AIS ENVIRONMENT

Analysis of material to be excavated in Relation to an Environmental Impact Assessment (EIA)

As per ERA requirements for PA/04448/22

Report

Analysis of material

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1 SCOPE

This report describes the compositional analysis arising from the construction of the proposed development (PA/04448/22). The aforementioned application covers the "*construction of the second cable link inter-connector project. The proposal includes trenching, laying, cable jointing and installation between the Enemalta 132kV Maghtab Terminal Station and the near shore approach, construction of underground join bays, a trench-less transition from onshore to offshore and the laying and protection of the submarine cable up to the median line between Maghtab, Naxxar and Ragusa, Sicily*".

The proposed development, hereinafter referred to as the "Scheme", involves aims to secure the electrical supply to the Maltese Islands.

This study presents the analytical tests carried out on ground samples as defined in the Geology Method Statement. It also presents a compositional analysis against limits applied by ERA to determine whether the material is contaminated and how the material should be disposed.

The proposed cable shall connect Malta to the TERNA 220kV substation located in Sicily. The primary aim of the project is to transmit electricity via a second electrical interconnector (IC2) between Maghtab, Naxxar (Malta) and Contrada Cimillà, Ragusa (Sicily).

The length of the submarine cable is estimated to be 99.6km, while the onshore cable is estimated to be around 1.8km in Malta and between 20.6km in Sicily. The transmission voltage to Malta shall be at 220kV with transformation to match the local 132kV network in Malta. To maximize the project's benefits, the proposed interconnector shall operate in parallel with the existing link.

Malta is already connected to the European electricity grid through a submarine cable interconnection (IC1) to Sicily since 2015. Once the new project is implemented, Malta will be better equipped to address the ever-increasing electrical demand attributed primarily to economic growth and increasing population. Furthermore, the project will also be an enabler of further renewable energy generation as it can allow for Renewable Energy Sources (RES) intermittency. The need for such a project also stems from the European Green Deal and other policy documents which oblige member states to prioritise carbon emission neutrality by 2050. In fact, the proposed cable is expected to reduce the dependency on fossil fuel power generation at Delimara Power Station and increase the security of supply with the potential for increased energy input from renewables.

In order to minimise the environmental impact of the project, the Applicant is proposing to make use of the existing transmission station just outside the ECOHIVE complex, in Maghtab, Naxxar. On shore, the cable shall be installed in underground trenches passing through or in close proximity to the ECOHIVE complex which is

operated by WasteServ Malta. The onshore and nearshore approaches will be connected via trenchless drilling techniques passing underneath the Coast Road, which forms part of the Ten-T network. The offshore cable shall be buried beneath the seafloor to a nominal depth of circa 1.5m on the most optimal route. The cable shall also be protected by means of rock protection/placement in certain areas which do not facilitate cable burying.

FIGURE 1: PROPOSED INTERCONNECTOR ROUTE IN THE MALTESE EXCLUSIVE ECONOMIC ZONE (EEZ)

2 TERMS OF REFERENCE

The Terms of Reference related to the study for the EIA were issued by the ERA in July 2022. Appendix 1 of this report contains a copy of the ToR for ease of reference.

3 METHODOLOGY

In total, the excavation works associated with the Scheme are expected to generate 4,374m³ of material. Ground samples were taken at 500m intervals along the terrestrial segment of the proposed cable route. The samples were collected via a series of trial pits (boreholes). The samples were placed directly into plastic or glass containers, photographed and stored in a refrigerated environment of ca. 4°C. The samples were then shipped to an ISO 17025 accredited laboratory within 24hours of collection for chemical analysis.

The chemical analysis was carried out on the fine fraction of the sample (<2mm) since this is the fraction on which contaminants tend to accumulate. The results are presented as concentrations of dry sediment based on weight. Table 1 provides the details of the chemical analysis which was carried out.

The results of the chemical analysis shall be used to determine if the excavated material can be reused or otherwise.

TABLE 1: LABORATORY CHEMICAL ANALYSIS FOR THE GROUND SAMPLES

CHEMICAL PARAMETER	LOD	U.O.M	METHOD
Heavy Metals			
Arsenic (As)	0.1	mg/kg	DM 13/09/1999 SO GU no.185 GU n 248 21/10/1999 Met XI.1 UNI EN ISO 11885:2009
Cadmium (Cd)	0.1	mg/kg	
Copper (Cu)	0.1	mg/kg	
Mercury (Hg)	0.1	mg/kg	
Zinc (Zn)	0.1	mg/kg	
Chromium (Cr)	0.1	mg/kg	
Lead (Pb)	0.1	mg/kg	
Nickel (Ni)	0.1	mg/kg	
Anions			
Chloride	1.0	mg/kg	IRSA-CNR Q64 n.14
Sulphate	2.0	mg/kg	
Polyaromatic Hydrocarbons (PAHs)			
Benzo(a)pyrene	0.01	mg/kg	EPA 3550C 2007 EPA 3630C 1996 EPA 8270E 2018
Benzo(e)pyrene	0.01	mg/kg	
Benzo(b)fluoranthene	0.01	mg/kg	
Benzo(k)fluoranthene	0.01	mg/kg	
Benzo(g,hj,i)-perylene	0.01	mg/kg	
Benz(a)anthracene	0.01	mg/kg	
Dibenzo(a,h)pyrene	0.01	mg/kg	
Dibenzo(a,l)pyrene	0.01	mg/kg	
Dibenzo(a,e)pyrene	0.01	mg/kg	
Dibenzo(a,i)pyrene	0.01	mg/kg	
Dibenz(a,h)anthracene	0.01	mg/kg	

CHEMICAL PARAMETER	LOD	U.O.M	METHOD
Pyrene	0.01	mg/kg	
Indeno(1,2,3-cd)-pyrene	0.01	mg/kg	
Fluoranthene	0.01	mg/kg	
Napthalene	0.01	mg/kg	
Acenaphtylene	0.01	mg/kg	
Acenaphthene	0.01	mg/kg	
Fluorene	0.01	mg/kg	
Phenanthrene	0.01	mg/kg	
Anthracene	0.01	mg/kg	
Chrysene	0.01	mg/kg	
Polychlorinated biphenyls (PCBs)			
Polychlorinated Biphenyl (PCB – IUPAC numbers [sum of 7 PCB congeners: 28, 52, 101, 118, 138, 153 and 180])	0.005	mg/kg	IRSA-CNR Q64 Vol.3 MET.24a EPA 8270E 2017 (low resolution)
Aromatic Hydrocarbons			
Benzene	0.01	mg/kg	EPA 5021A 2014 EPA 8260D 2018
Toluene	0.01	mg/kg	
Ethylbenzene	0.01	mg/kg	
M,p-xylene	0.01	mg/kg	
o-xylene	0.01	mg/kg	
Styrene	0.01	cc	
Hydrocarbons			
Hydrocarbons C>12	1.0	mg/kg	UNI EN ISO 16703:2011
Other Contaminants			
Load of Organic Matter (as Total Organic Carbon)	500	mg/kg	DM 13/09/99 GU 248 21/10/99 e smi Met.VII.3
Tributyl tin compounds (TBT/DBT/MBT)	0.01	mg/kg Sn	UNI EN ISO 23161:2011
Asbestos	100	mg/kg	DM 06/09/1994 GU SO n°288 10/12/1994 All. To 1
Loss of ignition	N/A	% s.s.	UNI EN 15169:2007

A total of five samples were collected by CESI, Techfem and SPS, a Joint-Venture responsible for the preliminary studies carried out by the applicant. Below is a summary of the samples analysed:

- Sample TP43 at a depth of 0-1.0m
- Sample TP44 at a depth of 1.0-1.6m
- Sample TP45 at a depth of 1.0-1.6m
- Sample TP46 at a depth of 1.0-1.6m
- Sample TP47 at a depth of 1.0-1.6m

FIGURE 2: LOCATION OF SAMPLING POINTS ALONG ONSHORE CABLE ROUTE

To determine whether the material to be excavated is classified as hazardous waste, the results obtained were evaluated with the hazard property (HP) criteria listed in Schedule 3 of S.L.549.63. If the limit values established by the HP criteria are exceeded, the waste was classified as being hazardous for that specific HP criterion.

When dealing with metals, the level of contamination for each parameter reflects the total mixtures and compounds present in all of their chemical forms, not just in their pure elemental form. Therefore, the suspected chemical compound was identified based on the contamination pressures within the area of study. This was performed through literature searches on contaminants that are normally associated with each of the metal parameters listed.

The process was carried out by identifying the potential hazardous material in the material to be excavated, determining its molar mass and converting the % concentration of the metal form into the % concentration of the suspected hazardous metal compound. The respective hazard class and hazard statement of the contaminant was determined from the 1272/2008 Regulations and compared to Schedule 3 of SL 549.63 (WASTE REGULATIONS) to identify the properties of waste which render it hazardous.

The worst-case compound of the element/parameter was compared to the thresholds stipulated in Schedule 3 of SL 549.63 and classified as hazardous according to the following thresholds:

i. Exceeds the concentration limits for all the identified hazard statements, the material is classified as hazardous;

ii. Does not exceed any concentration limits of the identified hazard statements, the material is classified as non-hazardous;
iii. Exceeds the concentration limits for at least one of the identified hazard statements, the material is classified as hazardous for its related hazardous property.

4 RESULTS

The analytical results of the parameters analysed by the lab are summarised in the table below. The results are compared to the current limits applied by ERA for contamination analyses as per Italian Decreto 152 of 3rd April 2006. The full set of results issued by the ISO170025 laboratory are provided in Appendix II.

It should be noted that Polyaromatic Hydrocarbons (PAHs), Polychlorinated biphenyls (PCBs), Aromatic Hydrocarbons and Tributyl tin compounds (TBT/DBT/MBT) were not detected in the analyses that were carried out and therefore have been excluded from the table hereunder.

TABLE 2: SUMMARY OF ANALYTICAL RESULTS (NR: NOT DETECTED)

PARAMETER	UNITS	LIMIT FOR GREEN SITES	LIMIT FOR COMMERCIAL & INDUSTRIAL	TP43	TP44	TP45	TP46	TP47
Arsenic	Mg/kg	20	50	0.25	3.00	1.89	2.50	2.40
Cadmium	Mg/kg	2	15	0.32	0.38	0.36	0.41	0.36
Cobalt	Mg/kg	20	250	0.60	0.94	0.85	1.91	2.50
Chromium	Mg/kg	150	180	11.9	18.6	9.2	24.0	18.8
Mercury	Mg/kg	1	5	Nr	Nr	Nr	Nr	Nr
Nickel	Mg/kg	120	500	3.0	7.6	4.8	10.7	9.4
Lead	Mg/kg	100	1000	0.7	2.2	2.4	17.9	34
Copper	Mg/kg	120	160	2.1	4.7	3.9	12.7	17.7
Zinc	Mg/kg	150	1500	18.8	13.5	42	38	63
Chloride	Mg/kg	N/A	N/A	410	297	228	488	205
Sulphate	Mg/kg	N/A	N/A	703	94	143	235	137
Hydrocarbons (C>12)	Mg/kg	50	750	Nr	34	Nr	6	52
Load of Organic	Mg/kg	N/A	N/A	6,700	14,700	12,200	14,500	10,500

PARAMETER	UNITS	LIMIT FOR GREEN SITES	LIMIT FOR COMMERCIAL & INDUSTRIAL	TP43	TP44	TP45	TP46	TP47
Matter (as TOC)								
Asbestos	Mg/kg	1,000	1,000	<1,000	<1,000	<1,000	<1,000	<1,000

Due to the presence of Malta's extensive waste management activities in the area of sampling, it is plausible to consider the limits applied to commercial & industrial areas. The results obtained above indicate that samples TP43, TP44, TP45, TP46 and TP47 are not contaminated when applying the limits for commercial and industrial areas.

Since the material to be excavated cannot be reused for backfilling purposes, an HP assessment in line with the requirements of the WASTE FRAMEWORK DIRECTIVE was carried out to determine the nature of waste and its classification. The results shown in the table hereunder indicate that the waste to be excavated is Non-Hazardous.

TABLE 3: HP ASSESSMENT FOR WASTE SAMPLES

CODE	DESCRIPTION	CLASSIFICATION[1]					INTERPRETATION
		TP43	TP44	TP45	TP46	TP47	
HP1	Explosive	N/A	N/A	N/A	N/A	N/A	Not applicable, since no compounds with H200, H201, H202, H203, H204, H240 and H241 are present.
HP2	Oxidising	N	N	N	N	N	Despite the presence of H271 in chromium (III) chromate which would render all samples hazardous for HP2, this was considered unrealistic since: 1. Assuming that all metallic chromium is

[1] H = hazardous and N = non-hazardous

CODE	DESCRIPTION	CLASSIFICATION[1]					INTERPRETATION
		TP43	TP44	TP45	TP46	TP47	
							present as chromium (III) chromate, the concentration does not exceed 0.021% (w/w), which is extremely low; 2. Other chromium compounds are likely to be present, meaning the chromium (III) chromate concentration would be even lower
HP3	Flammable	N/A	N/A	N/A	N/A	N/A	Not applicable, since no compounds with H220, H221, H222, H223, H224, H225, H226, H228, H242, H250, H251, H250, H260 and H261 properties are present.
HP4	Irritant	N	N	N	N	N	Non-hazardous. Even though H314 properties are demonstrated in chromium compounds, H318 is present in copper (I) oxide, and H315 & H319 are present in tributyltin oxide, their % concentrations did not exceed the cut-off values for HP4 (1-5%, 1% and 10%, respectively).
HP5	Specific target organ toxicity	N	N	N	N	N	Non-hazardous. Although H372 is present in cadmium oxide, nickel monoxide and tributyltin oxide, and H373 was present in dimethyl mercury and lead alkyls, the % concentrations did not exceed the threshold

CODE	DESCRIPTION	CLASSIFICATION[1]					INTERPRETATION
		TP43	TP44	TP45	TP46	TP47	
							limits (1% and 10%, respectively).
HP6	Acute toxicity	N	N	N	N	N	Non-Hazardous since no sample contained individual substances classified as H300, H301, H310, H311, H330, H331 above 0.1% or H302, H312 and H322 above 1% (w/w) cut-off values.
HP7	Carcinogenic	N	N	N	N	N	Non-hazardous, since: 1. The total concentration of compounds with H350 does not exceed the threshold of 0.1%; and 2. The total concentration of compounds with H351 does not exceed the threshold of 1%. Despite the fact that various compounds entail H350 and H351 properties.
HP8	Corrosive	N	N	N	N	N	Non-hazardous, since the concentration of compounds with H314 (chromium (III) chromate) does not exceed the threshold limit (5%).
HP9	Infectious	N/A	N/A	N/A	N/A	N/A	Not applicable, since none of the analysed compounds can be considered 'infectious'.
HP10	Toxic for reproduction	N	N	N	N	N	Non-hazardous, since the sum of H360 and H361 concentrations did not exceed the 0.3% and 3% respectively.
HP11	Mutagenic	N	N	N	N	N	Non-hazardous, even though H340 properties are present in benzo(a)pyrene and H341 is

CODE	DESCRIPTION	CLASSIFICATION[1]					INTERPRETATION
		TP43	TP44	TP45	TP46	TP47	
							present through cadmium oxide, the concentrations do not exceed the threshold limits (0.1% and 1%, respectively).
HP12	Acute toxic gas	N/A	N/A	N/A	N/A	N/A	Not applicable, since no compounds with EUH029, EUH031 and EUH032 are present.
HP13	Sensitising	N	N	N	N	N	Non-hazardous, even though H317 is present through chromium (III) chromate, nickel monoxide and benzo(a)pyrene, the total concentration does not exceed the threshold limit (10%).
HP14	Ecotoxic	N	N	N	N	N	Non-hazardous, since the total concentration of compounds with H400 and H410 do not exceed the threshold of 25%.
HP15	Hazardous property not displayed in original waste	N/A	N/A	N/A	N/A	N/A	Not applicable, since no compounds with H205, EUH001, EUH019 and EUH044 are present.

Since the material is not contaminated and non-hazardous, it may be possible to dispose of the material in a non-hazardous landfill.

APPENDIX 1

TERMS OF REFERENCE

FINAL TERMS OF REFERENCE

FOR THE PREPARATION OF AN

ENVIRONMENTAL IMPACT ASSESSMENT

July 2022

Note 1: The Environment and Resources Authority (ERA) reserves the right to modify these Terms of Reference according to any relevant environmental and planning considerations that may emerge at any relevant stage of the EIA or the permit application process, as well as in the event of any changes or updates to the proposed development. ERA also reserves the right to request additional or amended studies should the findings of the EIA be insufficient to adequately inform the decision-making process or if the EIA identifies matters which should be subject to further investigation.

Note 2: Unless otherwise agreed with ERA, all requirements set out in these Terms of Reference are to be complied with. If there are any aspects that the consultants deem irrelevant to this study, or if at any stage the consultants discover any environmentally-relevant aspect (not included in these TORs) that needs to be studied, the consultants shall inform ERA immediately, justifying their reasoning.

Note 3: Difficulties, including technical difficulties and lack of information, encountered by the consultants in compiling the required information shall be made clear in the EIA. All references to published works and sources of information shall be duly acknowledged in a manner that enables tracing of the information source and verification. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the consultation period and thereafter, and for record-keeping and unhindered perusal by ERA. Any material which is based on unavailable proprietary data shall not be incorporated by reference.

Note 4: Any requirement for confidentiality of any section or detail of the EIA must be strongly justified and a formal request in this regard must be submitted to ERA. Should ERA grant confidentiality, alternative material that is still adequate for proper assessment, public consultation and decision-making must be provided.

Note 5: Agreement on method statements, and ancillary liaison with ERA, is not mandatory but is recommended. Nevertheless, ERA reserves the right to disagree with the methodology proposed, including proposed areas of influence, and with the EIA submissions in general, and to factor such disagreement in its critique of the EIA.

Note 6: During review of the EIA, ERA will submit comments for the consultants' consideration, as relevant. Following the consultants' response to ERA satisfaction, a revised second draft of the EIA, addressing the comments, will normally be required. This may take the form of a complete resubmission or of an Addendum detailing the revisions to the previous submissions, as deemed most expedient by ERA, taking into account continuity and traceability of the information, and overall user-friendliness vis-à-vis subsequent review, presentation, public consultation, record-keeping and decision-making. A complete resubmission will generally be required if changes are numerous or complex, whereas an Addendum may be preferred if changes are more limited.

Note 7: The consultants are not exonerated from obtaining any formal authorisation from ERA, and from other relevant entities, vis-à-vis any activity ancillary to the EIA (*e.g.* collection, sampling, capture, or waiver of access restrictions) wherever such authorisation is legally required.

Note 8: These Terms of Reference, and all ancillary correspondence, are issued without prejudice to ERA's position on the project. Accordingly, their issuing (even when customised to address specific project details) should not be construed as evidence in favour or against the project or any component thereof, unless the contrary is clearly stated.

Note 9: Wherever relevant, references to land also include the sea, and ancillary terms such as land-take, ground cover, landscape, vehicles, access roads, etc. should be interpreted accordingly.

Note 10: Wherever any baseline studies required by these Terms of Reference is covered by already-existing data, such data should be used in preference to unnecessary duplication of baseline studies, unless the consultants or ERA or both are of the opinion that the existing data is unavailable, incorrect, outdated, unreliable, insufficient, or otherwise inadequate for the purpose of the EIA.

An Environmental Impact Assessment (EIA) Report is to be prepared as required by the Schedule I, Category II, Section 13.0.2.1 of the Environmental Impact Assessment Regulations (S.L. 549.46). Moreover, the proposed development also qualifies for EIA under Regulation 10 (3). The required components of the EIA are:

i. A **Coordinated Assessment Report**, in conformity with the following Sections of these Terms of Reference. This report should assess the project in its totality;
*[**Note:** The coordinated assessment should seek to analyse and integrate the main considerations emerging from the technical reports, rather than just reproducing excerpts from the reports.]*

ii. A separate **Appendix (or Appendices)** containing all technical studies and original survey reports as prepared by the individual specialist consultants for specific topics;
*[**Note:** Experts contributing to the EIA should be specifically asked to consider impact interactions and cross-cutting issues, and to communicate information between each other accordingly].*

iii. A separate **Non-Technical Summary** of the EIA, in both the Maltese and English languages. This should have enough details for the public to understand the project and the related environmental considerations, and should be written in reader-friendly language (*e.g.* avoiding unnecessary technical jargon);

iv. A **declaration of conformity** with regards to conflict of interest, in accordance with sub-regulations 17(3) of the EIA Regulations (refer to Appendix 1 to these Terms of Reference); and

v. An addendum detailing the **feedback received from stakeholders, from the public, and from ERA** during the relevant consultation stages of the EIA, and how they were addressed.

Wherever relevant and appropriate, all components of the EIA should include tables and figures (*e.g.* maps, plans, photographs, photomontages, charts, graphs, diagrams, cross-sections) and quantifications**.**

The complete EIA Report (including all the above components) should be submitted as a printable digital copy (in .pdf format, with copying fully enabled throughout) and as a printed copy. Likewise, in case further revisions are to be made to the EIA Report, both a printable digital copy (in .pdf format, with copying enabled throughout) and a printed copy of the revised EIA Report, or an Addendum, is to be submitted to ERA.

Any other assessments, including Appropriate Assessment [as required by the Flora, Fauna and Natural Habitats Regulations (S.L. 549.44)] are to be submitted separately from the EIA. Cross-referencing between the EIA and any such assessment should be clear and reasonably limited, such that both of the following considerations are duly satisfied:

1. Alerting the reader to the fact that the aspect in question is also being addressed in another parallel assessment; and
2. Enabling the reader to easily follow both the EIA and the other assessments as stand-alone documents.

Any other technical studies/ reports which are of direct environmental relevance to the project or are cross-referred to in the EIA report, should be submitted together with the EIA, and made available to the public. Should these documents not be made available upon submission of the EIA report, ERA reserves the right to re-open the public consultation for an additional 30-days, over and above the timeframe stipulated in Regulation 19(1), as deemed fit.

More detailed specifications are identified in the following pages.

1.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT AND ITS CONTEXT

The description of the proposal is to include the aspects outlined below, and should take into account the entire proposal and any ancillary facilities and infrastructure connected with, or arising due to, the project.

1.1 Justification for the Proposal

1.1.1 Objectives

The purpose and objectives of the development and whether these are related to current legal obligations, policies or plans.

1.1.2 Demand

The current and expected requirement or demand for the proposed land uses, also explaining how the proposal will address the requirement/demand.

1.2 Description of the Physical Characteristics of the Whole Project and the Land Use Requirements during the Construction, Operational and Decommissioning Phases

The following aspects should be addressed for all phases of the project, clearly distinguishing between aspects relating to construction phase, operational phase, decommissioning phase, or more than one phase. References to the construction phase and decommissioning phase also include ancillary site preparation, clearing, excavation, demolition/dismantling, and site reinstatement works, as relevant. Reference to previous approved application/s in the area, particularly those associated with the first electrical interconnector, should be made accordingly.

1.2.1 General characteristics

Description of the proposed development including size, area, height, volume, configuration/layout, general design, location and proposed elevations of buildings/structures/installations, hard and soft landscaping, access arrangements, boundary demarcation arrangements, land use requirements, and land take of ancillary facilities (including infrastructure, storage, servicing, security etc.). The description is to be consistent with the details submitted in the relevant permit applications, throughout both the EIA process and the development permission application process.

1.2.2 Construction, Operational and production processes

The relevant construction, operational and production processes and their main characteristics, including:

- The nature and quantity of materials used or generated;
- The source, type, quantity, composition and concentration of residues and emissions including water, air, soil pollution, noise (including impulsive underwater noise), vibration, light, heat, radiation etc. resulting from the proposed project; the parameters to be reported should be in line with relevant EU policy; and
- The expected annual and total emissions, including Greenhouse Gases (GHG), and the contribution to total national GHG emission on an annual basis.

1.2.3 Project management

An indicative framework outlining the key parameters and site management arrangements during construction, operation and decommissioning phases, including:

- Works methodology, including any mineral processing plants such as batching plants within the construction site;
- Specifications for mooring locations, if any, used during both construction and operation. These should be discussed and recommendations on the favoured option should be made available;
- Expected duration of all phases, as well as season, frequency and duration of interventions;
- Depths and volumes of excavation, and type of material to be excavated; and
- Types and quantities of raw materials and primary resources to be consumed, including water, energy, stone and other resources, and measures to reduce such consumption.

1.2.4 Access, transportation and related infrastructure

1. A forecast of the type, quantity and size of vehicles and vessels envisaged during each phase and their respective frequency of use, as well as an identification of the routes that vehicles will use to/from and within the site. The required arrangements should also be compared with the relevant existing situation (in terms of structural considerations, stability and state of roads, road width and gradient, turning circles and junctions, type of surfacing, and other physical or environmental constraints, etc). Interventions that would need to be carried out to accommodate the required vehicles (*e.g.* new or altered access roads), and sites/buildings/structures/features likely to be affected as a result, should be identified accordingly.

2. Facilities for the storage, parking, on-site servicing, loading/unloading of equipment, vehicles and other machinery.

1.2.5 Sewerage, runoff management, energy, telecommunications, and ancillary infrastructure

1. Estimates of the energy-related specifications, including:
   - The features and processes of the proposed development and its ancillary facilities which consume energy, including estimates of consumption during operation. The analysis should consider, as relevant, the connected load (in MW or MVA), the overall power factor, the annual MWh split in terms of end-use (lighting, climate cooling/heating/ventilation, plant etc.) which reflects the expected use of the facilities;
   - The energy sources envisaged to meet the projected demand;
   - The facilities and structures to be installed in connection with the above (*e.g.* energy production, storage, distribution and saving) including estimates of the sizing of cables, buildings and equipment; and
   - The expected energy performance of the proposal, including building orientation, natural ventilation, construction materials, integration of low/zero-carbon technologies to meet energy needs; avoidance of features which increase energy consumption; and energy efficiency measures in the finishing and operation of the development.

2. Infrastructural services and utilities related to water and power supplies, sewerage, telecommunications and runoff management, and ancillary works (*e.g.* trenches, tunnels, culverts, switching/transformer stations, pump houses, inspection chambers).

1.2.6 Waste management

1. A sufficiently detailed indication of the waste management implications likely to arise from the project, including wastes generated by ancillary facilities and wastes which may arise from accidental spillages and leakages and from repair works. Wastes should be subdivided according to the relevant project phases.

2. The following information is to be provided for each waste stream, as relevant to each phase:
   - Identification of processes or activities that would result in waste generation;
   - European Waste Catalogue Codes for each waste stream, as per relevant legislation;
   - The projected quantities and rate of generation for each type of waste;
   - Information on waste handling and storage, on site as well as off site;
   - The method of transportation and frequency; and
   - The method of characterizing the chemical composition of dredged waste; where applicable.

   This information should be presented in table format as follows, and should also include cross-references to the relevant regulations, particularly The Waste Regulations (S.L. 549.63):

Phase	Type of waste	EWC Code	H-Code	Activity (*e.g.* sanding, scraping, power washing etc.)	Estimated quantities	Final permitted disposal location

3. The envisaged waste management arrangements using the Best Practicable Environmental Options (BPEO) available, and the envisaged efforts to minimise waste generation and to divert waste to reuse or recycling rather than disposal.

4. Layout plans (to scale) clearly showing all relevant waste management infrastructure and related facilities (*e.g.* bunded areas for storage of waste fuels, wheel-wash facilities, etc.), clearly distinguishing between temporary and permanent structures for each phase.

1.2.7 Longer-term developments

Additional future developments, land uses and other commitments that are ancillary or consequent to the project or are likely to arise in relation to the same project or its expansion, as well as longer-term needs of the proposal, including: ancillary infrastructure not accounted for in the previous sections; any consequent interventions/arrangements required to accommodate the development; any foreseeable extensions or updates to the proposal; any displacement of existing uses; and decommissioning.

2.0 ASSESSMENT OF ALTERNATIVES

An outline of the main alternatives studied and an indication of the main reasons for this choice, taking into account the relevant environmental effects and their prevention (or optimisation) at source. The following alternatives need to be duly considered, as relevant to the development itself (or to one or more phases thereof) and its requirements and constraints:

2.1 Alternative sites

2.2 Alternative technologies

2.3 Alternative layouts

2.4 Downscaling of the project, or elimination of project components

2.5 Zero option (do-nothing scenario) - i.e. an assessment of the way the site would develop in the absence of the proposed project.

*[**Note:** The zero option should be considered in sufficient detail as a plausible scenario in the EIA, wherever relevant, and not discarded upfront without proper discussion of its implications.]*

2.6 Hybrids/combinations of the above

The findings of the assessment of alternatives should be summarised in a table format for ease of comparison.

3.0 A DESCRIPTION OF THE SITE AND ITS SURROUNDINGS (*I.E.* ENVIRONMENTAL BASELINE)

The existing environmental features, characteristics and conditions, in and around the proposed development site as well as in all locations likely to be affected by the development or by ancillary interventions and operations, are to be identified and described in sufficient detail, with particular attention to the aspects elaborated further in the next sections.

The consultants should also identify (and justify) wherever relevant:

1. The geographic area (*e.g.* viewshed or other area of influence) that needs to be covered by each study;
2. The relevant sensitive receptors vis-à-vis the environmental parameter under consideration (*e.g.* residential communities, other users, natural ecosystems, specific populations of particular species, or individual physical features);
3. The location of the reference points or stations (*e.g.* viewpoints, monitoring stations, or sampling points (including depth of multiple sampling points at a single sampling point in the case of water media and sediment, where applicable) to be used in the study; and
4. Other methodological parameters of relevance, also noting that the assessment will normally require both desk-top studies and on-site investigations (including visual observations and sampling, as relevant).

***Note:** It is recommended that these details are discussed in advance with the ERA prior to commencement of the relevant parts of the studies, in order to pre-empt (as much as possible) later-stage issues.*

Wherever relevant to the environmental aspects under discussion, reference to legislation, policies, plans (including programmes and strategies) standards and targets, should also be made, such that the compatibility (or otherwise) of the proposal therewith is also factored into the assessment required by ***Section 4*** below. The discussion should cover the following aspects, in the appropriate level of detail:

- Supra-national (*e.g.* European Union; United Nations; or other international or regional) legislation, directives, policies, conventions, protocols, treaties, charters, plans and obligations;
- National legislation, policies and plans (*e.g.* Structure Plan; National Environment Policy); and
- Sub-national legislation, policies and plans (*e.g.* local plans, site-specific regulations, action plans, management plans, and protective designations such as scheduling or Natura 2000).

Note: *In addition to already in-force legislation, policies and plans, the discussion should also cover any foreseeable future updates (or new legislation, policies and plans) likely to be fulfilled, affected or compromised by the proposed project. Furthermore, it should be noted that some cross-cutting legal/policy instruments (e.g. Water Framework Directive and Marine Strategy Framework Directive) may need to be factored into more than one aspect of the discussion.*

3.1 Land/Sea Cover and Land/Sea Uses

A description of the land cover and land uses (and/or sea uses, as relevant) within the area of influence of the project, including roads, footpaths and public access routes. Details including nature, magnitude, proximity to site, etc. should be included.

The assessment shall first consider the proposed development in isolation and asses the impacts arising from the proposed development. These include impacts of the proposal on the adjacent sea uses including any existing sensitive receptors/uses with reference to: (i) navigational routes (international and local); (ii) fisheries; (iii) shipping and yachting; (iv) diving and tourism; and, (v) any Marine Conservation Areas, during construction and operation.

3.2 Geology, Geomorphology, Hydrogeology, and Soils

A comprehensive investigation of:

1. The geology and geomorphology of the site and its surroundings, including:
   (i) existing geology, stratigraphy, structure, lithology, physiography and geomorphology features;
   (ii) palaeontological features;
   (iii) hydrogeological features; and
   (iv) soil types.
   Each feature shall be listed in a table, together with a short description and if any of the features are absent, this shall be stated. A scaled map, clearly depicting the feature occurrence within the area of influence, shall also be provided.

2. The geo-technical properties and considerations relevant to the site and its area of influence, including:
   (i) land stability;
   (ii) mechanical, erosional and structural properties of the terrain and land mass;
   (iii) any relevant fissures, faults, hollows, or weak points;
   (iv) the vulnerability of the site to natural forces such as wave action, erosive elements, landslides and mass movements; and
   (v) any other considerations affecting the implications and risks posed by the proposed development or by any of its ancillary interventions such as site clearance, earth-moving, and excavations.
   Each of the above shall be listed in a table along with a short description and if any of the features are absent, this shall be stated. A scaled map, clearly depicting the feature occurrence within the area of influence, shall also be provided.

3. The quality of the material that will be excavated (including soil, rock/mineral resource, and any existing fill material) and its potential for reuse.

4. Sampling and testing should comply with the relevant standards (unless otherwise agreed, BS standards or other recognised equivalents should be used), and should extend to a sufficient depth below the deepest level of the proposed development (taking into consideration all proposed excavations and underground structures). Wherever the study involves the drilling of core samples, the number, depth and location thereof should also be submitted for ERA approval prior to carrying out of any *in situ* tests.

5. Any potential adverse effects on features of interest (see points 1 and 2) must be determined. If at risk of being adversely affected, measures to preserve these features should be provided.

The results of such report would contribute to the selection of the best cable link route, with minimal geo-environmental impacts.

3.3 Water bodies (including Terrestrial, Underground and Marine water bodies, as relevant)

The study should identify the hydrological, hydromorphological and physicochemical characteristics of the water bodies, water resources and aquatic environments in the area under investigation, including (as relevant):

1. The hydrology of the site and its surroundings, including all relevant features and dynamics, such as: aquifers; springs; surface waters; wetlands; watercourses; valley catchments; etc, including a description of any potential linkages between different water bodies (i.e. groundwater linkages to surface waters, coastal water linkages to inland surface waters), also cross-referring to hydrogeological factors (see ***Section 3.3*** above) as relevant;
2. The type, size and physical characteristics of any aquifers and surface water bodies within the area of influence of the site, including: the nature of the water body (*e.g.* aquifer, flowing surface water, marine, etc.); whether the water body is ephemeral or permanent; and other characteristics such as depth/bathymetry; type of bottom and topography; prevailing currents and wave exposure; as well as physical and chemical characteristics of the water column which are deemed relevant for determination of hydrological characteristics such as nutrient status, temperature, salinity, dissolved oxygen and pH.
3. Natural and anthropogenic dynamics including groundwater recharge patterns; pumping and abstraction patterns; on-site and off-site drainage patterns; pipe/culvert connectivity between water bodies, run-off patterns; and flood risks; and
4. Water quality (salinity, pollutant load, sediment load and characteristics, microbiological load, BOD & COD, transparency, temperature, etc.), with particular reference to any established quality parameters (*e.g.* legally-established bathing water quality parameters; effluent discharge parameters; objectives and requirements of the Water Framework Directive, Marine Strategy Framework Directive and related instruments).
5. The study should provide a sufficiently detailed baseline to enable assessment of the effects of the proposal on the quality of the water body (terrestrial, underground and marine), the extent of area affected by hydrographical changes (terrestrial and marine), the nature of the changes (whether temporary or permanent) and effects of such changes on the ecological features and functions as described in line with Section 3.5. Such assessment should be undertaken in line with indicators used/established by relevant EU policy.

3.4 Ecology (including Terrestrial Ecology, Avifauna & Marine Ecology)

The assessment should include:

1. A full bathymetric survey of the existing environment on and around the area likely to be affected, include:
    a. Offshore bathymetric maps;
    b. Aerial imagery of the area;
    c. Details and maps of any services / utilities; and
    d. Description of the sea-bed morphology and of the sediment characteristics of the site.
2. An investigation of the ecology of the site and its surroundings (including, as relevant: flora, fauna, avifauna, fish and other aquatic organisms, benthic, burrowing and pelagic organisms, and their habitats and ecosystems), duly covering the relevant seasons (*e.g.* wet and dry seasons, in the case of terrestrial ecology) to ensure adequate coverage of all relevant species and ecosystem components;
3. A reporting of the conservation status and ecological condition of the area and the state of health of its habitats, species and ecological features;
4. A reporting of all protected, endangered, rare, unique, endemic, high-quality, keystone, invasive/deleterious, or otherwise important species, habitats, ecological assemblages, and ecological conditions found in the area under study;
5. A prediction of the potential impacts of the proposed project on the ecology of the site and its surroundings, including loss, damage or alteration of habitats and species populations (including potential increases in ambient noise levels in the marine environment) including alteration in the habitats and species' condition/state of health as measured through indicators used/specified for assessment of status in relevant EU policy;
6. Identification of all relevant species and assemblages (e.g. protected species or habitats, key species relevant to habitat characterisation, and monitoring indicators), and assess their abundance and distribution

patterns as well as the species' ecological niches. The findings should be supported by adequate maps and photographs. Classification of habitat types and species should be conducted in accordance with recognised classification systems (e.g. EUNIS and Palaearctic), to ERA satisfaction;
7. A noise and vibration study providing sufficient detailed information on any impacts on sensitive receptors (fauna and avifauna, natural ecosystems) due to increase in pressure in the area, and the cumulation with other existing sources including maritime vessel traffic and with other predicted sources such as new developments;
8. The nature of the changes (whether temporary or permanent) and effects of such changes on the ecological features; and
9. Other relevant environmental features.

In particular, the study should identify all relevant species and assemblages (*e.g.* protected species or habitats, key species relevant to habitat characterisation, and monitoring indicators), and assess their abundance and distribution patterns as well as the species' ecological niches. The findings should be supported by adequate maps and photographs. Classification of habitat types and species should be conducted in accordance with recognised classification systems (*e.g.* EUNIS and Palaearctic), to ERA's satisfaction.

Note 1: *Separate Terms of Reference are being referred by ERA for the Appropriate Assessment required in terms of the Flora, Fauna and Natural Habitats Protection Regulations (S.L. 549.44).*

Note 2: *Where the area of influence encompasses both marine and terrestrial environments, one or more of the sections indicated in these specimen TORs may need to be restructured accordingly to reflect the specific circumstances (e.g. separate reports for marine and terrestrial ecology).*

3.5 Architectural, Archaeological, Historical & Cultural Heritage and related Material Assets

Refer to Appendix 2.

3.6 Infrastructure and Utilities

The assessment should investigate the currently available infrastructural services (including water supply, energy supply, sewerage, telecommunications infrastructure, access roads, parking, *etc.*), including details about their carrying capacity, physical condition and other relevant practical considerations. It should also compare this information to the infrastructural demands of the project as identified in ***Section 1*** above, so as to clearly indicate:
1. whether the current utilities are adequate to meet the demand arising from the proposed development;
2. whether any significant loading, congestion or damaging of the infrastructural or transport network is envisaged; and
3. whether any new or upgraded services/arrangements will be rendered necessary, both in the short-term and in the longer-term. If any requirement for new infrastructure (or upgrading, alteration or extension of the existing infrastructure) is envisaged, the relevant details including associated works and their environmental implications should also be indicated.

The assessment should also identify any existing or projected infrastructural services located within the area of influence of the development (even if not related to the demands of the development) that might be affected by the development or which may need to be displaced or diverted as a consequence of the development or its ancillary operations and interventions.

3.7 Public Access

The assessment should identify the current public access arrangements (particularly the accessibility of the countryside, coast, and public open spaces), including existing footpaths and other public access routes, and should clearly indicate whether these would be affected and how.

Wherever any new or altered arrangements are proposed, these should be clearly identified and their environmental implications should also be indicated.

3.8 Other relevant environmental aspects and features

Other relevant environmental features or considerations not identified in the preceding sections should also be identified and described, as relevant.

4.0 ASSESSMENT OF ENVIRONMENTAL IMPACTS AND ENVIRONMENTAL RISKS

All likely significant effects and risks posed by the proposed project on the environment during all relevant phases (including construction/excavation/demolition, operation and decommissioning) should be assessed in detail, taking into account the information emerging from Sections 1, 2 and 3 above. Apart from considering the project on its own merits (*i.e.* if taken in isolation), the assessment should also take into account the wider surrounding context and should consider the limitations and effects that the surrounding environmental constraints, features and dynamics may exert on the proposed development, thereby identifying any incompatibilities, conflicts, interferences or other relevant implications that may arise if the project is implemented.

In this regard, the assessment should address the following aspects, as applicable for any category of effects or for the overall evaluation of environmental impact, addressing the worst-case scenario wherever relevant:

1. An exhaustive identification and description of the envisaged impacts;
2. The magnitude, severity and significance of the impacts;
3. The geographical extent/range and physical distribution of the impacts, in relation to: site coverage; the features located in the site surroundings; whether the impacts are short-, medium- or long-range; and any transboundary impacts (*i.e.* impacts affecting other countries);
4. The timing and duration of the impacts (whether the impact is temporary or permanent; short-, medium- or long-term; and reasonable quantification of timeframes);
5. Whether the impacts are reversible or irreversible (including the degree of reversibility in practice and a clear identification of any conditions, assumptions and pre-requisites for reversibility);
6. A comprehensive coverage of direct, indirect, secondary and cumulative impacts, including:
   - interactions (*e.g.* summative, synergistic, antagonistic, and vicious-cycle effects) between impacts;
   - interactions or interference with natural or anthropogenic processes and dynamics;
   - cumulation of the project and its effects with other past, present or reasonably foreseeable developments, activities and land uses and with other relevant baseline situations; and
   - wider impacts and environmental implications arising from consequent demands, implications and commitments associated with the project (including: displacement of existing uses; new or increased pressures on the environment in the surroundings of the project, including pressures which may be exacerbated by the proposal but of which effects may go beyond the area of influence; and impacts of any additional interventions likely to be triggered or necessitated by situations created, induced or exacerbated by the project);
7. Whether the impacts are adverse, neutral or beneficial;
8. The sensitivity and resilience of resources, environmental features and receptors vis-à-vis the impacts;
9. Implications and conflicts vis-à-vis environmentally-relevant plans, policies and regulations;
10. The probability of the impacts occurring; and
11. The techniques, methods, calculations and assumptions used in the analyses and predictions, and the confidence level/limits and uncertainties vis-à-vis impact prediction.

The impacts that need to be addressed are detailed further in the sub-sections below.

4.1 Effects on the environmental aspects identified in Section 3

The assessment should thoroughly identify and evaluate the impacts and implications of the project on all the relevant environmental aspects identified in Section 3 above, also taking into account the various considerations outlined in the respective sections.

With regards to Section 3.3 and 3.5 above, the ecological status of the area in question is to be evaluated, taking into consideration the definition of status by relevant EU Policy, and assessing the extent to which the project will cause deterioration in status or compromise the achievement of good status in line with Article 4(7) of the EU Water Framework Directive.

4.2 Impacts related to Climate Change and Climate Change Adaptation

The assessment should address the following aspects, as relevant:

1. The contribution of the project to greenhouse gas (GHG) emissions and climate change, including:
   (i) The direct, indirect and off-site GHG emissions and related impacts during all relevant phases of the project, including those arising as a result of the electrical power demand of the project;
   (ii) Any massive GHG emissions that may occur as a consequence of accidents or malfunctions;

(iii) The impacts of the proposal on carbon sinks (*e.g.* wooded/afforested areas, agricultural soils, landfills, wetlands, and marine environments);
(iv) The components of the project that are expected to contribute to renewable energy generation on site or to a reduction in GHG emissions through substitution of current generation facilities, including a quantification and critique of their reliability and actual net contribution to climate change mitigation as well as an identification of the impacts of such components on other aspects of the environment (*e.g.* landscape, land take, avifauna); and
(v) The implications of the project and its operations and ancillary demands on National GHG emission targets.

2. The implications of climate change on the proposal, including:
   (i) The aspects/elements of the project that are likely to be affected by changes or variability in climate-related parameters (*e.g.* temperature, humidity, weather patterns, sea level, etc.);
   (ii) The potential impacts that such changes may have on the proposal, including any possible impacts resulting from changes to multiple parameters; and
   (iii) The adaptability of the project and its components and operations vis-à-vis the relevant climate change parameters and trends.

4.3 Environmental risk

The assessment should also address, in sufficient detail, any relevant environmental risk (including major-accident scenarios such as contamination, emissions, explosions, blast, flooding, major spillages, etc.) likely to result in environmental damage or deterioration. The range of accident scenarios considered should exhaustively cover, as relevant:

1. one-time risks (*e.g.* during construction or decommissioning works);
2. recurrent risks during project operation; and
3. risks associated with extreme events (*e.g.* effect of earthquakes or natural disasters on the project).

The assessment should include, as relevant: a quantification of the risk magnitude and probability; and risk analysis vis-à-vis any hazardous materials stored, handled, or generated on site or transported to/from the site.

4.4 Effects on Human Populations resulting from impacts on the environment

This assessment should also identify any impacts of the development on the surrounding and visiting population (*e.g.* effects on public health), that may result from impacts on the environment. In the case of health-related effects, reference should be made to published epidemiological and other studies, as relevant, and the views of the Environmental Health Directorate should be sought.

5.0 Required Measures, Identification of Residual Impacts, and Monitoring Programme

5.1 Mitigation Measures

A clear identification and explanation of the measures envisaged to prevent, eliminate, reduce or offset (as relevant) the identified significant adverse effects of the project during all relevant phases including construction, operation and decommissioning [see ***Section 1.2.3*** above].

As a general rule, mitigation measures for construction-phase impacts should be packaged as a holistic Construction Management Plan (CMP). Whilst the detailed workings of the CMP may need to be devised at a later stage (*e.g.* after the final design of the project has been approved and/or after a contractor has been appointed), the key parameters that the CMP must adhere to for proper mitigation need to be identified in the EIA. Broadly similar considerations also apply vis-à-vis operational-phase impacts [which may need to be mitigated through an operational permit] and decommissioning-phase impacts [see ***Section 5.4*** below], where relevant.

Mitigation measures for accident/risk scenarios should be packaged as a holistic plan that includes the integration of failsafe systems into the project design as well as well-defined contingency measures.

The recommended measures should be feasible, realistically implementable to the required standards and in a timely manner, effective and reliable, and reasonably exhaustive. They should not be dependent on factors that are beyond the developer's and ERA's control or which would be difficult to monitor, implement or enforce. The actual scope for, and feasibility of, effective prevention or mitigation should also be clearly indicated, also identifying all potentially important pre-requisites, conditionalities and side-effects.

5.2 Residual Impacts

Any residual impacts [*i.e.* impacts that cannot be effectively mitigated, or can only be partly mitigated, or which are expected to remain or recur again following exhaustive implementation of mitigation measures] should also be clearly identified.

5.3 Additional Measures

Compensatory measures (*i.e.* measures intended to offset, in whole or in part, the residual impacts) should also be identified, as reasonably relevant. Such measures should be not considered as an acceptable substitute to impact avoidance or mitigation.

If the assessment also identifies beneficial impacts on the environment, measures to maximise the environmental benefit should also be identified.

In both instances, the same practical considerations as indicated vis-à-vis mitigation measures should also apply.

5.4 Decommissioning Plan

A decommissioning plan (DP) should also be proposed to address the following circumstances, as relevant:

1. Removal of any temporary or defined-lifetime development (or of any structures, infrastructure or land use required temporarily in connection with it) upon the expiry of their permitted duration; and
2. Removal of the development (or of any secondary developments, infrastructure or land use ancillary to it) in the event of redundancy, cessation of operations, serious default from critical mitigation measures, or other overriding situations that may emerge in future.

The DP should also include, as relevant, a phasing-out plan, proposals for site remediation or decontamination, and methodological guidance on site reinstatement or appropriate after-use.

5.5 Monitoring Programme

A realistic and enforceable programme for effective monitoring of those works envisaged to have an adverse or uncertain impact. The monitoring programme should include:

1. Details regarding type and frequency of monitoring and reporting, including spot checks;
2. The parameters that will be monitored, their units of measurement, the monitoring indicators to be used; and standard analytical methods in line with relevant EU policy;
3. An effective indication of the required action to address any exceedances, risks, mitigation failures or non-compliances for each monitoring parameter;
4. An evaluation of forecasts, predictions and measures identified in the EIA; and
5. An indication of the nature and extent of any additional investigations (including EIAs or ad hoc detailed investigations, if relevant) that may be required in the event of any contingencies, unanticipated impacts, or impacts of larger magnitude or extent than predicted.

The programme should address all relevant stages, as follows:

(a) Where relevant, monitoring of preliminary on-site investigations that may entail significant disturbance or damage to site features (*e.g.* archaeological excavations, geological sampling, or any works that require prior site clearance or any significant destructive sampling);.
*[**Note:** Official written consent from the competent authorities (e.g. Superintendence of Cultural Heritage) may also be required for such interventions.]*

(b) Monitoring of the construction phase, including the situation before initiation of works (including site clearance), during appropriate stages of progress, and after completion of works;

(c) Monitoring of the operational phase, except where otherwise directed by ERA (*e.g.* where monitoring would be more appropriately integrated into an operating permit); and

(d) Where relevant, monitoring of the decommissioning phase, including the situation before initiation of works, during appropriate stages of progress, and after completion of works.

5.6 Identification of required authorisations

The assessment should also identify all environmentally-relevant permits, licences, clearances and authorisations (other than the development permit to which this EIA is ancillary) which must be obtained by the applicant in order to effectively implement the project if development permission is granted. Any uncertainty, as to whether any of these pre-requisites is applicable to the project, should be clearly stated.

Note on Sections 5.1 to 5.6 above:
The expected effects, the proposed measures, the residual impacts, the proposed monitoring etc. should also be summarised in a user-friendly itemised table that enables the reader to easily relate the various aspects to each other. An indicative specimen table is attached in ***Appendix 3***.

APPENDIX 1 REQUIRED DECLARATION

Signed Declaration: Conflict of interest

Signed declaration in accordance with sub-regulation 17(3):

This declaration is to be submitted with each environmental survey report forming part of the EIA.

Attn: Director of Environment and Resources (ERA).

I, _____, hereby declare that, I have no personal or financial interest in the proposed development. Moreover, I declare that I am not in any way associated with any individual, company, association or grouping that has any direct or indirect, personal, professional or financial interest in the proposed development.

Date	Signature

APPENDIX 2: TERMS OF REFERENCE FOR A CULTURAL HERITAGE ASSESSMENT (AS PROVIDED BY THE SUPERINTENDENCE OF CULTURAL HERITAGE ON 01 JULY 2022)

1.0 Preamble

The project shall consist of an underwater and onshore cable link between the Maghtab Terminal Station and the Ragusa substation in Sicily. The proposed project would involve development over an extensive area and may lead to intensification of activity over a larger area. Potential impacts may occur within the footprint of the project, in the immediate environs, and along access routes to the site. Potential impacts may include direct and immediate material impacts, as well as subsequent impacts that might arise from the modification of the existing situation. The precise methodology for the laying of the underwater cables is also to be specified since this may have an impact on the buffers required from known underwater archaeological features/ wrecks.

2.0 Scope and Definitions of the EIA

For the purposes of this document, cultural heritage is defined by Article 2 of the Cultural Heritage Act (2019). This includes movable or immovable objects of artistic, architectural, historical, archaeological, ethnographic, palaeontological and geological importance.

2.1 The study area shall include each of the proposed routes as well as their immediate environs.

2.2 In the context of this particular application, cultural heritage considerations may include:

- Features of archaeological value and potential;
- Military or civil architecture covering all historic periods;
- Vernacular structures;
- Field systems and agricultural features such as irrigation systems.

The Superintendence notes that the Project Description Statement (PDS) at section 9.3 Cultural Heritage Features refers to the Ta' Hammut Dolmens when discussing onshore cultural heritage features in close proximity to the development. The Superintendence would also like to draw attention to the following features as indicated in the map below and identified in the legend overleaf.

Figure 1: Cultural Heritage Features in Close Proximity to the Development

Number	Property Name
1	Qalet Marku Tower
2	Church of the Assumption of the Madonna
3	Qalet Marku Battery (Remains)
4	Qalet Marku Redoubt remains
5	Bahar ic-Caghaq Redoubt
6	Madliena Entrenchment
7	Chapel of Saint John Evangelist
8	Chapel fo Saint Peter the Fisherman
9	Church of Mary of the Angels
10	NXR2014 - Archaeological Remains
11	SAL2015 (Coast Road) Archaeological Remains
12	SAL2015 (Coast Road) Archaeological Remains
13	QLT1928 - Dolmens
14	QLT1935 - Magalithic remains
15	MTB1935 - Megalithic passageway
16	Ancient Quarry
17	Tomb
18	Tomb
19	Tomb
20	Rock-cut feature

Figure 2: Legend Identifying Cultural Heritage Features in Close Proximity to the Development

The Superintendence further notes that the PDS also includes a map of known wrecks in the vicinity of the proposed offshore routes and at section 14 proposes that a marine survey is undertaken to identify any wrecks/archaeological remains along the identified routes. The Superintendence endorses this approach.

The above cultural heritage definitions and considerations are not to be considered as exhaustive. The EIA must consider all other forms of cultural heritage, both known and unknown.

2.3 The Environmental Impact assessment will:

-Describe the Cultural Heritage assets within the study area;
-Analyse the cultural heritage features within the context of the cultural landscape;
-Assess the physical, spatial and visual impacts of the proposed development on the cultural heritage assets;
-Propose corrective measures for the protection of the cultural resources.

3.0 Methodology

In quantifying the cultural heritage assets within the study area, and assessing the impacts of the proposed development, the EIA will undertake:

- Description and assessment of the cultural heritage features in close proximity to the development;
- Desktop and archival research limited to the study area;
- Fieldwork and research, including “field walking”, topographic survey and remote sensing and underwater surveys as may be necessary within the site. Should fieldwalking not form part of the selected methodology at this stage, the Superintendence may impose this method once the preferred route is selected for further data acquisition should the need arise.

All fieldwork is to be authorised by the Superintendence of Cultural Heritage as defined below under point 4;

- Consultations with any relevant bodies, including the Superintendence of Cultural Heritage, Heritage Malta, the University of Malta, NGOs and Local Councils;
- Compilation of an inventory of the cultural heritage assets identified within the study area. The features of cultural heritage are to be described and plotted with grid references, on Data Capture Sheets, the design of which should be approved in advance by the Superintendence of Cultural Heritage. The Data Capture Sheets will be presented as an appendix to the EIS. The analysis of the features will be included in the main report;
- A cultural heritage Risk Assessment Map examining the various impacts of the proposed project is to be included in the EIA.

4.0 Authorisation by the Superintendence of Cultural Heritage

As per Cultural Heritage Act 2019, any form of investigation or prospection required for the identification of cultural heritage (including excavation, field walking, topographic surveys, remote sensing and underwater surveys) may only be undertaken by the Superintendence of Cultural Heritage or with its written approval.

APPENDIX 3: SPECIMEN IMPACT TABLE

Impact type and source			**Impact receptor**		**Effect & scale**							**Probability of impact occurring** (Inevitable, Likely, Unlikely, Remote, Uncertain)	**Overall impact significance**	**Proposed mitigation measures**	**Residual impact significance**	**Other requirements** (monitoring, authorisations, etc)
Impact type	**Specific intervention leading to impact**	**Project phase** (construction/ operation/ decommissioning)	**Receptor type**	**Sensitivity toward impact**	**Direct/ Indirect/ Cumulative**	**Beneficial/ Adverse**	**Severity**	**Physical / geographic extent of impact**	**Short-/medium-/ long-term**	**Temporary** (indicate duration)**/ Permanent**	**Reversible** (indicate ease of reversibility) **/ Irreversible**					

[Insert definition of relevant criteria used to describe the impacts]

APPENDIX 2

ANALYTICAL RESULTS

GEO SERVIZI s.r.l.

Authorized laboratory "Site Investigation Sector"
Decree No. 4532 of 04.13.2012

Geognostic investigations - Consolidations - Diagnostic investigations
Micropiles – Tie rods
Characterization and environmental monitoring
Non-destructive testing - Investigations and underwater
surveysemail:geoservizisiracusa@gmail.com

Superior Council of Public Works
Central Technical Service

Ministry of Infrastructure and Transport

MALTA (Magthag)

REPORT ON ENVIRONMENTAL GEOGNOSTIC INVESTIGATIONS

(Mechanical core drilling and sampling)

WORKS: execution of surveys aimed at excavated earth and rocks and geotechnical characterization, for planning "Interconnector 2 Malta-Italy" FEED CT 3013/2022"- RG.

Customer: ***TECHFEM S.p.a. Lamezia Terme (CZ)***

THE COMPANY

GEOSERVIZI s.r.l.
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INDICE

GEO SERVIZI S.r.l. Via Monti Peloritani, 16 - 96100 Siracusa R.E.A.111157
GEOGNOSTIC SURVEYS - GEOTECHNICAL ANALYSIS - GEOPHYSICAL INVESTIGATIONS - CONSOLIDATIONS
MICROPILE - ENVIRONMENTAL MONITORING - NON-DESTRUCTIVE TESTING - UNDERWATER SURVEY
E-mail:geoservizisiracusa@gmail.com Fax 0931.1846810-Mob. 347.9311529; P.I.: 01233290897

1.0 PREMISE

On behalf of the company TECHFEM S.p.a. of Lamezia Terme (CZ) a campaign of environmental geognostic investigations was carried out with continuous dry core drilling, in the territory of Malta (Magthag)

The works consisted of:

– *N.4 mechanical core borings, called TP44/TP47 pushed to a depth of 2.00m from the land surface.*

Below are the technical standards of the surveys and the characteristics of the machinery used.

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2.0 GEOGNOSTIC SURVEYS

2.1 CONTINUOUS DRILLING MECHANICAL SURVEY

A CMV 720 brand tracked hydraulic probe was used to carry out the surveys, equipped with a 720 Kgf rotation head driven by a variable displacement hydraulic motor and a five-speed mechanical gearbox.

The drilling was performed with a simple Ø = 101 mm core barrel with widia crowns without fluid.

The extracted carrots were placed in special PVC cataloging boxes with dividing compartments, on which were reported: the name of the survey, the box number and the progressive withdrawal quotas.

The cataloging boxes were individually photographed and placed on site, available to the Works Management.

The lithostratigraphic sections found during the mechanical boreholes are described and schematized in the annex, with indications of the drilling diameter and type.

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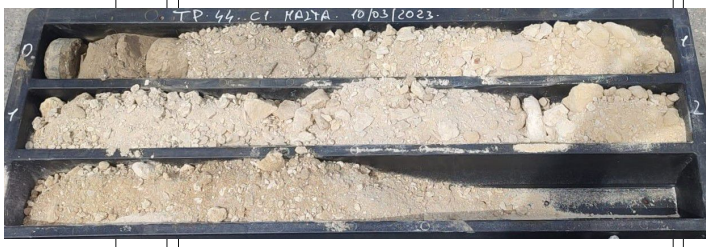
Geo SERVIZI s.r.l.	Applicant: TECHFEM S.p.a. Location: Malta_ Magatab Project: Surveys aimed at excavated earth and rocks and geotechnical characterization, for the design "Interconnector 2 Malta-Italy" FEED CT 3013/2022"	Survey Tp44

Driller: CMV 600 MK Coating pipe diameter: Drilling diameter:101 mm, vertical survey
Drilling method: Simple Widia and diamond core barrel Start Drilling :10/03/2023, End Drilling: 10/03/2023 Sampler type:

depth m	Stratigraphy	Thickness	Lithological description	Samples	SPT	RQD % 25 50 75	flap	Trial Lefranc	Trial Lugeon	Piezometer	DH tube
0,40		0,40	Greyish sandy coloured road surface with calcareous stone elements								
2,00		1,60	Soft whitish sometimes yellowish limestones								



Anomalies found: none
Notes: cataloging boxes N.1;

Firma D.L.:
Resp. Di Sito:

Mod.RT.01-02.01.2020

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Driller: CMV 600 MK Coating pipe diameter Drilling diameter.101 mm, vertical survey
Drilling method: Simple Widia and diamond core barrel Start Drilling :10/03/2023, End Drilling: 10/03/2023 sampler type:

depth m	Stratigraphy	Thickness	Lithological description	Samples	SPT	RQD % 25 50 75	flap	Trial Lefranc	Trial Lugeon	Piezometer	DH tube
0,80		0,80	Weakly silty brown sands with limestone stone elements								
2,00		1,20	Calcari biancastri a tratti giallastri, teneri.	1,6 CI1 1,7							

Anomalies found none
Notes: cataloging boxes N.1;

Firma D.L.:
Resp. Di Sito:

Mod.RT.01-02.01.2020

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Geo SERVIZI s.r.l.	Applicant: TECHFEM S.p.a. Location: Malta_ Magatab Project: Surveys aimed at excavated earth and rocks and geotechnical characterization, for the design "Interconnector 2 Malta-Italy" FEED CT 3013/2022"	Survey Tp46

Driller: CMV 600 MK Coating pipe diameter: Drilling diameter:101 mm, vertical survey
Drilling method: Simple Widia and diamond core barrel Start Drilling :10/03/2023, End Drilling: 10/03/2023 sampler type:

depth m	Stratigraphy	Thickness	Lithological description	Samples	SPT	RQD % 25 50 75	flap	Trial Lefranc	Trial Lugeon	Piezometer	DH tube
0,40		0,40	Grayish sandy roadbed with calcareous stone elements	0,6 Cr1 1,0							
2,00		1,60	Slightly silty yellowish sands with at times limestone elemens of a calcareous nature								

Anomalies found: none
Notes: cataloging boxes N.1;

Firma D.L.:
Resp. Di Sito:

Mod.RT.01-02.01.2020

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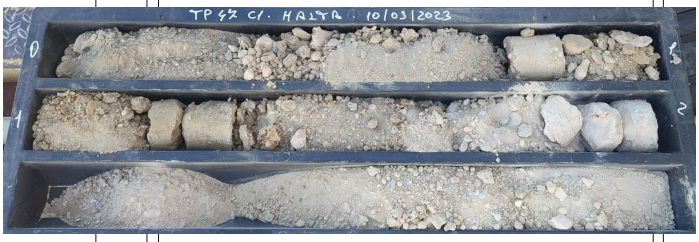
Driller: CMV 600 MK Coating pipe diameter: Drilling diameter:101 mm, vertical survey
Drilling method: Simple Widia and diamond core barrel Start Drilling :10/03/2023, End Drilling: 10/03/2023 sampler type:

depth m	Stratigraphy	Thickness	Lithological description	Samples	SPT	RQD % 25 50 75	flap	Trial Lefranc	Trial Lugeon	Piezometer	DH tube
0,50		0,50	Weakly silty brown sands with limestone stone elements								
1,50		1,00	Slightly silty yellowish sands with at times limestone elemens of a calcareous nature								
2,00		0,50	Soft whitish sometimes yellowish limestones								



Anomalies found: none
Notes: cataloging boxes N.1;

Firma D.L.:
Resp. Di Sito:

Mod.RT.01-02.01.2020

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3.0 TAKING OF REVISED SAMPLES

During the survey campaign a total of No. 8 samples were taken, two for each survey carried out and precisely the first at the depth between 0.0-1.0m while the second between the depth of -1.0m and -1.60m in two portions.

4.0 SAMPLING FOR GEOTECHNICAL ANALYSIS

The following samples were chosen by D.L. for the study of geotechnical samples:

Poll	Geotechnical sampling - Height in metres
TP45	CL1 (1,60 - 1,70)
TP46	CR1 (0,60 – 1,00)

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L'ENTE ITALIANO DI ACCREDITAMENTO

LAB N°0904 L

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

GEOLAB
ANALISI E MISURE D'AMBIENTE

Analytical report N° 2804 of 03/05/2023

Spett.le TECHFEM SPA

VIA TONIOLO, 1/D
61032 FANO (PU)

Sampling data

Sampling Method -
Samples took by customer, taken by our staff
Sampling: Place, date and hour : -
Received sample date 24/03/2023
Start analyses date 24/03/2023 Finished analyses date 03/05/2023

Sample n° : **2843 / 1170 Rock: TP43 (da 0,00 a 1,00)**

parameter researched		Unit of Measure	value	MDL	Reference Limit min	max	Method of analysis
Skeleton (> 2mm e < 2cm)		%	100		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
fine powder (<2mm)		%	0		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
Polycyclic aromatic hydrocarbons			-		--	--	
Dibenzo(a,h)anthracene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)anthracene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(b)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(g,h,i)perylene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(k)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Crysene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Pyrene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Indeno(1,2,3-cd)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,l)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,i)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(e)pyrene	*	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018

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email geolab@geolabservizi.it sito www.geolabservizi.it
CCIAA CS n° 123318 - Cap. Soc. € 83.200,00 i.v. P.I. 01914560782

parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Nafthalene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthylene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Fenanthrene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Anthracene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Chloride °	mg/kg s.s.	410		--	--	IRSA-CNR Q64 N. 14
Total Organic Carbon *	mg/kg s.s.	6700		--	--	DM 13/09/99 GU 248 21/10/99 e smi Met. VII.3
Sulphate	mg/kg s.s.	703		--	--	IRSA-CNR Q64 N. 14
PCB 101 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 118 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 138 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 153 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 180 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 28 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 52 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
BTEX *		-		--	--	
Benzene *	mg/kg s.s.	nr	0,01	--	0,1	EPA 5021A 2014 + EPA 8260D 2018
Ethylbenzene *	mg/kg s.s.	nr	0,01	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Styrene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Toluene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
o,m,p xylene *	mg/kg s.s.	nr	0,001	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Hydrocarbons C>12	mg/kg s.s.	nr	4	--	50	UNI EN ISO 16703:2011
Tributyltin compounds ° *	mg/kg s.s.	nr	1	--	1	UNI EN ISO 23161:2011
Metals		-		--	--	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009

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email geolab@geolabservizi.it sito www.geolabservizi.it
CCIAA CS n° 123318 - Cap. Soc. € 83.200,00 i.v. P.I. 01914560782

parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Arsenic	mg/kg s.s.	0,25	0,08	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cadmium	mg/kg s.s.	0,32	0,02	--	2	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cobalt	mg/kg s.s.	0,60	0,02	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Chrome	mg/kg s.s.	11,9	0,03	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Mercury *	mg/kg s.s.	nr	0,1	--	1	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Nickel	mg/kg s.s.	3,0	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Lead	mg/kg s.s.	0,70	0,07	--	100	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Copper	mg/kg s.s.	2,1	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Zinc	mg/kg s.s.	18,8	0,2	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Asbestos *	mg/kg s.s.	<1000		--	1000	DM 06/09/1994 GU N.288 10/12/1994 All1A+All1B+VDI3866 Blatt2:2001

* Test not accredited by ACCREDIA

° Test performed in subcontract to an external laboratory

MDL: Detection limit of the method, nr: not detected, indicates a value less than MDL

The Lab is responsible for all the information reported in the following document, except in the case information are provided by the clients. In the latter case, if the information provided by the clients can affect the validity of analyses' results, the lab disclaims responsibility. The following test-report exclusively concerns the declared and analyzed sample. However, whenever the sampling is not executed by the Lab, sample data are under customer's responsibility. Results refer to the sample thus received.

In the case the sampling is executed by the client, the result thus expressed in units of measurement is obtained through recalculation carried out on the basis of the measurement expressly declared by who has done the sampling.

Legislative reference: D. lgs. 152/06, all. 5, parte IV Tab. 1/A

dott. Caterina Tassoni
Responsabile Prove Chimiche Ordine Chimici
Calabria n° 634

Documento firmato digitalmente valido a tutti gli effetti di Legge ai sensi della normativa vigente

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email geolab@geolabservizi.it sito www.geolabservizi.it
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Analytical report N° 2805 of 03/05/2023

Spett.le TECHFEM SPA

VIA TONIOLO, 1/D
61032 FANO (PU)

Sampling data

Sampling Method -
Samples took by customer, taken by our staff
Sampling: Place, date and hour : -
Received sample date 24/03/2023
Start analyses date 24/03/2023 Finished analyses date 03/05/2023

Sample n° : **2844 / 1170 Soil: TP44 (da 1,00 a 1,60)**

parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Skeleton (> 2mm e < 2cm)		%	17		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
fine powder (<2mm)		%	83		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
Polycyclic aromatic hydrocarbons			-		--	--	
Dibenzo(a,h)anthracene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)anthracene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(b)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(g,h,i)perylene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(k)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Crysene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Pyrene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Indeno(1,2,3-cd)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,l)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,i)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(e)pyrene	*	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018

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CCIAA CS n° 123318 - Cap. Soc. € 83.200,00 i.v. P.I. 01914560782

parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Nafthalene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthylene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Fenanthrene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Anthracene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Chloride °	mg/kg s.s.	297		--	--	IRSA-CNR Q64 N. 14
Total Organic Carbon *	mg/kg s.s.	14700		--	--	DM 13/09/99 GU 248 21/10/99 e smi Met. VII.3
Sulphate	mg/kg s.s.	94		--	--	IRSA-CNR Q64 N. 14
PCB 101 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 118 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 138 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 153 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 180 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 28 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 52 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
BTEX *		-		--	--	
Benzene *	mg/kg s.s.	nr	0,01	--	0,1	EPA 5021A 2014 + EPA 8260D 2018
Ethylbenzene *	mg/kg s.s.	nr	0,01	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Styrene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Toluene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
o,m,p xylene *	mg/kg s.s.	nr	0,001	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Hydrocarbons C>12	mg/kg s.s.	34	4	--	50	UNI EN ISO 16703:2011
Tributyltin compounds ° *	mg/kg s.s.	nr	1	--	1	UNI EN ISO 23161:2011
Metals		-		--	--	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009

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parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Arsenic	mg/kg s.s.	3,0	0,08	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cadmium	mg/kg s.s.	0,38	0,02	--	2	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cobalt	mg/kg s.s.	0,94	0,02	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Chrome	mg/kg s.s.	18,6	0,03	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Mercury *	mg/kg s.s.	nr	0,1	--	1	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Nickel	mg/kg s.s.	7,6	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Lead	mg/kg s.s.	2,2	0,07	--	100	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Copper	mg/kg s.s.	4,7	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Zinc	mg/kg s.s.	13,5	0,2	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Asbestos *	mg/kg s.s.	<1000		--	1000	DM 06/09/1994 GU N.288 10/12/1994 All1A+All1B+VDI3866 Blatt2:2001

* Test not accredited by ACCREDIA

° Test performed in subcontract to an external laboratory

MDL: Detection limit of the method, nr: not detected, indicates a value less than MDL

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In the case the sampling is executed by the client, the result thus expressed in units of measurement is obtained through recalculation carried out on the basis of the measurement expressly declared by who has done the sampling.

Legislative reference: D. lgs. 152/06, all. 5, parte IV Tab. 1/A

dott. Caterina Tassoni
Responsabile Prove Chimiche Ordine Chimici
Calabria n° 634

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LAB N°0904 L

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

GEOLAB
ANALISI E MISURE D'AMBIENTE

Analytical report N° 2806 of 03/05/2023

Spett.le TECHFEM SPA

VIA TONIOLO, 1/D
61032 FANO (PU)

Sampling data

Sampling Method -
Samples took by customer, taken by our staff
Sampling: Place, date and hour : -
Received sample date 24/03/2023
Start analyses date 24/03/2023 Finished analyses date 03/05/2023

Sample n° : **2845 / 1170 Soil: TP45 (da 1,00 a 1,60)**

parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Skeleton (> 2mm e < 2cm)		%	41		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
fine powder (<2mm)		%	59		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
Polycyclic aromatic hydrocarbons			-		--	--	
Dibenzo(a,h)anthracene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)anthracene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(b)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(g,h,i)perylene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(k)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Crysene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Pyrene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Indeno(1,2,3-cd)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,l)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,i)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(e)pyrene	*	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018

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parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Nafthalene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthylene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Fenanthrene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Anthracene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Chloride	°	mg/kg s.s.	228		--	--	IRSA-CNR Q64 N. 14
Total Organic Carbon	*	mg/kg s.s.	12200		--	--	DM 13/09/99 GU 248 21/10/99 e smi Met. VII.3
Sulphate		mg/kg s.s.	143		--	--	IRSA-CNR Q64 N. 14
PCB 101	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 118	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 138	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 153	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 180	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 28	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 52	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
BTEX	*		-		--	--	
Benzene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 5021A 2014 + EPA 8260D 2018
Ethylbenzene	*	mg/kg s.s.	nr	0,01	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Styrene	*	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Toluene	*	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
o,m,p xylene	*	mg/kg s.s.	nr	0,001	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Hydrocarbons C>12		mg/kg s.s.	nr	4	--	50	UNI EN ISO 16703:2011
Tributyltin compounds	° *	mg/kg s.s.	nr	1	--	1	UNI EN ISO 23161:2011
Metals			-		--	--	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009

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parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Arsenic	mg/kg s.s.	1,89	0,08	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cadmium	mg/kg s.s.	0,36	0,02	--	2	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cobalt	mg/kg s.s.	0,85	0,02	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Chrome	mg/kg s.s.	9,2	0,03	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Mercury *	mg/kg s.s.	nr	0,1	--	1	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Nickel	mg/kg s.s.	4,8	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Lead	mg/kg s.s.	2,4	0,07	--	100	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Copper	mg/kg s.s.	3,9	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Zinc	mg/kg s.s.	42	0,2	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Asbestos *	mg/kg s.s.	<1000		--	1000	DM 06/09/1994 GU N.288 10/12/1994 All1A+All1B+VDI3866 Blatt2:2001

* Test not accredited by ACCREDIA

° Test performed in subcontract to an external laboratory

MDL: Detection limit of the method, nr: not detected, indicates a value less than MDL

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In the case the sampling is executed by the client, the result thus expressed in units of measurement is obtained through recalculation carried out on the basis of the measurement expressly declared by who has done the sampling.

Legislative reference: D. lgs. 152/06, all. 5, parte IV Tab. 1/A

dott. Caterina Tassoni
Responsabile Prove Chimiche Ordine Chimici
Calabria n° 634

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Analytical report N° 2807 of 03/05/2023

Spett.le TECHFEM SPA

VIA TONIOLO, 1/D
61032 FANO (PU)

Sampling data

Sampling Method -
Samples took by customer, taken by our staff
Sampling: Place, date and hour : -
Received sample date 24/03/2023
Start analyses date 24/03/2023 Finished analyses date 03/05/2023

Sample n° : **2846 / 1170 Soil: TP46 (da 1,00 a 1,60)**

parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Skeleton (> 2mm e < 2cm)		%	19		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
fine powder (<2mm)		%	81		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
Polycyclic aromatic hydrocarbons			-		--	--	
Dibenzo(a,h)anthracene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)anthracene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(b)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(g,h,i)perylene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(k)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Crysene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Pyrene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Indeno(1,2,3-cd)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,l)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,i)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(e)pyrene	*	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018

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parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Nafthalene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthylene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Fenanthrene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Anthracene		mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Chloride	°	mg/kg s.s.	488		--	--	IRSA-CNR Q64 N. 14
Total Organic Carbon	*	mg/kg s.s.	14500		--	--	DM 13/09/99 GU 248 21/10/99 e smi Met. VII.3
Sulphate		mg/kg s.s.	235		--	--	IRSA-CNR Q64 N. 14
PCB 101	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 118	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 138	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 153	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 180	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 28	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 52	*	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
BTEX	*		-		--	--	
Benzene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 5021A 2014 + EPA 8260D 2018
Ethylbenzene	*	mg/kg s.s.	nr	0,01	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Styrene	*	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Toluene	*	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
o,m,p xylene	*	mg/kg s.s.	nr	0,001	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Hydrocarbons C>12		mg/kg s.s.	6	4	--	50	UNI EN ISO 16703:2011
Tributyltin compounds	° *	mg/kg s.s.	nr	1	--	1	UNI EN ISO 23161:2011
Metals			-		--	--	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009

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parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Arsenic	mg/kg s.s.	2,5	0,08	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cadmium	mg/kg s.s.	0,41	0,02	--	2	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cobalt	mg/kg s.s.	1,91	0,02	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Chrome	mg/kg s.s.	24	0,03	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Mercury *	mg/kg s.s.	nr	0,1	--	1	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Nickel	mg/kg s.s.	10,7	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Lead	mg/kg s.s.	17,9	0,07	--	100	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Copper	mg/kg s.s.	12,7	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Zinc	mg/kg s.s.	38	0,2	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Asbestos *	mg/kg s.s.	<1000		--	1000	DM 06/09/1994 GU N.288 10/12/1994 All1A+All1B+VDI3866 Blatt2:2001

* Test not accredited by ACCREDIA

° Test performed in subcontract to an external laboratory

MDL: Detection limit of the method, nr: not detected, indicates a value less than MDL

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Legislative reference: D. lgs. 152/06, all. 5, parte IV Tab. 1/A

dott. Caterina Tassoni
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Calabria n° 634

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LAB N°0904 L

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

GEOLAB
ANALISI E MISURE D'AMBIENTE

Analytical report N° 2808 of 03/05/2023

Spett.le TECHFEM SPA

VIA TONIOLO, 1/D
61032 FANO (PU)

Sampling data

Sampling Method -
Samples took by customer, taken by our staff
Sampling: Place, date and hour : -
Received sample date 24/03/2023
Start analyses date 24/03/2023 Finished analyses date 03/05/2023

Sample n° : **2847 / 1170 Soil: TP47 (da 1,00 a 1,60)**

parameter researched		Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Skeleton (> 2mm e < 2cm)		%	39		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
fine powder (<2mm)		%	61		--	--	DM 13/09/1999 SO n. 185 GU n.248 del 21/10/1999 Metodo II.1
Polycyclic aromatic hydrocarbons			-		--	--	
Dibenzo(a,h)anthracene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)anthracene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(a)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(b)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(g,h,i)perylene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(k)fluoranthene		mg/kg s.s.	nr	0,05	--	0,5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Crysene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Pyrene		mg/kg s.s.	nr	0,5	--	5	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Indeno(1,2,3-cd)pyrene		mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,l)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,i)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Dibenzo(a,e)pyrene	*	mg/kg s.s.	nr	0,01	--	0,1	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Benzo(e)pyrene	*	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018

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parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Nafthalene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Acenafthylene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Fenanthrene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Anthracene	mg/kg s.s.	nr	0,01	--	--	EPA 3550C 2007+EPA3630C 1996+ EPA 8270E 2018
Chloride °	mg/kg s.s.	205		--	--	IRSA-CNR Q64 N. 14
Total Organic Carbon *	mg/kg s.s.	10500		--	--	DM 13/09/99 GU 248 21/10/99 e smi Met. VII.3
Sulphate	mg/kg s.s.	137		--	--	IRSA-CNR Q64 N. 14
PCB 101 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 118 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 138 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 153 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 180 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 28 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
PCB 52 *	mg/kg s.s.	nr	0,0001	--	--	IRSA-CNR Q64 Vol. 3 Met. 24a+EPA 8270E 2018
BTEX *		-		--	--	
Benzene *	mg/kg s.s.	nr	0,01	--	0,1	EPA 5021A 2014 + EPA 8260D 2018
Ethylbenzene *	mg/kg s.s.	nr	0,01	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Styrene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Toluene *	mg/kg s.s.	nr	0,05	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
o,m,p xylene *	mg/kg s.s.	nr	0,001	--	0,5	EPA 5021A 2014 + EPA 8260D 2018
Hydrocarbons C>12	mg/kg s.s.	52	4	--	50	UNI EN ISO 16703:2011
Tributyltin compounds ° *	mg/kg s.s.	nr	1	--	1	UNI EN ISO 23161:2011
Metals		-		--	--	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009

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parameter researched	Unit of Measure	value	MDL	Reference Limit min	Reference Limit max	Method of analysis
Arsenic	mg/kg s.s.	2,4	0,08	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cadmium	mg/kg s.s.	0,36	0,02	--	2	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Cobalt	mg/kg s.s.	2,5	0,02	--	20	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Chrome	mg/kg s.s.	18,8	0,03	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Mercury *	mg/kg s.s.	nr	0,1	--	1	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Nickel	mg/kg s.s.	9,4	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Lead	mg/kg s.s.	34	0,07	--	100	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Copper	mg/kg s.s.	17,7	0,04	--	120	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Zinc	mg/kg s.s.	63	0,2	--	150	DM 13/09/1999 SO GU n°185 GU n 248 21/10/1999 Met XI.1+UNI EN ISO 11885:2009
Asbestos *	mg/kg s.s.	<1000		--	1000	DM 06/09/1994 GU N.288 10/12/1994 All1A+All1B+VDI3866 Blatt2:2001

* Test not accredited by ACCREDIA

° Test performed in subcontract to an external laboratory

MDL: Detection limit of the method, nr: not detected, indicates a value less than MDL

The Lab is responsible for all the information reported in the following document, except in the case information are provided by the clients. In the latter case, if the information provided by the clients can affect the validity of analyses' results, the lab disclaims responsibility. The following test-report exclusively concerns the declared and analyzed sample. However, whenever the sampling is not executed by the Lab, sample data are under customer's responsibility. Results refer to the sample thus received.

In the case the sampling is executed by the client, the result thus expressed in units of measurement is obtained through recalculation carried out on the basis of the measurement expressly declared by who has done the sampling.

Legislative reference: D. lgs. 152/06, all. 5, parte IV Tab. 1/A

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