored clearway to ensure no parking on the single-track road in the vicinity of the Spaceport. Patrols of the Safety Clear Zone will be a requirement for each launch and security officers will be on-site to manage these.	SEI Section 4
RSPB	Concerned that proposal would have an irreversible effect on the bird life of the St Kilda WHS	The Space Launch Hazard Area has been designed to avoid St Kilda: and no flight paths will be routed over the island. Impacts of noise, collision and contamination of species associated with St Kilda were assessed in the EIA.	Section 14.3.5

Consultee	Consultation	Response	Section (SEI)
NatureScot Response to Planning Application	Agree with the approach taken to reduce potential disturbance to corncrake by keeping the vegetation short around the launch pad to reduce the risk of disturbance. However there is uncertainty around corncrake response to launch noise. Advised a precautionary approach with the size of the exclusion zone.	The question of the appropriate size of the proposed 'corncrake disturbance prevention zone' is considered in further detail, alongside the potential for this to impact on the size of the area managed to benefit corncrakes. In light of further consultation with NatureScot the size of the proposed 'corncrake disturbance prevention zone' has increased and is now proposed to be based on a radius of 170 m (340 m wide zone) around the launch pad.	Section 14.3.4 SEI Figure 14.4
CnES Planning SEI Request 1 September 2022	Update details to confirm the revised 'corncrake disturbance prevention zone', to reflect the comments made by NatureScot in this respect.	As above	Section 14.3.4 SEI Figure 14.4
CnES Planning SEI Request 1 September 2022	Provide additional information in relation to likely impacts on Black Guillemot.	Additional information is provided. This updates the potential for impacts on black guillemots in light of new information on the size of the regional receptor population.	Section 14.3.6.

14.3 POTENTIAL IMPACTS

14.3.1 Management of construction disturbance

The RSPB raised concerns regarding the numbers of breeding waders that could be affected by disturbance from construction works if these works proceeded during the breeding season. There is potential for construction work to disturb relatively large numbers of birds under the worst-case scenario[53] examined in the EIA. There is a legal obligation under the Wildlife and Countryside Act 1981 (as amended) not to destroy active bird nests and dependent young, or to prevent adult birds visiting active nests. This means that if an active nest were to be found close to construction works, it could trigger the imposition of protection measures, potentially causing delays to the construction programme.

Mitigation

A key element of managing the potential for disturbance will be the Breeding Bird Protection Plan (BBPP). It is anticipated that the preparation and implementation of an approved BBPP would form a planning condition or part of a unilateral agreement (SEI Annex C. Schedule of Mitigation) of the SEI Report. The production and implementation of an approved BBPP as a mechanism to help managed potential disturbance impacts is standard practice for developments which might affect breeding birds, for example onshore windfarms. The Construction Environment Manager (supported by ornithologists, where required) will be responsible for ensuring that the project's BBPP is implemented.

[53] It is important to note that the 2021 EIA Report examined a worst-case scenario of launch vehicle, and that in the case of launch disturbance this was considered to be the largest and loudest type of launch vehicle that would be operated from the proposed spaceport for both launch noise and sonic boom. However, there are a range of launch vehicle specifications outlined in Section 4), a number of which have smaller and quieter noise profiles than those assessed in the 2021 EIA Report. It is also relevant to highlight that the EIA has concluded that all impacts on ornithology receptors were assessed as **not significant** under the EIA Regulations.

The majority of the area that would be potentially affected by construction disturbance relates to the proposed upgrading of Scolpaig track (i.e., the track footprint and its nearby surroundings). The timetable for the proposed construction work is set out in Section 4.11 of the Project Description, the duration of the access track works will be approximately 7 weeks (Week 5 – 11 of the construction timetable). The Construction Environmental Manage (CEM) (and relevant subcontractors) would be responsible for ensuring that construction works are compliant with bird protection legislation and the BBPP, including the setting-up of any necessary measures around active nests, such as temporary standoff zones. The CEM would be supported by experienced ornithologists where required.

The 2021 EIA Report concluded no significant effects on birds arising from construction works, with proposed mitigations. The site currently experiences some disturbance as a popular recreational and tourism receptor (Section 7), with members of the public frequently walking along the track, 'off track' and around the Scolpaig Loch, notably to visit Scolpaig Tower. There is also regular vehicular farm machinery access along the track related to the agricultural tenancy. However, the proposed construction works will represent a departure (increase) from baseline levels of disturbance. Proposed construction works along this route are limited to access track upgrades, road widening and layby creation; there is no blasting or piling operations associated with the proposed development. To reduce the potential impacts arising from direct damage to nests of ground-nesting birds and activities that might prevent a bird returning to a nest adjacent to the construction area, the following measures are proposed to reduce the attractiveness of habitat to nesting birds in the immediate environment of the construction work footprint, and thereby deter birds from nesting in locations that would be subject to hight disturbance from construction works:

Amendments to the 2021 EIA Report

Previous commitments for preconstruction vegetation management measures related exclusively to corncrake. Mitigation ORN02 (Pre-Construction/ Construction vegetation management – Corncrake) has been updated to include the additional measures to address general construction impacts on breeding birds. The grassland along the area proposed for access track widening and verges will be maintained as a short sward from the end of March (i.e., from before the start of the nesting period) and onwards through the breeding season, as appropriate (i.e., the areas where vegetation would be stripped at the start of the construction period). This is in addition to the 'corncrake disturbance prevention zone' around the launch pad managed to deter corncrake. Bird scarers will also be installed in a buffer area up to 25 m from the access track construction footprint.

Construction works related to the spaceport 'complex' (i.e., the launch site and associated compound, buildings and other infrastructure) are anticipated to start in week 11 of the construction timetable and complete in week 20 (with 4 weeks contingency planning). Due to the proposed habitat management measures in the vicinity of the launch area (i.e., a radius of 170 m around the launch pad maintained as short-sward grassland), it is anticipated that the compound and its nearby vicinity will have low value to breeding birds. In the 2021 EIA Report this measure was limited to the operational phase of the development, however, the surrounding grassland management proposals will be implemented before the breeding season commences. Mitigation ORN02 has been updated to reflect this change.

14.3.2 Launch disturbance

Feedback on the planning application highlighted concerns about the potential for launches to cause disturbance to birds, especially breeding waders. This concern stems from the potential for launch events to disturb relatively large numbers of birds under the worst-case scenario examined in the EIA. Consultation responses (Table 14-1) highlighted the recent planning condition relating to Shetland Spaceport restricting launch activity to periods outside the bird breeding season[54].

[54] There are a number of differences between each of the developments which preclude direct comparison. Shetland Spaceport (Reference 2021/005/PPF) represents a larger *orbital* launch facility in contrast to the *sub-orbital* venue proposed as part of the Development. Shetland Space Centre will also host substantially larger (up to 30 m in length) launch vehicles, have up to three times as many launches (up to 30 per annum) and the proposed launch vehicle noise modelling indicates that launches would be substantially noisier (Blue Ridge Research and Consulting, 2020).

The 2021 EIA Report addresses the question of launch disturbance in detail, using cautious assumptions it predicts the likely impacts for the worst-case scenario. The worst-case scenario in this respect is assessed as a launch during the bird breeding season of the largest (and loudest) design of rocket anticipated to be operated from the proposed spaceport in terms of both launch noise and sonic boom. However, a range of launch vehicles are proposed which have a corresponding range of noise profiles, including some of quieter and shorter duration of those assessed in the 2021 EIA Report. The potential for a launch event to disturb birds will be based on both the time of year but also by the type of launch vehicle deployed. Potential disturbance of breeding birds by launches may be avoided by timetabling launches outside the breeding season, especially during the peak part of the breeding season (May and June). Given the smaller and quieter class of launch vehicles proposed at the Spaceport, and differing range of impacts, restrictions outwith the breeding season are not suggested as part of a revised mitigation proposal. However further clarification on the regulatory processes controlling each launch is relevant in determining an appropriate approach to managing disturbance.

It is important to note that each Launch Operator (LO) is required to secure either a launch licence under the Space Industry Act 2018 (and accompanying Space Industry Act Regulations 2021) or permission from the CAA under an Air Navigation Order. The process for obtaining a launch licence requires an Assessment of Environmental Effects (AEE) in addition to a range of detailed safety document as part of the application. The procedure for obtaining a launch licence provides launch-specific opportunities to assess whether the potential effects of a planned launch (a specified rocket type within a specified date window) could have unacceptable effects on the environment, including ornithology interests. Should a potential LO wish to launch during the breeding season, the onus would lie with the LO to demonstrate the appropriate measures to reduce disturbance in line with the nature and noise profile of the specific launch vehicle. As part of its assessment, the regulator will consider advice received from consultees, and comments from other relevant organisations and members of the public through a consultation process. Potential LOs would be advised by the spaceport operator of the potential consenting risk and delays to proposed launches due to ornithology concerns.

Amendment to 2021 EIA Report

Existing mitigation set out the 2021 EIA Report highlighted the role of the regulatory (licensing) processes integrated within the Space Industry Act 2018 and Space Industry Regulations 2021 (Mitigation R02). In light of the range of LV vehicles and operations associated with the Development, a blanket restriction of operations outwith the breeding season is not considered the most targeted method to address launch operation disturbance. An additional mitigation (ORN07) has been proposed committing to advising Spaceport clients of the potential risks of launches during the breeding season, including a requirement to set out a case for avoiding, reducing, or offsetting potential impacts on birds, depending on the nature and impacts associated with each launch. Consultation will be undertaken with NatureScot for launches scheduled within the breeding season.

14.3.3 Bird Clearance Proposals

Stakeholder feedback (Table 14-1) and public responses (Appendix 5.1) suggested that the low intensity scaring of birds from a clearance zone around the immediate vicinity of the launch area prior to launch events, as proposed in the EIA (mitigation measure ORN04), may not be entirely effective, especially in the breeding season. The reason why this may not be effective is because some breeding birds would be expected to return to nest and young in a short period (approximately less than five minutes). However, this mitigation measure was primarily intended as a method of clearing non-breeding birds from the vicinity of the launch site prior to launch, e.g., flocks of feeding geese, starlings and waders. A broadly similar approach to clearing birds is commonly deployed to reduce the likelihood of bird strike at airfields, so is not without precedent. It is considered that the methods are likely to be effective outside the breeding season.

During the breeding season it is acknowledged that individuals with nests or dependent young within the clearance zone are likely to quickly return. Therefore, such clearance measures are only likely to be effective in the breeding season if it is combined with habitat management measures designed to make a clearance zone unattractive for nesting for all species. This would be achieved by managing this area as even short-cropped grassland sward, as outlined in the 2021 EIA Report for corncrake (mitigation measure ORN04). If necessary, rotary bird scarers may also be deployed in the clearance zone area to discourage birds (ORN04).

Amendments to 2021 EIA Report

A rotary bird scarer option will be deployed as an additional bird scaring option (Mitigation ORN04, SEI Annex C. Schedule of Mitigation).

14.3.4 Corncrake habitat management

NatureScot queried the size of a proposed a 'corncrake disturbance prevention zone' around the launch site that would be managed to be unsuitable for corncrake (i.e., mitigation measure ORN05). Their concern was that if this zone is too small, there would be a theoretical risk that corncrakes using adjacent suitable habitat could be disturbed by rocket launches (presumably by launch noise in particular). NatureScot advised that the consideration should be given to increasing the proposed size of area as a precautionary measure (Table 14-1).

It is acknowledged that there is a potential conflict between the requirement not to disturb breeding corncrakes, and the desire to undertake habitat management to benefit corncrake (i.e., the creation of areas of tall grass, herbage and cereals). It is important to note that corncrake is a rare breeding species of high conservation priority and for which North Uist is a stronghold. Corncrake conservation is critically dependent on appropriate habitat management and, as indicated in the 2021 EIA Report, the potential for habitat management on the machair ground at Scolpaig Farm presents an important opportunity to secure a modest long-term conservation gain for the species; it potentially would provide new habitat for up to a few additional pairs.

If the habitat managed to benefit corncrake at Scolpaig is too close to the launch site, then this may result in corncrake being disturbed by launches. However, increases in the size of the 'corncrake disturbance prevention zone' around the launch site, where habitat would be managed to be unsuitable for corncrake, comes at the cost of reductions in the potential area that could be managed to benefit corncrake. This is because the area of ground at Scolpaig that is intrinsically suitable for corncrake management is limited, essentially it approximately corresponds to areas of machair ground. In the absence of detailed information of corncrake tolerance to launch noise, caution is merited in deciding how close to the launch site corncrake suitable habitat should be created. However, a large degree of caution (i.e., a very large 'corncrake disturbance prevention zone') would result in no possibility of managing any habitat for corncrake at Scolpaig and therefore be counterproductive for corncrake conservation.

Following further consultation with NatureScot, and detailed consideration of the availability of land that is intrinsically suitable for corncrake management, the proposed default size of the 'corncrake disturbance prevention zone' has been increased by approximately 15% to a buffer of approximately 170 m radius around launch pad. A disturbance prevention zone based on this distance is the maximum size that is consistent with the goal to allow for corncrake habitat management to occur at Scolpaig at a scale that is considered likely to result in a material conservation gain, this being an area of additional habitat judged to be sufficient for one to two pairs.

Although there are no studies quantifying corncrake disturbance tolerance, there is good anecdotal evidence that this species has a low sensitivity to disturbance, including noise disturbance. For example, corncrakes regularly breed in locations where they experience and apparently tolerate loud (approximately greater 100 dB) noises. Corncrake breeds in the grassland around Benbecula and Stornoway airports, where they experience frequent acoustic disturbance associated with aircrafts landings and take-offs. Anecdotal observations also indicate that corncrake tolerate the noise of agricultural machinery such as forage harvesters and flail mowers used to cut grass and cereal crops, and of gas-gun devices deployed to protect cereal crops in the Uists from goose damage. Their habit of staying within the confines of relatively tall vegetation cover means sources of visual disturbance are likely to be at least partly obscured from them. Dense vegetation cover also may slightly reduce their exposure to ground-based noise disturbance.

The anecdotal evidence for low disturbance sensitivity in corncrake is the basis for considering that the proposed size of the disturbance prevention zone is sufficient to prevent corncrakes from the potentially adverse effects of rocket launches. However, it is acknowledged that there is a knowledge gap regarding how corncrake (and other bird species) responds to rocket launches.

Amendments to 2021 EIA Report:

Corncrake disturbance prevention zone increased to a buffer of 170 m around the launch pad (Mitigation ORN04 in SEI Annex C. Schedule of Mitigation).

14.3.5 Disturbance of seabirds

RSPB raised concerns that rocket launches could have an adverse impact on seabirds breeding on St Kilda, a group of small islands approximately 65 km north-west of Scolpaig where there are important seabird breeding colonies. This concern is borne out of the potential for launch vehicle trajectories to pass close to these islands and for launch vehicle deposits to fall into areas used by foraging seabirds.

The potential for St Kilda's seabirds to be affected by rocket launches is examined in detail in the 2021 EIA Report. The project includes embedded mitigation in the form of 20-degree-wide compass-bearing 'cone' centred on St Kilda in which there would be no launch vehicle flight paths. This measure will avoid the possibility of launch deposits jettisoned onto the island group and nearshore zones. Mitigation also includes boat retrieval of the majority of launch deposits from the sea (these deposits are designed to float), including parachutes. The EIA examined the potential for falling launch deposits to collide with seabirds and for launch deposits to cause contamination. In both cases it was concluded that these potential effects were negligible and therefore not significant.

14.3.6 Black Guillemot

The Bird Survey Technical Appendix (Appendix 14.1 of the 2021 EIA Report) reports the results for black guillemot survey on Page 32.

"*The only cliff-nesting species that probably bred in the survey area in 2019 and 2020 was black guillemot. Five birds (probably representing two or three pairs) were present on suitable breeding habitat (the low cliff face at the southern entrance of the Sloc Rubha sea cave) on the April survey visit in both years (Figure 8, Photo 4). Smaller numbers of black guillemot were also seen on the sea in the same general area on some other breeding season survey visits. In the 2002 seabird census five individuals were counted between Scolpaig Bay and Griminish (JNCC Seabird Monitoring Programme database). Black guillemot is a common breeding bird in the Western Isles, with a population of around 4,500 pairs (Mitchell et al., 2004).*"

Survey results are also reported in Table 3 (results overview table), and Table 5 (numbers of seabirds seen on each visit) and Figure 8 within Appendix 14.1 of the 2021 EIA Report.

Black guillemot is a species that shows a relatively high tolerance to human activity (e.g., compared to other auk species). For example, it commonly breeds and feeds in the vicinity of harbours and wharves. Since undertaking the SEI Addendum, new information has become available on population size and trend of black guillemots breeding in the Western Isles. The Western Isles black guillemot colonies were re-counted in the 2021 breeding season and the results are now available on the Seabird Monitoring Programme (SMP) database. The new counts indicate population decline in some parts of the Western Isles since the previous count made in the period 2000 to 2002 (the Seabird 2000 census, Mitchell *et al*., 2004), particularly on the Monach Isles.

A provisional assessment of the SMP data based on a like-for-like comparison (this excludes count sections that were not counted in both censuses) shows that numbers of black guillemot counted in the Western Isles have declined by around 30% since the Seabird 2000 census, from around 4,500 birds to around 3,100 birds. The great majority of this decline is due to the very large reduction (approximately 95%) in the numbers counted on the Monach Isles (off North Uist), where the numbers counted have declined from over 800 to less than 40 birds. On North Uist itself (i.e., excluding the Monach Islands) the numbers counted have remained approximately stable, with a minimum population size of around 210 birds. Further counts are required to validate the apparent declines on the Monach Isles, to confirm that changes in the counting method (land-based counts in Seabird 2000 *vs* boat-based counts in 2021) do not explain some of the observed change in numbers counted. It is relevant to note that the Monach Isles black guillemots are unusual in that a high proportion breed on boulder beaches, rather than the more typical breeding sites such as cliff crevices and caves; this makes them more difficult to

count. It also means they have a somewhat different vulnerability to factors that may affect their success, such as weather and predators. The approach and assessment to black guillemots remains the same as outlined in the 2021 EIA Report and no changes are proposed in relation to the assessment conclusions of this receptor.

14.4 FUTURE BASELINE

The future baseline is described in Chapter 14 of the EIA Report. The agricultural tenancy agreement has since been implemented and as a consequence, there have been changes to the nature and condition of baseline habitats. In particular, the traditional practice of machair cereal cultivation to produce winter livestock fodder has been reinstated. This is anticipated to benefit breeding corncrakes and waders.

14.5 REFERENCES

Blue Ridge Research and Consulting, 2020. Noise Study for Launch Vehicle Operations at Shetland Space Centre. Technical Report Appendix 10-1 Shetland Space Centre EIA.

Mitchell, P.I., Newton S.F., Ratcliffe, N. and Dunn, T.E. (2004). Seabird populations of Britain and Ireland. Christopher Helm, London.

15 TERRESTRIAL ECOLOGY

The SEI request did not identify any required updates or clarifications in relation to Chapter 15. Terrestrial Ecology. However, further information is provided in relation to changes to design changes and subsequent modification of the habitat loss footprint and potential changes to the future baseline. This section should be read in conjunction with the original EIA chapter. Consultee responses requiring action are listed in Table 15-1 below. Representations made by the public on this topic highlighted issues relating to the following themes:

- Loss of biodiversity
- Disturbance to peat
- Pollution of Loch Scolpaig

Responses to representations on this topic are provided in Appendix 5.1.

Table 15-1 Consultee responses in relation to Terrestrial Ecology (Chapter 15 of the 2021 EIA Report)

Consultee	Comment	Response	Section
Biodiversity Officer 10/03/2022	The Otter Protection Management Plan, Corncrake Vegetation Management Plan, and the Breeding Bird Protection Plan should be constituted in the development of a Construction Environment Management Plan which should be agreed by the Planning Authority and should be used by the Construction Planning Manager.	Noted. Relevant plans proposed in the Schedule of Mitigation and will be consulted upon with key stakeholders.	SEI Annex C. Schedule of Mitigation
	The Habitat and Amenity Management Plan, The Enhanced Habitat Management Plan, the Pollution Prevention Management Plan (which should accord with standard guidance by SEPA and industry best practice), in the Site Waste Management Plan should be submitted for approval by the Planning Authority and any relevant nature conservation bodies.	Noted. Relevant plans proposed in the Schedule of Mitigation and will be consulted upon with key stakeholders post consent.	SEI Annex C. Schedule of Mitigation
	The HAMP, OPMP, CVMP and the BBPP should be submitted for approval by the Planning Authority These documents as a minimum should outline: - The Monitoring of Key Species and Habitats including enhancement and protection measures - Visitor Management and Access Arrangements including reasonable provision during launch preparation to the wider site in line with the spirit of the access legislation. - The make-up of the proposed Advisory Group.	Noted. Relevant plans proposed in the Schedule of Mitigation and will be consulted upon with key stakeholders post consent.	SEI Annex C. Schedule of Mitigation

Consultee	Comment	Response	Section
	If an environment officer is to be employed on the site, the biannual otter surveys could be per launch and combined with the corncrake and raptor monitoring.	Formal monitoring as part of the development is proposed for otter only as a key part of the mitigation of the impacts arising from the development. Additional monitoring initiatives for other species and habitats may be developed as part of wider site management measures set out in the Outline Habitat Enhancement and Amenity Plan relating to the ongoing management of the site.	N/A
Biodiversity Officer 10/03/2022	While the provision of an environment officer for the site is an excellent proposal, it would be beneficial if the consortium committed to a developer contribution which resulted in the provision of an island-wide environment officer post, based in Scolpaig, with a biodiversity remit for the whole of the Uist Community. This would allow a wider connection to the community and maximise the community benefit of the role as well as monitoring requirements for the site.	A project environmental officer will be appointed with the remit to deliver habitat and amenity objectives within Scolpaig Farm. The Developer would be happy to engage the CnES Environment Officer on its proposals under the Habitat and Amenity Management Plan (HAMP), and potential wider collaboration with the CnES Environmental Officer on wider initiatives.	SEI Annex C. Schedule of Mitigation
	The Habitat and Amenity Management Plan should be submitted for approval by the Planning Authority.	Enhancement proposals under the short-duration tenancy agreement are already implemented at the site. The HAMP is anticipated to be developed based on consultation and engagement with an Advisory Group. This will be provided post-consent, should the project be approved.	N/A

15.1 DESIGN CHANGES

Several design changes have been implemented as part of the SEI set out below (and described fully in Section 4.3, Project Description):

- Visibility splay - reprofiled and extended based on feedback from CnES Roads with first 5 m finished in hard finish.
- Access track - widened from 3.0 m to 3.7 m.
- Site entrance parking - reprofiled slightly and finish upgraded with parking bay markings.
- Hardstanding area surrounding launch pad (pad loading area) - hardstanding area extended to the southeast.

Habitat calculations set out in the 2021 EIA Report have been revised and are set out in Table 15-2 based on the above design changes. The overall total habitat loss has increased from 0.66 ha (0.24% total survey area) to 0.82 ha (0.30% of total survey area). Wet dwarf shrub heath, swamp and dune grassland habitats have been impacted by design changes, however, due to the nominal nature of changes and existing degraded nature of the areas impacted, no updates to the impact assessment set out in the 2021 EIA Report is required and conclusions remain the same.

Table 15-2 Updated habitat loss calculations

Habitat Type	Infrastructure Type	Area Lost (ha) 2021 EIA Report	Area Lost (ha)	% of Feature Lost	Change
Wet dwarf shrub heath	Hardstanding (inc. Access)		0.11		
	Parking (Entrance)		0.11		
	Lay-by		0.02		
	Pedestrian access		0.00		
	Sub Total	**0.14**	**0.24**	***0.65***	***0.1 ha (increase)***
Dune grassland / wet heath	Hardstanding (inc. Access)		0.03		
	Lay-by		0.01		
	Sub Total	**0.03**	**0.03**	***3.47***	***No Change***
Dune slack/ swamp	Hardstanding		0.00		
	Sub Total	**0.00**	**0.00**	***0.00***	***No Change***
Swamp	Hardstanding		0.02		
	Box culvert		0.00		
	Rock armour		0.00		
	Sub Total	**0.01**	**0.02**	***0.90***	***0.89 ha (Increase)***
Standing water	Hardstanding		0.01		
	Box culvert		0.00		
	Rock armour		0.00		
	Sub Total	**0.02**	**0.02**	***0.18***	***No Change***
Dune grassland	Hardstanding		0.30		
	Lay-by		0.03		
	Below ground soakaway		0.02		
	Byre 1		0.01		
	Byre 2 - upgraded storage		0.01		
	Byre 3		0.01		
	Liquid storage tank		0.01		
	Scolpaig Farm		0.02		

Habitat Type	Infrastructure Type	Area Lost (ha) 2021 EIA Report	Area Lost (ha)	% of Feature Lost	Change
	Water storage tank		0		
	Cut and fill excavation		0.05		
	Cut and fill excavation		0.05		
	Rock armour		0		
	Tether points		0		
	Underground drain (110mm)		0		
	Underground drain (200mm)		0		
	Sub Total	**0.46**	**0.51**	**1.73**	**0.05 ha (increase)**
	Overall Total Habitat Loss	**0.66 ha**	**0.82 ha**		**0.16 ha (increase)**

15.2 FUTURE BASELINE

The future baseline is described in Chapter 15 of the EIA Report. No further changes to future baseline have been identified. However, following implementation, a programme of seasonal livestock grazing at Scolpaig Farm under a short-duration tenancy agreement was initiated in 2022. The tenancy agreement is based on traditional agricultural practices and aims to enhance the Scolpaig Farm habitats for wildlife. The management of the fields is designed to recreate traditional management practices and provide the habitat requirements of the range of grassland bird species and other priority grassland wildlife.

16 MARINE ECOLOGY

Marine Ecology was assessed in Chapter 16 of the 2021 EIA Report, no changes to the assessment have been made. The SEI request did not identify any required updates or clarifications in relation to Marine Ecology. No statutory or non-statutory consultee responses were received. Representations made by the public on this topic expressed concern around the following issues:

- Marine noise: concern around the potential impacts on marine noise on marine wildlife.
- Marine debris: highlighted the potential issues with jettisoned debris striking marine wildlife.
- Marine pollution: the potential for marine pollution arising from launch activity.
- St Kilda World Heritage Site: irreversible impacts on St Kilda World Heritage site.
- Accumulation of deposits on the seabed: potential accumulation of marine litter and debris that may accumulate on the seabed.

Responses to representations on this topic are provided in Appendix 5.1: Public Representations.

16.1 FUTURE BASELINE

No changes relating to future baseline in relation to Marine Ecology are anticipated.

17 HYDROLOGY, HYDROGEOLOGY AND GEOLOGY

This section updates some aspects of Chapter 17. Hydrology, Hydrogeology and Geology of the 2021 EIA Report, which describes the baseline environment and the potential impacts arising from launch activities on water, soils and geological receptors. Key updates to the 2021 EIA Report include:

- Extension of the trial pit evaluations to confirm presence / absence of peat in the temporary construction area.
- Incorporation of a 10 m buffer between sediment management measures in the temporary construction area (culvert installation) and updates to the proposed water/ sediment management proposals.
- Further clarifications in relation to the management of the secondary storage area.
- Clarifications on the source of water for both construction works and operational activities, including filling of the 58, 000 l water storage tank.
- Clarification on the design of the rip rap structure associated with the culvert.

This section should be read in conjunction with the original EIA Chapter.

17.1 CONSULTATION

Statutory consultee responses and information requested as part of a request for Supplementary Environmental Information are listed in Table 17-1 below. Representations made by the public on this topic highlighted issues relating to impacts on peat, pollution to surface waters (including marine waters and Loch Scolpaig). Detailed responses to representations on this topic are provided in Appendix 5.1.

Table 17-1 Consultee responses in relation to Hydrology, Hydrogeology and Geology (Chapter 17 of the 2021 EIA Report)

Consultee	Comment	Feedback	Section
SEPA Response to 2021 EIA Report 16 March 2022	No trial pits were located at the location proposed for the temporary works area across the track from Pit 5. Further clarification is required on the current ground conditions and method of management and reinstatement at this location.	Additional trial pit evaluation undertaken at the area for temporary works presented in Appendix 17.1 of the SEI. No peat recorded in the trial pits.	Appendix 17.1 of the SEI
	Our preference would be to have the temporary construction works located away from the waterbody with a minimum 10m buffer between construction works and the Loch. We therefore request further justification and information be submitted outlining the proposed activities and infrastructure planned for this location (and associated pollution risks) and the specific mitigation required to manage the risks of potential pollutants to the waterbody.	The temporary construction area has been defined as a zone for sediment management for dewatering activities associated with the culvert replacement works only and no other construction activities will take place in this area. Mitigation Schedule and method statement revised to include a 10 m water body buffer around surface waters (Loch Scolpaig).	Appendix 17.3 of the SEI: Sediment Management

Consultee	Comment	Feedback	Section
	The Hazardous Materials Management Plan indicates that there will be temporary storage for two containers on site which may contain residual fuel or materials. Further information will be required on how this will be managed and further information on pollution management, such as whether the containers are bunded, and whether the surrounding crushed rock should instead be impermeable hardstanding to ensure risk of spillage is mitigated.	The secondary storage area is permeable and does not include any design measures to contain and manage spills, such as those integrated into the primary fuel storage area. However, this area will only be used for storage of residual fuels within appropriate containerised system containerised system or a temporary pollution management system e.g., bunding. Clarifications on use of area and mitigation incorporated into the Schedule of Mitigation.	Section 17.2.2 (Secondary Fuel Storage) Mitigation HHG04b integrated into SEI Annex C. Schedule of Mitigation.
	Drawing (00)22 indicates that the water storage tank is connected to mains water supply, however, this is not clear as reference is made to “new underground water supply from farmhouse” (Figure 0022 and 0039) and “sprinkler deluge system” fed from an existing private water supply serving the Scolpaig farmhouse” (Drawing 0022). We would request clarification on whether the water on site is coming from a) an existing abstraction, b) a new abstraction or c) mains water supply. If abstractions are required, further information indicating volumes should be provided.	The proposals for water source have been revised following a detailed options appraisal set out in Appendix 17.2 Water Supply Options. Proposals for water supply are set out for both construction and operation. The current arrangements are to bring tankered water to site. The main water requirement is for accidental events only and is not required for day-to-day operations. Once the water storage tank is full it will only require re-filling following an unlikely accidental event.	Appendix 17.4 Water Supply Options Drawing (00)22.8 has been updated and is submitted as part of the SEI Addendum (Drawing (00)22.13).
	Further clarification is required on what disposal via ‘inert materials’ consists of and where, once tankered off site, is this disposed of? We are not aware of any licensed sites in the area that would manage liquid waste, and it would not be appropriate for this to be discharged to ground.	Further details on inert materials and generic disposal options provided in Section 4.10.5. Any liquid waste generated would be disposed of via specialist tanker haulage company to an off-island location. Note that each launch will be individually licensed and will include proposals for the detailed management of each launch, including waste disposal.	Section 4.10.5 Project Description

Consultee	Comment	Feedback	Section
	Areas used for loading/unloading presents a high risk of accident. The vehicle turning areas and pad loading areas will be finished with crushed rock on geotextile membrane (Drawing (00)27). Any areas that will have deliveries/loading/unloading/movement of high-risk pollutants (e.g., fuels or chemicals) are required to have an impermeable surface and directed towards containment in the event of a spill. Clarification is therefore sought on where these activities will be taking place (i.e., Pad loading area and vehicle turning area near the shipping containers) and the mitigation proposed to manage risk of spills/accidents.	The launch pad Is designed to accommodate all loading, unloading, and fuelling activities. The area of crushed rock is to provide adequate turning space for containers / vehicles to align onto the correct position for loading / unloading on the launch pad.	Drawing (00)20.12 and (00)22.13 (showing articulated lorry alignment at pad).
Roads	Drainage will require to be maintained. Drainage outfall can be affected by seaweed and debris blockage following storms, recommend there is a monitoring regime and arrangements in place to clear outfall if necessary.	Incorporated into existing operational management of site in updated mitigation schedule for HHG06 Inspection and Maintenance Schedule.	SEI Annex C. Schedule of Mitigation, HHG06
Roads	The slope of the revetment rip rap isn't defined on the cross sections provided. We'd suggest a shallow rip rap embankment slope if this can be accommodated, ideally no steeper than 1 in 1.5 gradient.	Slope of rip rap embankment included in Drawing (00)24.9, with slope 1:1.5, and is submitted as part of the SEI Addendum.	Drawing (00)24.9
Environmental Health	All private water supplies must be registered with the Comhairle. SEPA may have a remit in terms of abstraction for a private water supply (only when >10 m^3 /day) but all other aspects are a public health matter. The applicant should be required to submit details of the proposed water supply, with respect to its quantity and quality in terms of the Water Intended for Human Consumption (Private Supplies) (Scotland) Regulations 2017 *and/or the* Private Water Supply (Scotland) Regulations 2006. A water safety and management plan will be required to be submitted.	The current arrangements are to bring tankered water to site. The main water requirement is for accidental events only, for firefighting or dilution of a hydrogen peroxide fuel spill and is not required for day-to-day operations. Once the water storage tank is full it will only require re-filling following an unlikely accidental event. Longer term water storage options will be considered for the spaceport, but do not form part of the current proposals, these are outlined in Water Supply Options, which is provided as part of the SEI Addendum.	Appendix 17.2 Water Supply Options
CnES Planning SEI Request (01/09/2022)	Clarification of the potential impact on peat (if any) related to the provision of a temporary construction compound	Additional trial pit evaluation undertaken at the area for temporary works presented in Appendix 17.1 of the SEI. No peat recorded in the trial pits.	Appendix 17.1 of the SEI

Consultee	Comment	Feedback	Section
CnES Planning SEI Request (01/09/2022)	Confirm arrangements for the holding and disposal of waste liquids or material, arising from post launch cleaning regime or spillages at the launch pad, and the management of residual fuel; include confirmation of contingency plans in these regards, assuming off-island disposal.	Further details on inert materials and generic disposal options provided in Section 4.10.5. Any liquid waste generated would be disposed of via specialist tanker haulage company to an off-island location. Note that each launch will be individually licensed and will include proposals for the detailed management of each launch, including waste disposal.	Section 4.10.5 Project Description

17.2 FURTHER INFORMATION

17.2.1 Primary Fuel Storage Area

Removal or transfer of hazardous materials from storage containers will only be carried out on the launch pad where pollution drainage management system is in place. Drawing (00)21.13 shows the proposed alignment of the 'worst case' fuelling vehicle requirement and the alignment of the vehicle (fuelling from rear system).

17.2.2 Secondary Storage Area

The secondary storage area is located within the farmstead (Drawing (00)21.13), the area is permeable and does not include any design measures to contain and manage spills, such as those integrated into the primary fuel storage area, which incorporates the launch pad pollution management system. The purpose of the secondary storage area is to provide a further option for launch operators for the storage of residual fuels or equipment following fuelling activities. However, this area is only suitable for fuelling systems that form part of an existing containerised system or a temporary pollution management system e.g., bund system. The former option (specialist containers) is based on the use of typical specialist aviation containers that have integrated pollution control mechanisms, including internal /self bunding, volume monitoring systems and are considered suitable for temporary storage at the secondary storage area. Should a launch operator wish to adopt a fuelling system that does not have integrated pollution control embedded within fuelling / defueling systems, operators will be required to store fuels within the launch pad area. Any residual fuel will be removed offsite to another location (i.e., QinetiQ facility) or alternatively, if feasible, temporary systems will be installed e.g., modular lined secondary containment systems[55]. Pollution control measures (including storage) will require sign off by the spaceport operator and will be managed through the launch licensing process under the Space Industry Act 2018.

The proposals for the proposed Development cover generic infrastructure requirements to accommodate a range of launch providers who will have proprietary arrangements for fuelling, as well as propellant types. Regulation of each launch will be required under the Space Industry Act 2018 and the Space Industry Regulations 2021; or Permission under the Air Navigation Order 2016 (Air Navigation (Amendment) Order 2021) set out in Mitigation R02 SEI Annex C. Schedule of Mitigation. This means that the launch operator will be required to submit a detailed Safety Case which includes both a ground safety analysis and a flight safety analysis to the regulator (UK Civil Aviation Authority, CAA). The ground safety analysis covers the transport, handling and storing of any hazardous material in relation to the launch vehicle and testing payloads amongst a range of other activities.

[55] Example system: https://www.bundingsolutions.com/containment-wall-system-hire

17.2.3 Removal of Liquid Wastes

Consent will be required from Scottish Water prior to removal of liquid waste / trade effluent. Should removal of liquid waste be required, consultation will be undertaken with Scottish Water based on the type of waste, flow rate and strength of effluent to determine the appropriate action. Should the waste represent inappropriate material for a standard disposal alternative location, a destination on mainland Scotland may be required. Consultation with Scottish Water (9/211/2022) undertaken to clarify the destination / fate of liquid wastes indicated the potential destination for liquid waste would be determined following consultation with Scottish Water based on the nature and strength of the effluent. Should the potential pollution hazards from a launch suggest there may be a requirement for offsite disposal, consultation will be undertaken with Scottish Water to agree an appropriate strategy for liquid waste as part of standard emergency planning processes for each launch (Mitigation HHG04c updated in new Schedule of Mitigation (SEI Annex C).

17.3 FUTURE BASELINE

No changes to future baseline in terms of Hydrology, Hydrogeology or Geology are anticipated. Potential flooding issues arising from climate change have been integrated into infrastructure design and described in the Chapter 17 of the 2021 EIA Report.

18 AIR QUALITY AND HEAT

Air Quality and Heat was assessed in Chapter 18 of the 2021 EIA Report, no changes to the assessment have been made. The SEI request did not identify any required updates or clarifications in relation to Air Quality and Heat. Consultee response from CnES Environmental Health recommend that the standard dust conditions are applied, although it is noted that a dust management plan may be required by a planning condition. A number of representations were made by the public on this topic, which highlighted issues relating to the following themes:

- Loss of biodiversity:
- Disturbance to peat
- Pollution of Loch Scolpaig

Responses to representations on this topic are provided in Appendix 5.1.

18.1 FUTURE BASELINE

No changes to the future baseline are anticipated for Air Quality and Heat.

19 NOISE AND VIBRATION

Noise and vibration were assessed in Chapter 19 of the 2021 EIA Report. This section provides further technical information and should be read in conjunction with the original chapter and appendix of the EIA Report. Vibration modelling was undertaken by RSK Acoustics covering potential impacts associated with both construction and operation of the Project to address feedback relating to potential impacts on heritage receptors (Appendix 19-2. Vibration Technical Note). Table 19-1 summarises the feedback received from statutory and non-statutory consultees and includes the information requirements as part of the Request for Supplementary Environmental Information. Several representations from the public raised queries in relation to this assessment and representations made by the public on this topic expressed concerns around the following issues:

- Conflict with WHO Guidelines
- Traffic movements

A full summary of responses to representations on this topic are provided in Appendix 5.1: Public Representations.

Table 19-1 Consultee responses in relation to Noise and Vibration (Chapter 19 of the 2021 EIA Report)

Consultee	Comment	Response	Section
CnES Environmental Health Planning response	Launch Noise: The maximum sound that will be heard at the nearest noise sensitive premises, at a distance of 890m, would be 95dB(A) with a maximum of 120 seconds (Rocket A) or 43 seconds (Rocket B) of noise per launch; equating to a maximum of 1200 seconds (20 minutes) in the year. No concerns if numbers are restricted to this.	No comment.	N/A
CnES Environmental Health Planning response	Sonic Boom: The (worst-case) Perceived Decibel Level (PLdB) for both the Northern and Southern trajectories (85PLdB on the Isle of Coll and 95PLdB on the North of the Isle of Lewis respectively) from Rocket B exceed the suggested criteria for sonic boom noise at 75 PLdB (based on NASA research) at human receptors, they are below the LAmax at 110 dB (based on the WHO guidelines for community noise) and occur for such a short period of time (less than 1 second, up to 10 times a year) that we do not perceive this being a nuisance, likening it to a firework going off (approx. 120dB) or a gunshot (150-170dB).	No comment.	N/A
CnES Environmental Health Planning response	Hours of operation: The hours of operation of the site would be tied to the individual rocket launches (which last for a maximum of 2 weeks for each of the 10 proposed launches) and will therefore not be continuous year-round. It is noted that launches will only occur during daylight hours. *Condition: Any operations carried out will be limited to between the hours of 0700 – 2100 Monday to Friday, 0800 – 1900 Saturday with no Sunday working.*	All launch operations will be carried out between daytime hours of 0700 – 2100 Monday to Friday, 0800 – 1900 Saturday with no Sunday working. Ancillary spaceport activities may require operations outwith these times, including security and patrols.	SEI Annex C. Schedule of Mitigation

Consultee	Comment	Response	Section
CnES Environmental Health Planning response	The launching of rockets on the scale outlined in the EIA report is unlikely to be a significant source of vibration due to the low levels of sound and air overpressure being generated. As the sound will be dominated by mid-range frequencies that are less prone to result in induced vibration in structures than low frequencies, we do not perceive vibration to be an issue. Notwithstanding, it is recommended that conditions be put on to control vibration. *Condition 1: Ground vibration, measured as a maximum of three mutually perpendicular directions taken at the ground surface, shall not exceed a ppv of 12 mm per second. The measurement is to be taken at or near the foundations of any residential property not owned by the site owner or operator.* *Condition 2: Air overpressure shall not exceed [120dB] at any nearby residential property.*	Condition will be incorporated into planning condition / unilateral agreement and relevant operational procedures. Several monitoring locations have been proposed for discussion with CnES Environmental Health.	SEI Annex C. Schedule of Mitigation
CnES Environmental Health Planning response	Recommend that the standard noise and dust conditions are applied (provided), although it is noted that a dust management plan may be required by a planning condition. *Condition 1: I would recommend that the standard noise and dust conditions are applied (see attached).* *Condition 2: Construction hours will be limited to 07.00 to 20.00 Monday to Friday and 07.00 to 18.00 Saturday, with no Sunday working.*	Condition will be incorporated into planning condition / unilateral agreement and will be incorporated into relevant construction management procedures.	SEI Annex C. Schedule of Mitigation
CnES Planning SEI request (01/09/2022)	Provide further information on noise and vibration impacts from construction and operational traffic and, if these are not considered likely to be significant, clarification of reasoning to support this view.	Detailed vibration assessment undertaken based on assessment methodology for quarries.	SEI Appendix 19.2 Vibration Technical Note
CnES Planning SEI request (01/09/2022)	Provide details of proposed vibration monitoring location(s), (which would require landowner agreement).	Indicative vibration monitoring locations proposed, to be agreed with CnES Environmental Health.	Section 19.3
CnES Planning SEI request (01/09/2022)	Note also comments above regarding potential impacts on heritage assets.	Impacts on heritage assets from noise and vibration are assessed in the SEI based on updated vibration modelling. Consideration of construction noise has been integrated into the updated assessment of setting of archaeology and cultural heritage features.	SEI Appendix 19.2. Vibration Technical Note, Section 10 Archaeology and Cultural Heritage

19.1 VIBRATION MODELLING

Vibration modelling was undertaken by RSK Acoustics covering potential impacts associated with both construction and operation of the Development to address feedback relating to potential impacts on heritage receptors. The full methodology is provided in SEI Appendix 19.2. Vibration Technical Note.

19.1.1 Construction Traffic Vibration

Construction vibration modelling results have been integrated into impact assessment set out in Section 10, Archaeology and Cultural Heritage. In summary, vibration modelling concluded that construction works at a distance of 50 metres and above can be carried out without generating structural damage to heritage receptors.

19.1.2 Launch Operation Vibration

The most applicable calculation methodology for assessing vibration from launches was based on a methodology for blasting works. By using a scaled distance assessment procedure, vibration prediction calculations were made on the assumptions of a 'worst case' launch vehicle with 100 kg payload. Results from blasting vibration predictions identified that the minimum distance that a cultural heritage receptor would be unaffected would be 100 metres. However, the predicted vibration levels represent the vibration impact resulting from horizontal force exerted by blasting activities, rather than an accurate representation of downward horizontal thrust vibration exerted by launch vehicle operations. It is acknowledged that launch vehicles are expected to produce levels predominately in the mid-frequencies, with the provisional 100 Hz used within the prediction calculation in this study likely to be far lower than the frequencies expected during launch operations.

19.2 CONSTRUCTION NOISE

The 2021 EIA Report concluded that due to minimal amount of construction required for the Project, as well as the large separation distances (approximately 890 m to the nearest noise sensitive receptor), no significant construction noise or vibration effects are anticipated. Construction noise is revisited considering design changes set out in Section 4.3 and the request for further clarification set out in the SEI.

A full description of the proposed construction operations is set out in Section 4.11 and new design modifications forming part of the SEI are set out in Section 4.3. In summary, construction operations will comprise the following works:

- Upgrade of access track, associated laybys, vehicle turning area, launch pad loading area and car parking –construction works will comprise excavations / grading of surrounding area, laying of geotextile and deliveries of aggregate.
- Causeway upgrade, including box culvert – these works will include the installation of a working 'dry area', dewatering / pumping works during the removal / installation of the box culvert and installation of rip rap embankment.
- Launch pad and tether pads – excavation and grading works, pouring of reinforced concrete poured on a blinded hardcore base.
- Containment Tank and Water Storage Tank – excavation and grading works of the surrounding area, laying of a reinforced concrete slab will be constructed over blinded hardcore on a geotextile membrane laid over the sand formation level. Ready mix concrete imported to the site. Tank supports will be constructed from concrete blockwork. Two mass retaining walls will be constructed at the liquid storage tanks (blockwork or poured concrete).
- Soakaways - soakaways will be excavated and aggregate (clean crushed rock) with perforated pipe distribution installed within a filter membrane.

The closest residential receptor is An Ataireachd Ard, approximately 890 m from the launch site. No specialised machinery is required for the proposed works and no blasting or piling operations are anticipated as part of the operations. Construction works are scheduled to last between 16-20 weeks (with 4-week contingency period) and are temporary in nature. Recreational receptors may experience noise impacts during the construction phase which could diminish the sense of tranquillity and seclusion of the area, however some machinery

noise is associated with the current agricultural activities. In light of the nature of the proposed construction works, the temporary duration of the works and existing baseline agricultural noise, no changes to the conclusions of the 2021 EIA Report are suggested**,** and **no significant** effects are anticipated.

19.3 VIBRATION MONITORING

19.3.1 Baseline Vibration Monitoring

CnES Environmental Health has suggested conditions relating to vibration modelling. Attended vibration monitoring is proposed to be undertaken for the first rocket launch at Scolpaig Farmhouse, and subsequent requirements for vibration reviewed based on the outcome of monitoring and the nature of the launch. The monitored vibration levels will be assessed against the trigger levels detailed in BS 7385-2: 1993 '*Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from ground borne vibration*'.

Vibration modelling (set out in SEI Appendix 19.2) provided two indicative monitoring locations for vibration at Scolpaig Farmhouse and within the farm complex for baseline and operational monitoring. The final locations for vibration monitoring will be agreed with CnES Environmental Health, and if necessary, Western Isles Council Archaeology Service (WICAS) in terms of validating potential impacts on cultural heritage receptors. Final locations for vibration modelling may consider the following:

- A location on the road (A865) running adjacent to Scolpaig Farmhouse – a roadside monitoring location represents a point outwith the ownership boundary of Scolpaig, and not subject to private landowner permissions. However, any baseline or operational monitoring undertaken at this location may be impacted by traffic.
- A location adjacent to Scolpaig Farmhouse or Farmstead– a location at this point represents a relatively close (170 m or 100 m respectively) vibration monitoring location which would inform predictions relating to heritage receptors.
- An Ataireachd Ard – the closest residential receptor located approximately 890 m south of the launch site. As the dwelling at An Ataireachd Ard is private and access may not be permitted for vibration monitoring, it may not be possible to monitor vibration at this location.

It is not possible to definitively identify specific monitoring locations at this stage from these locations as access to a private property will be subject to landowner permissions, and vibration monitoring may be required support operational impacts on heritage receptors. The above locations are proposed as indicative to be agreed in conjunction with CnES Environmental Health, and if necessary WICAS to address potential concerns relating to heritage receptors and domestic properties.

19.4 FUTURE BASELINE

No changes to future baseline are anticipated in terms of the Noise and Vibration Assessment.

20 CLIMATE CHANGE

The SEI request did not identify any required updates or clarifications in relation to Chapter 20. Climate Change. No changes to future baseline are anticipated in terms of altering the assessment conclusions made in the EIA Report. No changes to the assessment have been made. No feedback from statutory or non-statutory consultee responses were received on this topic. Representations made by the public on this topic expressed concern around the project's contribution to climate change through carbon emissions.

Responses to representations on this topic are provided in Appendix 5.1: Public Representations.

21 ENVIRONMENTAL MANAGEMENT AND MONITORING

21.1 INTRODUCTION

This section updates some aspects of Chapter 21, Environmental Management and Monitoring of the 2021 EIA Report and should be read in conjunction with the original chapter. Additional mitigation measures have been added to the schedule as a result of consultation and design adjustments outlined in Section 4.3. Key updates also relate to queries around the potential for an explosives licence under the Explosives Regulations 2014 and clarifications relating to the risk register and impacts on heritage features.

21.2 CONSULTATION

Table 21-1 summarises the feedback received from statutory and non-statutory consultees and includes the information requested as part of the Request for Supplementary Environmental Information, including themes around community safety, major accidents, and hazards. Responses from the public are covered separately in SEI Appendix 5.1. which sets out responses to individual representations. Representations made by the public on this topic expressed concerns around the following issues:

- Safety, and the potential for major accidents and hazards.
- Nature of propellants – concerns that fuels are unstable and volatile and the potential for explosions, particularly HTP.
- Community safety – increase the potential as military target and potential impacts from testing unproven technologies.
- Peat – concerns over the potential for ignition of peat.

Table 21-1 Consultee responses in relation to Environmental Management and Monitoring (Chapter 21 of the 2021 EIA Report)

Consultee	Comment	Response	Section
HSE Planning response	The HSE made comment on the potential for explosives, and the potential requirement for an explosive site licence until further information provided.	Consultation with HSE was undertaken on 17/07/2022. Discussions clarified the nature of the Spaceport Facility, as a venue to support a range of individual launch operators. The HSE confirmed the licensing requirement lay with the body in control of the explosives and confirmed that this is likely to be the launch operator. A 'Screening' process for potential launch operators wishing to use the site will be implemented into client management systems.	Section 21.3 Updates to the screening process have been implemented into the SEI Annex C. Schedule of Mitigation (GM10)
Scottish Fire and Rescue Service (SFRS) Planning response	Scottish Fire & Rescue require at least a 45,000 litres water tank, either on hardstanding or buried, with hardstanding accessibility at all times, located within a 60m distance of proposed build.	The above ground water storage tank has 58,100 litre capacity. The water tank is located approximately 85 m from the launch pad, designed to be at a sufficient distance to protect the tank from damage due to explosion on the pad. The tank will be made of galvanised steel with a galvanised steel cover and will be robust.	Drawing (00)39.2 has been updated and shows the tank capacity (now (00)39.3).
SFRS Planning response	The access route would require improving to meet regulation BST 2.12, the minimum road width being 3.7m from kerb to kerb, with any gateways etc being a minimum of 3.5m, with suitable turning area for vehicles.	The access track through Scolpaig Farm has been widened to 3.7 m to meet the regulations. Site plans have been updated, construction material volumes have been re-calculated, and HGV loads revised. These changes are presented in the SEI Addendum.	Drawing (00)21.13

Consultee	Comment	Response	Section
CnES Planning SEI Request (01/09/2022)	Review the scoring mechanism and provide greater clarity for the assessed level of risk after control, particularly in relation to impact (potential maximum consequence).	Risk register reviewed and updated.	SEI Appendix 21-1 Risk Register
CnES Planning SEI Request (01/09/2022)	Include as a risk the potential for a catastrophic failure resulting in damage to heritage assets from debris.	Risk Register reviewed and updated.	SEI Appendix 21-1 Risk Register

21.3 THE EXPLOSIVES REGULATIONS 2014

The assessment considered the individual materials that may be handled on site, i.e., none of the materials were defined as 'explosive' under the CLP regulations (Hazard Statements H200 to H205 on material SDSs). The term 'explosive' has a distinct definition under the Explosives Regulations 2014. As the propellant substances that can cause an explosion are not defined as explosive, they are not considered to be within the scope of the Explosives Regulations 2014.

The explosive 'component' is not related to the storage of non-explosive materials on site, rather the action of combining the propellants, which is considered to fall under the launch operator remit. Consultation with HSE was undertaken on 17 July 2022. The discussions clarified the nature of the Spaceport Facility, as a venue to support a range of individual launch operators. The HSE confirmed the licensing requirement lay with the body in control of the explosives and confirmed that this is likely to be the launch operator. A health and safety 'Screening' process for potential launch operators will be implemented by the Spaceport to assess operations against the Explosive Regulations 2014 to ensure any regulatory requirements will be integrated at an early stage and appropriate licences obtained. The spaceport will ensure that the relevant licences are in place before any operation is commenced. Updates to the screening process have been implemented into SEI Annex C. Schedule of Mitigation (GM10).

22 SUMMARY OF EFFECTS

This section summaries the findings of the Environmental Impact Assessment Report (EIA Report) for all receptor topic chapters for the modified development. Any changes in relation to the SEI Request have been updated.

Each table includes a summary of the assessment conclusion for all topics and potential impacts of the project, including the following details, where relevant:

- The potential impact.
- Receptor.
- Importance/sensitivity of receptor.
- Mitigation measures proposed to avoid, reduce, or off-set, potential negative impacts, or enhancement measures.
- The magnitude of impact, following implementation of relevant mitigation measures.
- The residual effects.
- Conclusion on significance of effect, in the context of the EIA Regulations.

22.1 SOCIO-ECONOMICS

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Changes in employment and GVA during the construction phase	Employment and income	Medium (local and regional)	COM04	Low	Minor (beneficial)	Not significant
	GVA and economy	Medium (local and regional)	COM04	Low	Minor (beneficial)	Not significant
Disruption or severance to community, recreational and tourism amenities during construction works	Recreation and tourism	Medium	COM03, GM04, GM07	Low	Minor (adverse)	Not significant
Disruption to the local community due to increased volumes of traffic during construction	Population and community	High	COM06, GM05	Low	Minor (adverse)	Not significant
Operational Phase						
Changes in employment and income	Employment and income	Medium (local)	COM08, COM09	High	Moderate (beneficial)	**Significant**
		Medium (regional)	COM08, COM09	Negligible	Negligible (beneficial)	Not significant
Changes to GVA / Economy	GVA and economy	Medium (local and regional)	n/a	Medium	Moderate (beneficial)	**Significant**

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Disruption or severance to recreational and tourism amenities during launch operations	Recreation and tourism	Medium	GM03, GM05, COM01, COM02	Low	Minor (adverse)	Not significant
Disruption to community and population from launch traffic measures	Population and community	High	GM08	Low	Minor (adverse)	Not significant
Changes in social and cultural composition of population and community	Population and community/ Cultural heritage	High	n/a	Low	Minor (beneficial)	Not significant
	Population and community / Cultural heritage	High	n/a	Low	Minor (adverse)	Not significant
Changes to education, training, skills, and diversification opportunities	Education, skills, and training	Medium	COM07, COM08, COM09	Medium	Moderate (beneficial)	**Significant**
Change to access / nature of industries reliant on natural resource use	Natural resources	High	COM01, GM01, MU01	Low (fisheries) Negligible (agriculture)	Minor (adverse)	Not significant
Impacts on housing availability and social infrastructure	Housing	High	COM10	Low	Minor (adverse)	Not significant
	Social and Community Infrastructure	Medium	COM10	Low	Minor (adverse)	Not significant
Changes to digital connectivity	Digital connectivity	High	COM05	Low	Minor (beneficial)	Not significant
Changes to geographical connectivity	Geographical connectivity	High	GM08	Low	Minor (adverse)	Not significant

22.2 LANDSCAPE AND VISUAL AMENITY

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Effects on landscape and coastal character	LCCA A: Scolpaig Bay	High	None	Medium	Moderate	Significant
	LCCA B: Rubha nan Caorach to Bharlais	High-Medium	None	Medium	Moderate	Significant
	Low-Lying Crofting LCT	High to High-Medium	None	Medium	Moderate	Significant
Effects on qualities of the NSA	South Lewis, Harris and North Uist NSA	The Proposed Development would not compromise the objectives of designation or overall integrity of the NSA				
Effects on views	Viewpoint 1: Scolpaig Bay	High	None	Low to Medium	Moderate	Significant
	Viewpoint 2: Proposed St Kilda Viewpoint	High	None	Medium	Moderate	Significant
	Viewpoint 3: View close to the launch site	High	None	High-Medium	Major	Significant
	Viewpoint 4: View from the A865 to the south	High	None	Medium	Moderate	Significant
	Viewpoint 5: A865 east of the site	High	None	Low to Negligible	n/a	Not significant
Operational Phase						
Effects on landscape and coastal character	LCCA A: Scolpaig Bay	High	None	Medium to Low	n/a	Not significant
	LCCA B: Rubha nan Caorach to Bharlais	High-Medium	None	Medium to Negligible	n/a	Not significant
	Low-Lying Crofting LCT	High to High-Medium	None	Low and Medium to High-Medium	n/a	Not significant
Effects on qualities of the NSA	South Lewis, Harris and North Uist NSA	The Proposed Development would not compromise the objectives of designation or overall integrity of the NSA				
Effects on views	Viewpoint 1: Scolpaig Bay	High	None	Medium to Low	n/a	Not significant
	Viewpoint 2: Proposed St Kilda Viewpoint	High	None	Medium to Low	n/a	Not significant
	Viewpoint 3: View close to the launch site	High	None	Low to High-Medium	n/a	Not significant
	Viewpoint 4: View from the A865 to the south	High	None	Medium	n/a	Significant
	Viewpoint 5: A865 east of the site	High	None	Negligible	n/a	Not significant

22.3 ARCHAEOLOGY AND CULTURAL HERITAGE

Impact	Receptor	Importance/ Sensitivity	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Damage caused by construction of new access track (accidental damage from machinery, truncation from excavation of new access track), installation of stock proof fence, upgrade of CHS27, potential accidental construction phase damage. Potential impact from construction phase vibration.	CHS 6 Scolpaig Farmstead [56]	Medium	ARC01 ARC02 ARC04 ARC05 ARC07	Low	Minor	Not Significant
Damage to any elements of the township which may exist as below ground features during construction phase. Accidental damage during construction phase. Damage caused to CHS10C by installation of a new car park. Potential impact from construction phase vibration.	CHS10 Ardanroin township	Low	ARC02 ARC03 ARC04 ARC05 ARC06	Moderate	Minor	Not Significant
Potential damage to undiscovered archaeological and palaeoenvironmental remains should they exist.	Paleo environmental Remains	Moderate	ARC02 ARC03	Low	Minor	Not Significant
Impact on setting of cultural heritage features due to construction activities	Assessed to be temporary, of short duration and not significant					
	*other receptors have been scoped out of the assessment/ effects deemed negligible (detailed in Section 10.9)					
Operational Phase						
Impact on setting of cultural heritage features due to physical presence of	CHS6 Scolpaig Farmstead	Medium	n/a	Slight	Minor	Not significant

[56] Including CHS2, CHS27-32, CHSX33-35 and CHSX39)

permanent and temporary (incremental) infrastructure and activity during launches	CHS1 Scolpaig Tower	High	n/a	Negligible	None	Not significant
Damage caused by vibration from LVs and traffic during launches	CHS1 Scolpaig Tower	High	n/a	Negligible	Negligible	Not significant
	CHS10 Ardanroin Township	Low	n/a	Negligible	Negligible	Not significant
	CHS6 Scolpaig Farmstead	Medium	n/a	Slight	Minor	Not significant

22.4 TRAFFIC AND TRANSPORT

Topic scoped out of the EIA; no likely significant effects identified. Good practice commitment measures include COM02, GM04, GM05, GM07, GM08, GM09.

22.5 AVIATION, RADAR AND TELECOMMUNICATIONS

Impact	Receptor	Importance	Mitigation/ Enhancement	Residual significance
Operational Phase				
Restricted access to airspace for military, civil and commercial aircraft during launch operations	Military, civil and commercial aviation	High	AR01, AR02, AR03, GM06	Not significant
Disruption to MOD technical assets in the MOD safeguarding zone during launch operations	MOD technical assets	High	AR01, AR02, AR03, GM06	Not significant

22.6 MARINE USERS AND ASSETS

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Operational Phase						
Collision of jettisoned and floating stages with marine users and assets within flight path of a LV	Marine users and assets (various)	Medium to High	R01, R02, MU01	Very low	Negligible	Not significant
Snagging of vessels on anchor or fishing gear on LV stage deposits on seabed	Marine users and assets (various)	Medium to high	MU01, R02	Very low	Negligible	Not significant
Disruption to marine users due to marine safety restrictions	Shipping (cargo and tankers)	Medium to high	MU01	Low	Minor	Not significant

during a launch event	Commercial fisheries	Medium to high	MU01	Low	Minor	Not significant
	MOD and Hebrides Range	High	MU01	Very low	Negligible	Not significant
	Recreational users	Low to medium	MU01	Very low	Minor	Not significant
	Maritime safety-related vessels	High	MU01	Very low	Negligible	Not significant

22.7 ORNITHOLOGY

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Direct habitat loss/change due to construction of the development infrastructure	SPA qualifying interests	Very High	ORN01, ORN05, ECO03	Negligible	Negligible	Not significant
	Breeding birds	Low to Medium	ORN01, ORN05, ECO03	Negligible	Negligible	Not significant
	Foraging birds	High	ORN01, ORN05, ECO03	Negligible	Negligible	Not significant
	Roosting birds	Medium to High	ORN01, ORN05, ECO03	Negligible	Negligible	Not significant
Disturbance (noise and visual) due to construction activities	SPA qualifying interests	Very High	ORN01, BBPP, ORN02	Negligible	Negligible	Not significant
	Breeding birds	Low to Medium	ORN01, BBPP, ORN02	Low to Negligible	Negligible	Not significant
	Foraging birds	High	ORN01, BBPP, ORN02	Negligible	Negligible	Not significant
	Roosting birds	Medium to High	ORN01, BBPP, ORN02	Negligible	Negligible	Not significant
Operational Phase						
Visual and noise disturbance during site launch preparations and demobilisation	SPA qualifying interests	Very High	ORN06, ORN04	Negligible	Negligible	Not significant
	Breeding birds	Low to Medium	ORN06, ORN04	Negligible	Negligible	Not significant
	Breeding birds (wigeon)	Medium	ORN06, ORN04	Low	Minor	Not significant
	Foraging birds	High	ORN06, ORN04	Negligible	Negligible	Not significant
	Roosting birds	Medium to High	ORN06, ORN04	Negligible	Negligible	Not significant
	SPA qualifying interests	Very High	ORN04, COM01	Negligible	Negligible	Not significant

Acoustic disturbance generated from launch	Breeding birds	Low to Medium	ORN04, COM01	Negligible	Negligible	Not significant
	Foraging birds	High	ORN04, COM01	Negligible	Negligible	Not significant
	Roosting birds	Medium to High	ORN04, COM01	Negligible	Negligible	Not significant
Risk of bird strike and entanglement from LV deposits falling into splashdown areas	Marine SPA qualifying features	High	ME01	Negligible	Negligible	Not significant

22.8 TERRESTRIAL ECOLOGY

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Permanent removal and potential temporary degradation of wet dwarf shrub heath habitat	Dwarf shrub wet heath habitat	Regional	GM01, ECO03, GM03, HHG01	Very low	Negligible	Not significant
Permanent removal and potential temporary degradation of dune grassland habitat	Dune grassland habitat	Regional	GM02, GM03, HHG01	Very low	Negligible	Not significant
Permanent removal and potential temporary degradation of habitats used by otter	Otter	Regional	GM01, HHG01, GM02, ECO01, ECO02	Low	Negligible	Not significant
Disturbance and displacement of otter via construction-based noise and vibration or visual disturbance	Otter	Regional	ECO01, ECO02	Low	Negligible	Not significant
Otter mortality or injury via entrapment of otter in construction excavations	Otter	Regional	GM02, ECO02	Very low	Negligible	Not significant
Otter mortality or injury via interaction with construction traffic and plant	Otter	Regional	EC02, GM02, ECO01, ECO02	Very low	Negligible	Not significant

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
The permanent removal and potential temporary degradation of great yellow bumblebee habitat	Great yellow bumblebee	Regional	GM01, GM02, ECO03, HHG01, HHG04, COM01	Very low	Negligible	Not significant
Permanent removal or degradation of dry dwarf shrub acid heath, sphagnum blanket mire and blanket bog/wet heath mosaic habitat to the development footprint	Dry dwarf shrub acid heath, sphagnum blanket mire and blanket bog/wet heath mosaic habitats	Regional	n/a	No impact	n/a	None
Loss or Degradation of Vallay SSSI	Vallay SSSI habitats	National	n/a	No impact	n/a	No effect
Operational Phase						
Contamination or degradation of wet dwarf shrub heath habitats	Wet dwarf shrub heath habitats	Regional	GM01, HHG04, COM01	Very low	Negligible	Not significant
Contamination or degradation of dune grassland habitats by hazardous materials and pollutants	Dune grassland habitats	Regional	HHG04, COM01	Very low	Negligible	Not significant
Contamination or degradation of habitats used by otter by hazardous materials and pollutants	Otter	Regional	HHG04, ECO01, ECO02	Very low	Negligible	Not significant
Noise related disturbance to otter by operational activities including launch events	Otter	Regional	GM01, ECO01, ECP02, OPMP	Low	Negligible	Not significant
Contamination or degradation of great yellow bumblebee habitats by hazardous materials and pollutants	Great yellow bumblebee	Regional	GM01, HHG04	Very low	Negligible	Not significant
Contamination or degradation dry dwarf shrub acid	Dry dwarf shrub acid heath, blanket	Regional	None	Very low	Negligible	Not significant

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
heath, blanket bog and blanket bog/wet heath mosaic habitats by hazardous materials and pollutants	bog and blanket bog/wet heath mosaic habitats					

22.9 MARINE ECOLOGY

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Operational Phase						
Acoustic disturbance to seal species from launch activities and flight paths passing overhead	Grey seal	International	None	Very low	Negligible adverse	Not significant
	Harbour seal	Regional	None	Very low	Negligible adverse	Not significant
Direct strike from jettisoned stages causing mortality	Cetacean species	National/ Regional	R02, ME01	Very low	Negligible adverse	Not significant
	Grey seal/harbour seal	National/ Regional	R02, ME01	Very low	Negligible adverse	Not significant
	Fish species	International/ National/ Regional	R02	Very low	Negligible adverse	Not significant
Direct ingestion/ absorption of jettisoned components or toxic contaminants by marine ecological receptors	Benthic habitats and species	International/ National/ Regional	R02	Very low	Negligible	Not significant
	Fish species	International/ National/ Regional	R02			Not significant
	Marine mammals	International/ National/ Regional	R02	Very low	Negligible	Not significant
Deposition of jettisoned stages on the seabed resulting in smothering of benthic organisms (preventing normal feeding or respiration) and bottom-dwelling fish	Benthic habitats and species	International/ National/ Regional	R02	Very low	Negligible	Not significant
	Bottom-dwelling fish species	International/ National	R02	Very low	Negligible	Not significant

22.10 HYDROLOGY, HYDROGEOLOGY AND GEOLOGY

Impact	Receptor	Importance	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Construction Phase						
Sedimentation of surface waters resulting in siltation of Loch Scolpaig and drainage channels, impacting surface water quality during construction	Water quality	High	GM01, HHG01, HHG03	Low	Minor	Not significant
Chemical pollution of surface or groundwaters impacting water quality and dependent receptors during construction	Water quality and groundwater	High	GM01, HHG04	Very low	Negligible	Not significant
Operational Phase						
Chemical pollution of ground and surface waters arising from standard launch activities, impacting water quality and dependent receptors	Hydrogeology and groundwater vulnerability	High	HHG04, R01, R02, HHG06, HHG05	Very low	Negligible	Not significant
Chemical pollution of ground and surface waters arising from non-standard launch activities and catastrophic events impacting water quality and dependent receptors	Hydrogeology and groundwater vulnerability	High	HHG04	Very low	Negligible	Not significant

Chemical pollution of ground and surface waters arising from accidental spillages associated with the post launch storage of hazardous materials	Hydrogeology and groundwater vulnerability	High	R02, HHG04	Very low	Negligible	Not significant
Increased occurrence or severity of flooding from presence of project infrastructure	Flood risk	Low	GM01, HHG02, HHG04, HHG06	Medium (beneficial)	Minor (beneficial)	Not significant (beneficial)

22.11 AIR QUALITY AND HEAT

Impact	Receptor	Sensitivity	Mitigation/ Enhancement	Assessment conclusions	Significance
Operational Phase					
Emissions of hydrogen chloride from LVs reducing air quality	Human health	High	R01	Below air quality standards	Not significant
Emissions of nitrogen dioxide from LVs reducing air quality	Human health	Screened out			
Emissions of particulates/ Aluminium oxide from LVS reducing air quality	Human health	Screened out			
Emissions of carbon monoxide from LVs reducing air quality	Human health	Screened out			
Annual emissions of nitrogen oxides from LVs reducing air and habitat quality	Ecology	Screened out			
Daily emissions of nitrogen oxides from LVs reducing air and habitat quality	Ecology	Medium-High	R01	Below critical level for maximum daily concentrations	Not significant
Nitrogen deposition from LV exhaust plume reducing habitat quality	Ecology	Screened out			

Acid deposition from LV exhaust plume reducing habitat quality	Ecology	Screened out			
Heat arising from LV exhaust plume resulting in habitat degradation	Ecology	Medium-High	AQH01, R01	Low magnitude / Negligible residual effects	Not significant

22.12 NOISE AND VIBRATION

Noise impacts on ecological and heritage receptors are assessed in the following chapters: Chapter 10: Archaeology and Cultural Heritage; Chapter 14: Ornithology; Chapter 15: Terrestrial Ecology; and Chapter 16: Marine Ecology.

Impact		Receptor	Sensitivity	Mitigation/ Enhancement	Magnitude	Residual effect	Significance
Operational Phase							
Noise disturbance from LV	Launch noise	Human health	High	GM05, MU01	Low	Minor - Negligible	Not significant
	Sonic boom	Human health	High	GM05, MU01	Low to negligible	Minor-Negligible	Not significant

22.13 CLIMATE CHANGE

Impact	Mitigation/ Enhancement	Significance
Construction works and operations associated with the Project may be vulnerable to climate change effects	HHG06, GMO1	Not significant
Operations associated with the Project may contribute to GHG emissions and influence climate change	CC01	Not significant

23 CUMULATIVE AND IN-COMBINATION EFFECTS

23.1 INTRODUCTION

This section provides an assessment of in-combination effects to satisfy the requirement for additional information, set out in the Request for Supplementary Environmental Information (SEI). Clarification is also provided in relation to the approach to the assessment of cumulative effects.

The Design Manual for Roads and Bridges ("DMRB") (Highways England, 2020)) identifies two types of cumulative impact:

- The combined action of different environmental topic-specific impacts upon a single resource/receptor, which are termed "in combination" effects; and
- The combined action of a number of different projects, cumulatively with the project being assessed, on a single resource/receptor, which are termed "cumulative" effects.

23.2 CONSULTATION

Table 23-1 summarises the feedback received from statutory and non-statutory consultees and includes the information requested as part of the Request for Supplementary Environmental Information.

Table 23-1 Consultee responses in relation to Cumulative and In Combination Effects (Chapter 22 of the 2021 EIA Report)

Consultee	Comment	Response	Section
CnES Planning (External Review) Planning determination	There is no consideration of in-combination effects that may arise when the residual effects identified within each technical assessment chapter are considered in combination on each identified sensitive receptor.	A review of the EIA Summary of Effects to identify potential in-combination effects has been undertaken and informs an assessment of in-combination effects. The assessment is based on the updated information provided as part of the SEI. Rationale on the approach for cumulative effects is also provided.	Section 22, 23
CnES Planning SEI request 01/09/2022	Review the assessment of cumulative impacts, both in terms of the potential cumulative impact of the application project combined with the impacts of other planned projects, and the potential cumulative impact of different identified residual effects of the project on a single receptor – such as noise, visual and transport impacts.		

23.3 ASSESSMENT OF CUMULATIVE EFFECTS

23.3.1 Methodology for cumulative effects

The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 requires the likely significant effects of the development on the environment to be considered in relation to the characteristics and location of the development (criteria set out in paragraphs 1 and 2 of the regulations), with regard to the impact of the development, taking into account: *the cumulation of the impact with the* ***impact*** *of other existing and/or approved development.*

The approach to Cumulative Impact Assessment (CIA) also takes account of relevant guidance including CIEEM 'Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, freshwater and Coastal' (2018), Planning Circular 1/2017: The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and relevant principles within SNH's 'Guidance Assessing the Cumulative Impact of Onshore Wind Energy Developments' (2012).

SNH (2012) '*only seek cumulative impact assessments where it is considered that a proposal could result in significant cumulative impacts which could affect the eventual planning decision'*, and therefore, all cumulative impact assessments should '*focus on the likely significant effects and in particular those which are likely to influence the outcome of the consenting process*'.

Projects within the same zone of influence that have been considered for inclusion in the CIA are as follows:

- Proposals for which consent has been applied which are awaiting determination in any regulatory process (not necessarily limited to planning permission).
- Projects which have been granted consent (not limited to planning permissions) but which have not yet been started or which have been started but are not yet completed (i.e., under construction).
- Proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined to the extent that their details are in the public domain, proposed projects that will be implemented by a public body but for which no consent is needed from a competent authority.
- Projects that have submitted a Scoping Report are defined as being "reasonably foreseeable" and therefore may need to be included in the CIA; however, it is recognised that due to lack of information available only a qualitative assessment may be possible.
- In some situations, it may be necessary to also consider constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline.

If there is potential connectivity between impacts arising from the source project and pathway for cumulative impacts with other developments, those developments and relevant impacts are taken forward for further assessment. Where there is no potential pathway for cumulative impacts i.e., there is no physical overlap of any project elements from the proposals or within the zone of influence between proposals, they are screened out and no further assessment is undertaken. In some cases where there may be no significant effects from the development in isolation, they may give rise to potentially significant effects when considered cumulatively with other developments; therefore, these impacts may be screened in for further assessment.

23.3.2 Cumulative developments to be included

Conclusion in 2021 EIA Report

At the time of EIA preparation and SEI preparation, there are no other developments, recently consented or proposed with any adverse impacts of which would overlap with or have connectivity with the proposed development. Therefore, there are no proposed or recently consented developments requiring consideration in a cumulative assessment and all existing developments are considered part of the baseline conditions. **Cumulative effects have therefore been scoped out of the assessment**.

SEI clarification and update

The external review of the EIA Report agrees that the assessment 'clearly presents the findings of a cumulative assessment (the scope for which is set out within Chapter 6 'Approach to EIA')'. At the time of EIA preparation for the Project, there were no other EIA developments, recently consented or proposed with any adverse impacts of which would overlap with or have connectivity with the proposed Project, therefore there is no potential pathway for cumulative impacts with another EIA development. Further, at the time of EIA preparation for the Project, there were no other non-EIA developments recently consented or proposed that had identified and assessed potential adverse environmental impacts or likely significant effects; with impacts of which would overlap with or have connectivity with the proposed Project, that required environmental assessment of such impacts.

Consideration was given to the impacts of the one non-EIA development identified within the vicinity of the Project: the recently consented 21/00184/PPD St Kilda Viewpoint Visitor Centre[57], for which a developer has previously submitted two related applications (19/00303/PPP

[57] Planning permission secured on 21 January 2021; however, is - at the time of writing - not constructed.

– permitted with conditions in September 2019 and 17/00388/PPP – permitted with conditions in October 2017). The 2017 Screening Opinion by CnES Planning concluded that the development was 'unlikely to have a significant effect on the environment' and 'therefore an Environmental Statement is not required'. No potential adverse impacts or likely significant effects were identified for the project or were required to be assessed. As no likely significant effects have been identified for the St Kilda Viewpoint Visitor Centre development and consequently no assessment of impacts has been undertaken, there is unlikely to be any potential pathways for significant cumulative effects and therefore is screened out of the cumulative impact assessment. The approach is consistent with best practice (e.g., CIEEM, 2017; SNH, 2012).

No additional projects have been identified since submission of the 2021 EIA Report and no further assessment has therefore been undertaken.

23.4 ASSESSMENT OF IN-COMBINATION (SYNERGISTIC) EFFECTS

23.4.1 Methodology for In-Combination (synergistic) Effects

In-combination (synergistic) effects are defined as the combined action of different environmental topic-specific impacts upon a single receptor i.e., when a particular receptor is affected by impacts from the same scheme in different ways (IEMA, 2016; Highways England, 2020). There is no accepted method for assessing in-combination (or synergistic) effects of a development. In developing the methodology to assess 'in-combination' effects, reference to the methodology of other published projects is made (IEMA, 2016).

The process undertaken to assess in-combination effects is as follows:

- Impacts assessed for each receptor are screened for significant residual effects (i.e., those assessed as 'moderate' or 'major' adverse).
- Impacts with 'minor' residual effects are also screened in as a precautionary measure, where there is potential for the combination of two impacts to result in a significant in-combination effect on a receptor.
- Identification of potential synergistic effects of two or more impacts combined on a receptor.
- Assessment of impact magnitude of combined impacts, identification of any further relevant mitigation.
- An evaluation of significance is undertaken based on the assessment, in line with EIA guidance.

The SEI Addendum has revised and updated a number of the original chapters presented in the 2021 EIA Report. Receptors with residual effects assessed as 'minor' or above screened are **screened into** the assessment and include:

- Socio-economics
- Archaeology and Cultural Heritage
- Population and Health (air quality, noise, access and amenity) – although no likely significant effects (or 'minor' effects) have been identified for noise and air quality, these are assessed to provide an overall assessment of in-combination effects on population and health[58].

[58] Each topic chapter included an assessment of these impacts on human health or amenity separately in the 2021 EIA Report (Chapter 7. Community, Recreation and Tourism; Chapter 18. Air Quality and Heat; and Chapter 19. Noise and Vibration).

The following topics have been **screened out** of the assessment:

Topic	Rationale
Landscape and Visual Amenity	In-combination effects from visibility, noise, traffic and access restrictions have already incorporated into assessment of potential impacts on landscape and visual amenity. No in-combination assessment required.
Land Use and Utilities	No likely significant effects, scoped out of the EIA.
Traffic and Transport	No likely significant effects, scoped out of the EIA.
Aviation, radar and telecommunications	No significant effects identified. No in-combination assessment required.
Marine Users and Assets	Minor residual effects identified in relation to one impact only: 'disruption to marine users due to marine safety restrictions during a launch event'. No in-combination assessment required.
Ornithology	Minor residual effects were identified in relation to one impact only: "visual and noise disturbance during site launch preparations and demobilisation" to one receptor (widgeon). No in-combination assessment required.
Terrestrial ecology	All residual effects identified as 'negligible' following mitigation measures. No in-combination assessment required.
Marine ecology	All residual effects identified as 'negligible' following mitigation measures. No in-combination assessment required.
Hydrology, Hydrogeology and Geology	Minor residual effects were identified in relation to one impact only: "sedimentation of surface waters resulting in siltation of Loch Scolpaig and drainage channels, impacting surface water quality during construction". The receptor for this impact is water quality. No in-combination assessment required.
Air quality and heat	All residual effects identified as 'negligible'. No in-combination assessment required for this topic.
Noise and vibration	Minor residual effects were identified in relation to one impact only: "noise disturbance from LV (including the launch and sonic boom, in circumstances where this is generated). The receptor for this impact is human health. No in-combination assessment required for this topic.
Climate change	All residual effects identified as 'negligible'. No in-combination assessment required for this topic.

23.4.2 Socio-economics

No significant residual adverse effects for social and economic receptors were identified throughout the construction or operations phase of the proposed development. The following 'minor' adverse effects were identified, including:

- Disruption or severance to community, recreational and tourism amenities during construction works.
- Disruption to the local community due to increased volumes of traffic during construction.
- Disruption or severance to community, recreational and tourism amenities during launch operations.
- Disruption to community and population from launch traffic measures.
- Changes in social and cultural composition of population and community.
- Change to access / nature of industries reliant on natural resource use.
- Impacts on housing availability and social infrastructure.
- Changes to geographical connectivity.

A range of measures are in place to avoid and minimise disruption on public roads during construction works, which are temporary and short in duration. No disruption on public roads relating to launch traffic is anticipated. Traffic management measures are intended to ensure there is no disruption to community and tourist road users from potential congestion arising from incidental spectators or vehicles

(more generally) stopping or parking in laybys causing obstruction on single track roads. Changes to geographical connectivity through additional pressure on the existing transport infrastructure network (ferries, airports etc.) is limited by the relatively low vehicle requirements for launches, phased arrival of equipment and personnel and measures to secure specifically chartered vessels, if necessary.

Disruption during launch operations will be short-term and incremental around launch campaigns, with measures in place to ensure access to Scolpaig Bay is maintained around launch activities and restricted on launch days only. Enhancement measures are proposed to increase overall amenity and access at Scolpaig Farm through access improvements, habitat enhancements, cultural heritage initiatives and community use of land for agriculture.

The development may also result in several complex and related changes to the social and cultural composition of the community, impacting housing availability and access to social infrastructure and services, as well as access to resources the community may rely on for employment and livelihood.

Adverse effects may be generated by increased tensions associated with new residents not aligned with cultural norms or standards and pressure on services and access to housing. However, beneficial effects may be generated from diverse and alternative job creation on the island, retaining islanders and addressing issues relating to the trend of depopulation and outward migration. The intention of the Spaceport is to recruit and train candidates as much as possible locally, therefore reducing potential pressure on the local housing stock and services. An introduction of a small number of individuals represents a negligible increase in the local population. Specific measures are in place through education, training, skills, and diversification opportunities to increase opportunities for local recruitment in the short to long term.

Several 'moderate' and 'minor' beneficial effects throughout the construction and operation phases have also been identified, with a number of enhancement measures proposed, on social and economic community of North Uist and the wider Uists:

- Changes in employment and GVA during the construction phase
- Changes in employment and income
- Changes to GVA / Economy
- Changes in social and cultural composition of population and community
- Changes to education, training, skills, and diversification opportunities
- Changes to digital connectivity

The proposed mitigations are considered appropriate and robust to mitigate potential adverse impacts on society and economy, with enhancement measures also proposed, leading to a number of beneficial effects on the local community. No increase in magnitude is anticipated for these combined adverse impacts, no further mitigation measures are proposed, and **no significant adverse in-combination effects** are anticipated.

23.4.3 Archaeology and cultural heritage

No likely significant effects were identified for archaeology and cultural heritage receptors; the following impacts were evaluated to have 'minor' residual effects:

- Physical damage to known and unknown historic assets from construction activities
- Vibration from construction traffic compromising the integrity of existing farm buildings
- Vibration from rocket launches compromising the integrity of existing ruinous buildings

Minor residual effects are associated with potential damage to cultural heritage assets during construction excavation works and potential vibration impacts arising from construction traffic and rocket launches. Whilst these effects may, in-combination, be incremental over time and possibly contribute to the deterioration of historic buildings, which are already in ruinous and fragile condition, the proposed mitigation

commits to pre-development historic building surveys, monitoring and agreement of remedial actions, if required (ARC01, 02, 03 and 04). The Outline Habitat and Amenity Management Plan (HAMP) (COM02) also includes development objectives for Scolpaig Farm's archaeological resources, which includes proposals to set-up an Advisory Group to explore options to develop an archaeological or cultural heritage resource in line with the core objectives of the HAMP (Appendix 7.2 of the 2021 EIA Report), which would be driven by stakeholder interest. The mitigation and enhancement measures proposed are considered robust for the precautionary assessment and no further measures are proposed. No increase in magnitude for these combined impacts is anticipated and **no significant adverse in-combination effects** are concluded.

23.4.4 Population and health

Population and health impacts were assessed in the 2021 EIA Report separately within technical topics for Noise, Air Quality and Community, Recreation and Tourism (now Section 7. Socio-Economics). Relevant impacts relating to humans include additive effects arising from these topic assessments. No likely significant effects were identified; however, are considered here in-combination to provide an overall assessment of impacts on population and health and include:

- Disruption or severance to community, recreational and tourism amenities during construction works.
- Disruption to the local community due to increased volumes of traffic during construction
- Disruption or severance to community, recreational and tourism amenities during launch operations.
- Disruption to community and population from launch traffic measures.
- Emissions from launch vehicles.
- Noise disturbance from launch vehicles.

Disruption during the construction phase relates to busier roads from HGV traffic during construction works, which could be disruptive and stressful for public road users. The on-site construction works are anticipated to last for a temporary period of 16-20 weeks with an average of 32 HGV deliveries per week, which is evaluated to have no likely significant effects on the local community with best practice management measures in place to avoid convoys of construction traffic (GM10). Measures are also in place to keep roads clear and clean of construction material and a commitment to repair any damage caused by construction vehicles is in place (GM04, GM09), ensuring roads are safe for all users.

During the operational period no disruption to traffic flow will be experienced, due to the low volumes of traffic required to deliver equipment to site during a launch campaign (averaging at 7-8 vehicles to site each day for the worst-case scale of launch, comprising a combination of HGV, LGV, minibus and car). Advanced notification of launches (GM05) is proposed to keep the community notified and reduce disruption. A traffic clearway system is also proposed during launch operations (GM08) to ensure roads are not congested or obstructed by incidental spectators or other road users.

Pedestrian access through Scolpaig Farm will be limited during construction works, with access reinstated at different phases of completion of works and will also be prohibited during launch events (on the day of a launch only) and measures in place to notify the public of activities and ensure safe site access, when permitted (GM04). The impacts of access to Scolpaig Farm have been considered in the wider EIA Report, and two mitigations are proposed to improve and enhance access and amenity across the site to improve accessibility:

- **Mitigation COM02 - Outline Habitat and Amenity Management Plan (HAMP)**: plan outlining key commitments and principals is provided in Appendix 7-2 of the EIA Report and will be developed post consent in conjunction with a consultative Advisory Group. Coordination and management of the HAMP will be delivered by an Environmental Officer contracted by Spaceport 1. Commitments and development principals include improving public (including users of limited mobility) access and wider amenity and experience.
- **Mitigation COM03** – **Public Access and Users of Limited Mobility**: Pedestrian access to the area will be enhanced through the upgrading and widening of the existing access road from the A865 to Scolpaig Farm. An additional 10 parking spaces will

be installed, which will be available to the public, including one accessible space and two extended spaces for larger vehicles. The existing 'kissing gate' will be replaced by a standard accessible gate.

The noise assessment was precautionary, assuming worst-case LV noise emissions and concluded minor-negligible residual effects. Noise and vibration monitoring is proposed to ensure standards are not breached at nearest dwellings. The air quality assessment screened out three of four potential pollutants, with the remaining emissions of hydrogen chloride falling below thresholds for environmental standards with no likely significant effects on air quality and therefore human receptors. Furthermore, the public will be cleared from site during a launch with implementation of a safety clear zone and will not be at health risk from noise or exhaust emissions.

In the longer term, Scotland's Space Strategy has a target to transition to a net zero society by 2045 to source more sustainable fuel sources and reduce emissions from launches to further reduce potential impacts on air quality (CC01).

The proposed mitigations are considered appropriate and robust to mitigate potential adverse impacts on population amenity and health, through site and launch management, security and notification procedures. A range of measures are in place to avoid and minimise disruption during construction works and ensure roads are safe for other users. The access limitations to Scolpaig Farm during both construction and operational phases coincide with activities with potential to impact population health (i.e., noise, LV emissions and interaction with project vehicles), with further measures to notify and raise awareness of activities on-site, and therefore removes or reduces potential pathways for adverse impacts relating to the safety and health of the local community and other recreational users. Enhancement measures are proposed to increase overall amenity and access at Scolpaig Farm through access improvements, habitat enhancements, cultural heritage initiatives and community use of land for agriculture. No increase in magnitude is anticipated for these combined impacts, no further mitigation measures are proposed, and **no significant in-combination effects** are anticipated.

23.5 REFERENCES

Highways England, 2020. Design Manual for Roads and Bridges. Sustainability & Environment Appraisal. LA 104. Environmental assessment and monitoring. Revision 1. Volume 11.

IEMA (2016). EIA - Assessing In-Combination Effects. Transform article, 31st August 2016 [online]. Available at: https://www.iema.net/articles/eia-assessing-in-combination-effects