

Environmental Impact Assessment

Schedule III

(Screening according to S.L. 549.46)

ERA Reference no.: EA/00016/18
PA Reference no.: PA/06748/17
Project Title: Redevelopment of Ex-Edible Oil Factory
Location: Site at The Refinery, Triq I-Imgieret, Marsa, Malta
Screening date: April 2018

1. Description of Proposal

1.1 Outline of project/development

PA/06748/17 is an outline planning application for a proposed industrial and commercial hub in a site currently occupied by a disused factory plant. The site of the proposed development is located on the north-westerly boundary of the Marsa Industrial Zone at Triq I-Imgieret. Refer to **Figure 1 and 2**.

Each of the respective developer company has been entrusted with the various sectors of the development as follows:

Table 1: Proposed developments (area and use) per respective developer company.

Developer Company	Area of Development (m ²)	Development Use
RPL	6000	Showroom, Offices and Leisure areas
MISSAG	7000	Showroom, Offices and Leisure areas
MOSM	16000	Industrial, Offices, Parking and Roof garden
BCBT & TUMINVEST	10000	Commercial, Industrial, Offices, Parking and Roof garden

The main concept of the proposed development is to integrate all the different sectors of the applicants' business, as outlined in Table 1 above, under one roof by regenerating the whole site into an industrial/commercial hub. The idea is also to attract other companies, including foreign ones to set up office within this hub.

The development proposal has been sectioned into four different blocks with internal roads, which spill onto the main arterial road passing in front of the development. The proposed development will be executed in five construction phases as follows:

Phases 1 & 2 – Central North Block (E, F, G & H)

Phase 3 – Eastern Block (I)

Phase 4 – Southern Block (A, B, C & D)

Phase 5 – North Western Block (J, K & L)

Table 2: Breakdown of total Gross Floor Area (m²).

Elevation (m)	Gross Floor Area (m ²)				
	Parking	Warehousing	Showroom	Offices	Public Open Space
+96.00	12,959				
+100.00	23,556		6,456		3,020
+104.00		23,306	1,930	4,864	774
+106.50				8,565	
+109.80				8,400	
+113.50				18,297	3,803
+116.50				724	
+119.50				724	
+122.50				724	
+125.50				537	
Total	36,515	23,306	8,386	42,835	7,597

The total Gross Floor Area (GFA) as outlined in PA 06748/17 is 118,639 m².

While undertaking screening for PA 6748/17, PA 02518/18 has been submitted for consultation by the Planning Authority. PA 2518/18 is for the development of Phase 2 of the said development complex. The proposed works are for the excavation of site, construction of parking at levels 0, 1, 2, showroom Class 4B and parking at level 3, warehouse Class 6A and offices Class 4A at level 4, offices Class 4A at levels 5, 6 and 7. This application is therefore in line with the developments described in PA 06748/17. It is being noted however that variations in gross floor area from those proposed in PA 06748/17 for Phase 2 have been made in PA 02518/18 (refer to Table 3 below).

Table 3: The proposed areas for phase 2 compared between PA 06748/17 and PA 23518/18.

Areas proposed	PA 06748/17	PA 02518/18
Parking Areas	9,270 m ²	16,812 m ²
Showroom	2,137 m ²	2,460 m ²
Warehousing	3,584 m ²	3,374 m ²
Offices	10,260 m ²	9,143 m ²
Open Space	1,020 m ²	/
Store	/	1,540 m ²
Total	26,271 m²	33,329 m²

The most notable change in GFA is the additional 7,542 m² for parking areas in PA 02518/18.

1.2 Site description and related considerations

The proposed development covers a site area of approximately 43,500 m². The site currently accommodates the unproductive Edible Oil Factory plant, a large tract of vacant land, together with a number of garage-like structures which served as farm buildings.

The site is located outside the development zone at the corner of Triq I-Imgiered along the road leading from Triq Aldo Moro Marsa towards Qormi, and falls within the administrative territory of the Marsa Local Council. Moreover, the site is a designated as an industrial area under the South Malta Local Plan, Marsa Industrial Estate Policies (SMMR 01 Boundary Limits of Marsa Industrial Estate). The site is also situated close to the Marsa Sports Complex, in particular to the golf course, (across the road to the north) and adjacent to a Bird Sanctuary (Conservation of Wild Birds Regulations, S.L. 549.42). Furthermore, to the south of the site is the St. Vincent De Paule Home for the Elderly whereas further west is the Government Farm (I-Ghammieri). See **Figure 1 and 2**.

1.3 Site history

The existing buildings were used to house a manufacturing complex which over the years was used for various chemical industrial applications. These include soap and detergent manufacture, storage and treatment of crude edible oils as well as conversion of used edible oils into biofuels. The main building

is currently used as temporary offices whereas the rest of the buildings including industrial equipment have been abandoned. A part of the equipment is contaminated with hazardous material and requires standard decontamination and treatment procedures before it is considered for re-use, re-cycling or disposal.

A site visit by ERA was held on 28th March 2018 to verify the current state of the site (refer to Figures 4-7).

This site has been the subject of the following development permit applications:

- PA 06655/05: Construction of cold storage (withdrawn by applicant).
- PA 06740/06: Demolition of disused store and construction of cold store to replace damaged cold store (application approved by the EPC/MEPA Board).

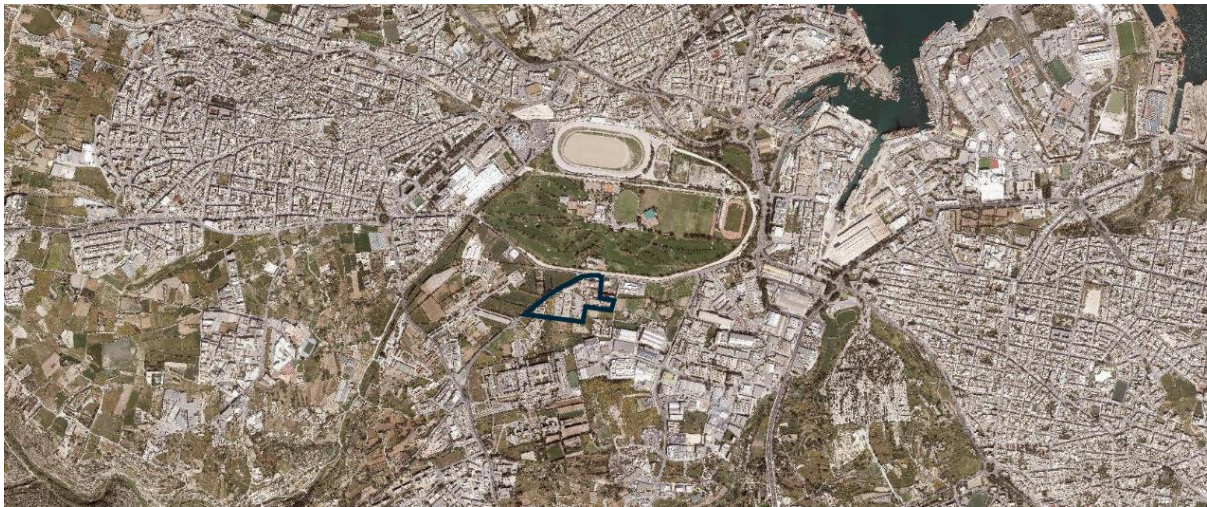


Figure 1: Location of site (in blue). Source: PA Geoserver.



Figure 2: Location of site (in blue) – Close-up. Source: PA Geoserver.



Figure 3: Artist impression of the Block Plan. Source: PDS.



Figure 4: On-site photo taken on 28.03.2018.



Figure 5: On-site photo taken on 28.03.2018.



Figure 6: On-site photo taken on 28.03.2018.



Figure 7: On-site panoramic photo taken on 28.03.2018.

2. EIA-relevant history

2.1 **Relevant EIA/screening criteria:** (citations refer to EIA Regulations, 2017 (S.L. 549.46), except where otherwise specified):

The proposed development falls under Schedule I Category II as per Sections 7.1.2.1 (*Projects which have: (i) a site area of 3ha or more; or (ii) a gross floor area of 30,000m² or more; or (iii) a gross floor area of 10,000m² or more for commercial use, including shops, shopping centres, offices or other business*) and 7.1.2.3 (*Car-parks with a gross floor area of 15,000m² or more, or 600 parking spaces or more*) of the Environmental Impact Assessment Regulations (S.L. 549.46).

2.2 **Documents used for screening:**

1. Project Description Statement (PDS), referred to ERA on 21st March 2018 (PA/06748/17/58a).
2. ERA consultation reply dated 29th September 2017 (PA/06748/17/45a).
3. AADT study, referred to ERA on 19th April 2018 (PA/06748/17/65a).

3. Screening Matrix Checklist

The following screening checklist is based on information in the Project Description Statement provided by the developer in accordance with Schedule II of the EIA Regulations (S.L. 549.46) and the European Commission Guidance on Screening (2017).

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
1	Will construction, operation, decommissioning or demolition works of the Project involve actions which will cause physical changes in the locality (topography, landuse, changes in water bodies, etc)?	<p>The proposal seeks the demolition of an existing factory and site clearance to make way for the construction of four blocks, each to be developed to a height of 15m above road level.</p> <p>The project also includes the excavation for underground parking with a total area of 36,515 m². The total Gross Floor Area (GFA) proposed is 118,639 m².</p> <p>The proposal would lead to physical changes in the land use in view of its height and massing.</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No. The existing site is already partially committed to industrial development and is designated for such use through the South Malta Local Plan. The proposal will commit the entire site to commercial and industrial development resulting in intensification of the urban fabric within the area. However, in view of the predominant land use within the area and similar developments in proximity to the site, physical changes in the area/locality, impacts are not considered to be of significance.</p>	PDS pg. 6, 12
2	Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?	<p>The PDS mentions the following raw materials (and estimated volumes) to be used during the construction phase:</p> <ul style="list-style-type: none"> - concrete (91,100 m³); - reinforcement (15.55 tonnes); <p>No raw material usage is being envisaged during the operational phase.</p> <p>Operational energy requirements of the proposal are not yet available.</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No. Given the nature and scale of the project, the use of such resources for the proposal per se is not likely to have a significant impact.</p> <p>Energy requirements for operation, although not available at this stage, are not expected to lead to any significant impacts.</p>	PDS pg. 18
3	Will the Project involve the use, storage, transport, handling or production of substances or materials which could be harmful to human health to the environment or	<p>Yes.</p> <p>During demolition and excavation, the proposal will generate fugitive dust emissions.</p> <p>During operation, NO_x and PM₁₀ emissions from operational traffic is expected. The proposal is expected to generate an Annual Average Daily Traffic (AADT) of 5937 vehicles. The projected</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> Unclear <input checked="" type="checkbox"/></p> <p>Potential dust impacts during construction are short-term and temporary and therefore no significant impacts are envisaged as long as the Environmental Management Construction Site Regulations (S.L. 552.09) are being adhered to.</p>	AADT study (doc 65a)

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
	raise concerns about actual or perceived risks to human health?	<p>Marsa Traffic project was taken into consideration.</p> <p>No storage and transport of harmful/hazardous materials or substances is envisaged during all phases of the proposed development.</p> <p>However, the site presently contains hazardous substances such as transformer oils and asbestos material as well as contaminated soil from the former operations.</p>	<p>The AADT shows that a significant increase in traffic is envisaged and so an air quality study is being requested.</p> <p>The PDS outlines that some oil spillages have penetrated into the ground and may be of environmental concern.</p> <p>In addition, the PDS identifies the procedures to be followed in order to determine the nature of the contaminated soil (including decontamination prior to disposal) and managing equipment contaminated with hazardous substances. Therefore, the proposed development supposes an improvement of the current status of the site.</p> <p>The process explained above will be monitored at a later stage when the Site Clearance and Land Contamination Investigations Method Statement, in accordance to the Terms of Reference compiled by ERA (Appendix I), will be submitted by the applicant.</p>	
4	Will the Project produce solid wastes during construction, operation or decommissioning?	<p>During excavation the waste quantities to be generated are as follows:</p> <ul style="list-style-type: none"> - Excavated soil = 168,000 m³ - Concrete = 2,700 m³ - Reinforcement = 300,000kg - Plastic and Paper = 320 m³ - Membrane = 1,600 m² - Plasterboards = 600 m³ - Marble and granite = 10 m³ - Tiling = 130 cu.m <p>During construction, the following amounts are expected to be generated:</p> <ul style="list-style-type: none"> - Concrete = 7 m³ - Reinforcement = 200kg - Plastic and Paper = 1 m³ - Membrane = 50 m² - Plasterboards = 0.5 m³ - Marble and granite = 0.1 m³ - Tiling = 1 m³ 	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>Considering the nature and size of the proposal, the amount of waste likely to be generated during demolition, excavation and construction, is not considered significant in relative terms. Inert waste, generated during demolition and excavation processes, is to be disposed in facilities that are licensed to accept or recycle this waste, duly permitted by ERA and in accordance with the Waste Management Regulations (S.L. 549.63) and Waste Management (Activity Registration) Regulations (S.L. 549.45).</p> <p>During operations, the amount of municipal and recyclable waste is also not considered significant. The operational waste may also be absorbed by the national waste</p>	PDS pg. 18

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		<p>During the operation phase the wastes shall consist of standard office and small catering outlets wastes which shall fall under the domestic wastes classifications.</p> <p>The site presently contains hazardous substances such as transformer oils and asbestos material as well as contaminated soil.</p>	<p>system, and municipal waste is to be separated and disposed of by licensed waste contractors engaged by the operator, in accordance with the relevant regulations.</p> <p>The PDS mentions that some oil spillages have penetrated into the ground and may be of environmental concern.</p> <p>In addition, the PDS clearly identifies the procedures to be followed in order to determine the nature of the contaminated soil (including decontamination prior to disposal) and managing equipment contaminated with hazardous substances. Therefore, the proposed development supposes an improvement of the current status of the site.</p> <p>The process explained above will be monitored at a later stage when the Site Clearance and Land Contamination Investigations Method Statement, in accordance to the Terms of Reference compiled by ERA (Appendix I), will be submitted by the applicant.</p>	
5	Will the project release pollutants or any hazardous, toxic or noxious substances to air or lead to exceeding Ambient Air Quality standards in Directives 2008/50/EC and 2004/107/EC?	Refer to Question 3	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>Refer to Question 3</p>	/
6	Will the Project cause noise and vibration or the releasing of light, heat, energy or electromagnetic radiation?	<p>During demolition, excavation and construction, the project is likely to be a source of noise, vibration and light emissions.</p> <p>In terms of operation, the proposal is not likely to generate</p>	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> Unclear <input checked="" type="checkbox"/></p> <p>Noise emissions and vibrations during the demolition, excavation and construction phases are temporary and can be minimised through the Environmental Management Construction Site</p>	PDS pg. 6

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		<p>additional noise given that use as offices is the major use of the development.</p> <p>Light emissions will be generated during the operational phase.</p>	<p>Regulations (S.L. 552.09). However given the scale of the project and the fact that the proposal lies in close proximity to home for the elderly a construction noise study is required.</p> <p>During operation, an increase in hourly peak traffic flows is envisaged. The significance of the noise impacts on the residents of the vicinity, such as those of St. Vincent De Paule Home for the Elderly; is unclear and so further studies to investigate such impacts are being requested.</p> <p>As regards to light emissions, the proposal is located within a well lit area and therefore no significant impacts are being envisaged.</p>	
7	Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater, coastal waters or the sea?	<p>The site does not lie in close vicinity to groundwater and/or coastal water. Moreover, the proposed mixed use will not entail the usage or storage of polluting material on site. Only during the construction phase, accidental spillages from construction vehicles and other machinery may occur.</p> <p>However, in the past, the existing building has been used for detergent industry and lately as a bio-fuel production plant. Some of the equipment may contain hazardous substances such as transformer oils and asbestos material. See reply to question 3.</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No significant impacts are envisaged, given that any impact can be sufficiently mitigated through the proper implementation of the Environmental Management Construction Site Regulations (S.L. 552.09).</p> <p>The applicant shall submit Site Clearance and Land Contamination Investigations Method Statements in order to ensure proper implementation to limit risks of contamination.</p>	/
8	Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?	No increase in accidental risk is envisaged, other than occupational risks typically associated with construction activities.	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No significant impacts are envisaged.</p>	/

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
9	Will the Project result in environmentally related social changes for example, in demography, traditional lifestyles, employment?	Yes. The proposal is for a mixed use development – commercial and industrial. This is expected to increase the number of visitors to the area and its surroundings. The project is also expected to generate a number of employment opportunities both during construction and operation.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> No significant adverse impacts are envisaged from an environmental perspective considering the surrounding environmental context and the baseline situation (existing derelict factory).	PDS pg. 19
10	Are there any such factors which should be considered such as the consequential development which could lead to environmental impacts or the potential for cumulative impacts with other existing or planned activities in the locality?	The total Gross Floor Area of the proposed project is 118,639 m ² . A medium rise tower (phase 5) will accommodate an additional 4 storeys reaching an elevation height of 125.50 m.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> The proposal will result in the intensification of built development in an area which is already developed and designated for industrial use.	/
11	Is the project located within or close to any areas which are protected under international, EU or national or local legislation for their ecological, landscape, cultural or other value, which could be affected by the Project?	The closest areas are Marsa Sports Ground, a Bird Sanctuary (Conservation of Wild Birds Regulations, S.L. 549.42), just in front of the project; and I-Cimiterju ta' I-Addolorata (Il-Madwar) also a Bird Sanctuary (Conservation of Wild Birds Regulations, S.L. 549.42) as well as a Tree Protection Area (TPA) (Trees and Woodland Protection Regulations, S.L. 549.64). Another TPA (Trees and Woodland Protection Regulations, S.L. 549.64) which lies in the vicinity is the Ta' Bloq - Ghar Hanzir (l/o Qormi & Siggiewi).	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> No significant impacts are envisaged. Since, in this case, the Bird Sanctuary is only a nominal environmental constraint and is not really related to environmental protection. Consequently, it is related to the establishment of a no-shooting zone for the purpose of public safety	PDS pg. 16
12	Are there any areas on or around the location which are important or	Refer to question 11.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Refer to question 11.	/

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	sensitive for reasons of their ecology e.g. marshlands, wetlands, watercourses or other water bodies, the coastal zone, mountains, forests or woodlands, which could be affected by the Project?			
13	Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, over wintering, migration, which could be affected by the Project?	Refer to question 11.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Refer to question 11.	/
14	Are there any inland, coastal, marine or underground waters (or features of the marine environment) on or around the location which could be affected by the Project?	There are no water bodies on or around the site of the proposed development.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> No significant impacts are envisaged.	/

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
15	Are there any areas or features of high landscape or scenic value on or around the location which could be effected by the Project?	<p>The site lies adjacent to the Marsa Sports Complex, particularly the Golf Course.</p> <p>However, the site lies within the Marsa industrial zone therefore has low landscape and scenic value.</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No significant impacts are envisaged.</p>	/
16	Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the Project?	<p>The site lies adjacent to the Marsa Sports Complex, and opposite the Golf Course.</p> <p>St Vincent de Paule Home is located (approx. 130m) to the south of the site.</p> <p>Ic-Cimiterju ta' l-Addolorata (Il-Madwar) lies approx. 1km east to the site.</p> <p>The projected Marsa Junction Project to the east of the site shall facilitate traffic movements along Triq Aldo Moro to the Triq l-Ingiered junction as well as traffic flowing from Cottonera and Fgura/Airport which may veer towards Triq l-Ingiered, contiguous to the site in question.</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No significant impacts are envisaged since the proposed internal roads allow for the required circulation space for comfortable manoeuvring of long vehicles within the site perimeter without leading to disruptions on the public roads.</p>	PDS pg. 6
17	Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the Project?	Reply to Question 16 refers.	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>Reply to Question 16 refers.</p>	PDS pg. 16
18	Is the Project in a location where it is likely to be highly visible to many people?	The project will be visible to the users of the Marsa Sports Complex Golf Course, visitors and residents of St Vincent de Paule Home as well as road users.	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>Although the site is surrounded by development which is similar in nature, the height of the neighbouring development is lower than that being proposed through this application. In this</p>	/

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			regard, impact is not expected to be significant considered the nature and location of the proposal.	
19	Are there any areas or features of historic or cultural importance on or around the location that could be affected by the Project?	No there are no records which show that the site contains any features of cultural heritage value however the PDS made reference to old buildings which are found on site of which heritage value is yet unknown. The site lies approximately 400 m west from the Turkish Cemetery (scheduled as Grade 1 building through GN 835/13) and 350 m east from an Australian Bungalow (scheduled as a Grade 2 building through GN 492/06).	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> No significant impacts are envisaged on the listed cultural heritage sites in the vicinity. However, given that the site contains buildings of which cultural heritage value is still not known, the Superintendence of Cultural Heritage should be consulted in view of possible monitoring requirements and mitigation measures. This consideration is best addressed directly through the mainstream development permitting process.	PDS pg. 14.
20	Is the Project located in a previously undeveloped area where there will be loss of greenfield/ODZ land?	No.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> No significant impacts are envisaged.	/
21	Are there existing land uses on or around the location e.g. homes, gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?	Reply to Question 16 refers.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Reply to Question 16 refers.	PDS pg. 6

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
22	Are there any plans for future land uses within or around the location which could be affected by the Project?	None that are known of.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> ERA is not aware of future land use plans within or around the location.	/
23	Are there any areas on or around the location which are densely populated or built-up, that could be affected by the project?	Reply to Question 16 refers. The residential areas of Marsa, Qormi and Hal Luqa lie 1km north, west and south to the site, respectively.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Reply to Question 16 refers.	PDS pg. 6
24	Are there any areas on or around the location which are occupied by sensitive land uses e.g. hospitals, schools, places of worship, community facilities which could be affected by the project?	Yes. St Vincent de Paule Home is located (approx. 130m) to the south of the site. Ic-Cimiterju ta' I-Addolorata (Il-Madwar) lies approx. 1km east to the site.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Reply to Question 16 refers.	PDS pg. 6
25	Are there any areas within or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?	Reply to Question 11 refers. There are also a number of agricultural fields nearby.	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/> Reply to Question 11 refers. The agricultural fields nearby as well as the Marsa Sports Complex Golf Course will not be directly affected by the project.	PDS pg. 6

Question Number:	Questions to be Considered	Types and characteristics of identified potential impacts Briefly describe	Is this likely to result in a significant effect? Briefly justify	Document Reference
26	Are there any areas within or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded that could be affected by the project?	The PDS mentions that the projected Marsa Road Project to the east of the site shall facilitate traffic movements along Triq Aldo Moro to the Triq I-Ingiered junction. Traffic flowing from Cottonera and Fgura/Airport, which may veer towards Triq I-Ingiered, adjacent to the Project site, should also reduce traffic congestion.	<p>Yes <input type="checkbox"/> No <input type="checkbox"/> Unclear <input checked="" type="checkbox"/></p> <p>Although the projected Marsa Road Project should improve traffic flow, the impacts on air quality remain unclear.</p> <p>Moreover, the proposal is estimated to generate an Annual Average Daily Traffic (AADT) of 5937 vehicles.</p> <p>Therefore the proposal may lead to further intensification of land use in the area thus resulting in further exceedance of legal environmental standards in relation to air quality and noise from the increase in traffic. In this regard, a joint air quality and noise impact study is required.</p>	AADT study (doc 65a)
27	Is the project location susceptible to earthquakes, or subsidence, landslides, erosion, flooding or extreme or adverse climatic conditions e.g. temperature inversions, fogs, severe winds, which could cause the project to present environmental problems?	No, the likelihood of such extreme events in the area can be considered to be minimal.	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Unclear <input type="checkbox"/></p> <p>No significant impacts are envisaged.</p>	/

4. Conclusion

4.1 Screening Conclusion and recommended way forward

The proposed development falls within the scope of Schedule I ,Category II as per Sections 7.1.2.1 (Projects which have: (i) a site area of 3ha or more; or (ii) a gross floor area of 30,000m² or more; or (iii) a gross floor area of 10,000m² or more for commercial use, including shops, shopping centres, offices or other business); and 7.1.2.3 (Car-parks with a gross floor area of 15,000m² or more, or 600 parking spaces or more) of the EIA Regulations, 2017 (S.L. 549.46), however following detailed

screening in accordance with Schedule III of the same Regulations and matrix above, the proposal does not require an EIA given that no significant environmental impacts have been identified.

4.2 Further Information

It is being requested that the applicant submits method statements for the:

1. Site Clearance and Land Contamination Investigations
2. Noise and Air Quality Assessment

For which terms of reference have been provided. Refer to Appendix I, II and III.

With reference to ERA's response dated 29th September 2017 (PA/06748/17/45a), the following requirements/clarifications are being reiterated:

1. From the submissions provided it is unclear whether the proposal qualifies for an Environmental Registration/Permit. Applicant is hence to immediately contact the Environmental Permitting Unit (industrial.applications@era.org.mt) to:
 - a. discuss the requirements below,
 - b. clarify whether the warehouses will be operated by the applicant or by third parties,
 - c. clarify the activities are envisaged to take place inside the warehouses including the type and quantity of materials stored,
 - d. provide the rated thermal input in kWth and the average operating hours per year for any backup generators to be installed on site.
2. In view of the current state of the site and activities carried out to date which could potentially have led to land and groundwater contamination, clearance of the site and preliminary investigations for contamination are being required. For the ToRs for the compilation of the method statement kindly refer to Appendix I.
3. Applicant is to submit a separate method statement for the decontamination and removal of structures (including but not limited to tanks, pipelines, sumps, etc.) which were utilized during the previous operations of Edible Oil Co. Ltd.

4.3 Screening Disclaimer

The above screening results, the ensuing conclusions and recommendations are without prejudice to any required changes or updates should the development proposal be eventually modified or should the information/assumptions provided turn out to be incorrect. Any deviations of the proposal from this submission would need to be re-assessed and the merits of this screening would need to be re-opened.

Appendix I

Terms of Reference for Site Clearance and Land Contamination Investigations

In view of the current state of the site and activities carried out to date which could potentially have led to land and groundwater contamination, clearance of the site and preliminary investigations for contamination are being required. The documents detailed in the terms of reference below are to be approved by ERA prior to the commencement of any works on site. MRA and WSC were also notified of the activities on site so they will be able to take any action from their end that they may deem necessary.

1. Land and groundwater investigations

A proposal for land and groundwater investigations is to be submitted, prepared by experts in the field upon consultation with MRA and WSC, which should include a chemist and a hydro geologist, with at least three years' experience in designing land and groundwater monitoring proposals and assessing land and groundwater contamination. Collection of samples should also be carried out by suitably qualified / certified persons familiar with the required methods.

CVs of the persons involved in developing and carrying out the land contamination survey, including assessment of the results, are to be submitted for approval by ERA prior to development of the proposal detailed below.

The proposal for land and groundwater investigations is to include the following:

- a. An overview of the site history including details on the activities carried out (such as illegal dumping and incineration of wastes) and the type of wastes that have been deposited on site and that could have led to land contamination. If information is not available, expert judgment should be used regarding assumptions on the type of activities and wastes associated with such sites and directly associated contaminants.
- b. A conceptual site model (CSM) is to be developed indicating:
 - which areas have been used for the different activities (known / assumed);
 - which areas could have been potentially contaminated by said activities (clearly indicating the sources of contamination identified through the site history, related information and/or assumptions on activities and materials handled / deposited / incinerated), and
 - the extent of areas that could have been affected through the different potential pathways of contamination identified; this needs to take into consideration sub-surface soils, groundwater and surface waters, potentially contaminated through direct exposure, leaching and run off, within and outside the site.
 - The geology, hydrogeology and topography of the site and surrounding area shall be taken into account during the development of the CSM.
- c. Provide rationale / justification for the area of influence proposed for the preliminary investigation, and the number, location and depths of sampling points, making reference to the CSM. It should be noted that the number of sampling points should be statistically representative for the area under investigation, and ensure adequate coverage of the site as well as the greater area of influence. In view that groundwater could potentially have been contaminated; sampling of groundwater also needs to be included, preferably making use of existing boreholes¹. Consultation with the MRA and WSC is required in this regard.
- d. The following table is an indication of the expected sampling effort; however this may require modification based upon the CSM developed.

¹ To note that drilling of any borehole requires authorization from the Competent Authority, and drilling works must comply with the provisions of S.L. 423.32; drilling rigs must also be registered with the Competent Authority as per S.L. 545.06.

SITE (square m ²)	LAND		GROUNDWATER	
	DRILLING/ TRENCHES	SAMPLING	DRILLING WELLS	SAMPLING
< 10000	At least 5 points	For each point, n. 3 samples at different depths	At least 3 points	n. 1 samples per point
10.000-50.000	From 5 to 15 points	For each point, n. 3 samples at different depths	From 4 to 6 points	n. 1 samples per point
50.000-250.000	From 15 to 60 points	For each point, n. 4 samples at different depths	From 6 to 10 points (subject to a risk analysis) ²	n. 1 samples per point

- e. Provide information on sampling procedure to be followed including:
- The drilling/coring equipment to be used;
 - Methods to be followed during sampling to ensure cross-contamination does not occur and that samples are handled/stored appropriately until delivery to the lab for testing;
 - Proposed method for backfilling of voids left by extraction of cores.
- It should be noted that dry-drilling is recommended to avoid flushing and dispersion of the contaminants which may be present
- f. Provide rationale / justification for contaminants selected for analysis of land and groundwater samples. Consultants are to provide a list of contaminants to be investigated in this regards. It should be noted that:
- Testing for heavy metals, total organic carbon, hydrocarbons, BTEX, and dioxins is required.
 - Testing for other contaminants should also be considered in view of the site history, or justification for their exclusion given; the assessment should consider cyanide, fluoride, MTBE, PAHs³, PCBs, chlorinated aliphatic hydrocarbons, halogenated aliphatic hydrocarbons and asbestos amongst others.
 - ERA reserves the right to request testing for additional contaminants other than those proposed depending on the results obtained during the works on site as well as following consultation with MRA and WSC.
- g. EPA, ISO, EN or equivalent standards to be used to test for the different contaminants is to be provided, together with the detection limits. Certification of the laboratory/ies chosen for testing is to be provided; Laboratory is to be accredited to at least EN ISO 17025:2005/Cor 1:2006 and accredited for each and every analysis.

2. Clearance of the site

Method Statement is to be submitted outlining how clearance of the site shall be carried out, including:

- a. Details of when site is planned to be cleared.
- b. How all wastes shall be identified and separated according to the different waste streams as per EWC codes defined in Commission Decision 2000/532/EC. A list of these wastes and projected quantities is to be included.
- c. How all wastes shall be characterised according to the HP codes as per The Waste Regulations - S.L. 549.63, Schedule 3.

² If such plants are located inland, the drilling of 6 to 10 monitoring points per plant is considered to increase the pollution potential of the plants and acceptability would need to be assessed on a case by case basis.

³ 16 PAHs: Benzo (a) anthracene, Benz o(a) pyrene, Benzo (b) fluoranthene, Benzo (k) fluoranthene, Benzo (g, h,i) perylene, Chrysene, Naphthalene, Anthracene, Phenantrene, Fluoranthene, Dibenzo (a, h) anthracene, Indeno (1,2,3 – cd) pyrene, Pyrene, Acenaphthylene, Acenaphthene, Fluorene

- d. Indicate disposal facilities for all wastes stream identified on site. In this regard it should be noted that:
- All wastes leaving the site after storage and/or processing must only be sent to facilities licensed to accept the individual waste stream, either locally or abroad.
 - Only registered waste carriers as per activity 38 of Schedule 1 in S.L.549.45 - Waste Management (Activity Registration) Regulations, 2007 are allowed to transport waste to and from this site.
 - The applicant shall keep records for every consignment of wastes removed from the site indicating the EWC Code, description, quantities, date of removal, contractor name (including for transport), consignment note number (where applicable) and manner and place of final disposal/recovery. Such records will need to be submitted as part of the final report submitted to ERA for approval documenting the site clearance.
 - Contaminated excavated material are to be managed and disposed of as waste.
 - Wastes identified as inert are to be tested if suspected to be contaminated by other deposited material.
 - Should any of the excavated material from the contaminated land be destined for disposal in a landfill, in addition to the abovementioned characterisation analysis, leaching tests should be carried out according to the Waste Acceptance Criteria set out in Council Decision 2003/33/EC.

Reference should also be made to the checklist in Annex 1 (attached) - Parts I & II - vis-à-vis the expected contents of the proposal for land and groundwater contamination investigations.

Aspects indicated in Parts III and IV will need to be included in the final report submitted to ERA (post survey/analysis), which should include the results of the investigation and assessment thereof.

3. Way Forward following site clearance and land/groundwater investigations

Action may be required by ERA depending on the levels and location of contamination found. The requirement for remediation will depend on the eventual associated risk to human health and the environment from any contamination of land and groundwater, which would need to be assessed following a preliminary screening of the results obtained from the preliminary investigations.

The engagement of experts for further investigations/assessments and proposals for land decontamination and remediation may be required following the preliminary assessment of contamination. Consultation with MRA will also be required in the event of risks to groundwater.

4. Documents to be submitted

- List of consultants to be commissioned for approval by ERA
- Land investigation proposal for approval by ERA
- Method Statement for site clearance for approval by ERA
- Site clearance report following works
- Land investigation report.

Further assessment may be required depending on the results obtained.

Annex I: Land Contamination Investigations Checklist

I - Preliminary Requirements

Identification of the environmental setting and pollution history of the installation
Identification of any possible sources of historical contamination
Identification of substances in, on or under the land, from materials historically or currently used or produced by the activities at the site which may be a pollution risk
Relevant plans of the installation (showing boundaries and key points of interest)

II - Details of data collection

(a) Site investigation

Rationale for investigation – should include list of potential contaminant sources relevant to each proposed investigation location
Constraints applicable to the placement of site investigation locations
Method used for forming exploratory holes, e.g. boreholes, trial pits, window samples
Methods used for collecting, preserving and transporting samples to the analytical laboratory

(b) Sampling & Monitoring

Rationale for sampling strategy, e.g. if targeted, rationale of targets; if non-targeted, justification for spacing and layout.
The number of samples is to be statistically representative of the whole site.
Description and explanation of investigations for groundwater and surface waters
Details of monitoring and sampling including locations, depths, frequencies

(c) Analysis

Rationale for selection of analytical parameters
List of EPA, EN, ISO or equivalent standards for analysis of the various contaminants as well as the associated detection limits.
Quality assurance and quality control requirements for laboratory analyses.
Analysis shall be carried out by a laboratory accredited to at least EN ISO 17025:2005/Cor 1:2006 and preferably accredited for each and every analysis.

III - Presentation and interpretation of data within text of report

Description of ground conditions encountered at the site, including groundwater regime and surface water features
Cross-sections showing site strata and shallow and deep groundwater levels
Summary tables of chemical analyses and site monitoring
Description of type, nature and spatial distribution of contamination, with plans where appropriate
Statistical analysis of the data set and derivation of representative concentrations for individual contaminants to a suitable level of statistical significance
Evaluation of site investigation results against the outline conceptual model

IV - Presentation of raw data (Annex to report)

Plan showing monitoring and sample point locations including the GPS coordinates
Description of site works and on-site observations
Exploratory borehole, core or drilling logs including the GPS coordinates
Details of response zone and other construction details of borehole monitoring installations
Monitoring results
Description of samples submitted for analysis
Relevant Quality Assurance/Quality Control data – this may include accreditations of staff, calibration certificates of equipment, laboratory accreditations (national and international standards)
Laboratory analytical reports, completed in accordance with the relevant QA/QC data, including relevant international analytical or test method standards

Appendix II

Terms of Reference for a Noise Assessment

Below TORs are to be applied to development permit proposals submitted to ERA and describe the key components of noise assessment; the stages involved in identifying sources; quantifying emissions; and assessing control requirements.

1. Introduction to the Noise Assessment

The below methodology is to be submitted as part of the method statement prior to undertaking the study, and should be agreed upon between the developers, and ERA, on all relevant noise generating sources and noise sensitive receptors (NSRs).

The collection of baseline data in order to determine the ambient noise level at the proposed area of development are determined via noise monitoring, in accordance with current ISO Standards and British Standards such as:

- ISO 1996-1:2016 Acoustics -- Description, measurement and assessment of environmental noise -- Part 1: Basic quantities and assessment procedures
- ISO 1996-2:2007 Acoustics -- Description, measurement and assessment of environmental noise -- Part 2: Determination of environmental noise levels
- [BS 4142:2014](#) -- Methods for rating and assessing industrial and commercial sound
- CRTN – Calculation of Road Traffic Noise, Department of Transport (UK), 1988
- IEC 61672 -- 2013 Electroacoustics - sound level meters Parts 1, 2 and 3
- IEC 61260 -- Ed. 1.0 (1995-08) plus Amendment 1 (2001-09), 1/1 and 1/3-octave Bands (octave-band and fractional-octave-band filters)
- IEC 60942 -- 2003 Electroacoustics - sound calibrator

2. Baseline Study

- a. The noise monitoring report shall include details of the standards used for monitoring, equipment used including calibration details and calibration certificates, resultant monitoring data, and assessment methods.
- b. The study is to be commissioned according to the latest revisions of ISO1996 and the rating of operational noise affecting residential areas shall be according to BS4142:2014.
- c. The study should include baseline noise survey of sensitive receptor sites, noise impact on site sensitive receptors including day and night background levels.
- d. The noise monitoring study for the operational assessment, as proposed by the commissioned consultant should address the following issues:
- e. Maintenance and field calibration checks: The monitoring shall be performed exclusively using a calibrated and accredited type 1 sound level meter, conforming to BS6698/IEC 61672 Class 1. The use of type 2 sound level meters or less is not considered acceptable and will not be considered. The consultant shall ensure that:
 - Prior to the initial data collection and at the end of the monitoring day, all acoustic instrumentation system such as the sound level meters are calibrated, and checked immediately before and after each series of monitoring readings.
 - Results must be within ± 1.0 dB, otherwise discarded and read again.
- f. Measurement locations: The location for monitoring of ambient noise levels should be between:
 - 1.2 and 1.5m above the ground for a single storey development and;
 - Between 1.2 to 1.5m above the proposed internal floor level for each additional storey.
- g. For noise mapping the following microphone heights must be used:

- 4.0 ± 0.2 m in residential areas with multistorey buildings;
 - 1.2 ± 0.1 m or 1.5 ± 0.1 in residential areas with one floor buildings and recreational areas.
- h. To minimize the influence of reflections, the monitoring should either be taken under free-field conditions (more than 3.5m from any reflecting surface) or at 1m from the façade of a building and results treated accordingly.
- i. When a noise source is incident on a façade, the effect of reflected noise from the façade is generally to increase the “façade level” measured at 1m by 3 dB.
- j. For road traffic, generally the microphone is at 10m away from the carriageway edge (not less than 4m and not more than 15m) and microphone should be pointing vertically upwards (grazing incidence).
- k. Measurement settings
- The recommended time periods over a twenty-four hour period are categorized in terms of daytime, from 07:00-23:00 ($L_{Aeq,[16h]}$) and night-time from 23:00-07:00 ($L_{Aeq,[8h]}$).
 - A number of different noise indices are used due to the variation of different noise levels and frequency content over time in accordance to BS 4142:2014. Equivalent continuous noise level over a period of time index, $L_{Aeq,T}$ is to be used for measuring the specific sound and the residual sound. For traffic noise, $L_{A10,18h}$ is more widely used and $L_{A90,T}$ is an appropriate noise metric to measure background noise at the noise sensitive receptor or location.
 - When monitoring for a specific noise level at assessment location it should be adjusted over reference time intervals such as a period of 1 hour during the day, $L_{Aeq,1hour}$ and 15min during the night, $L_{Aeq,15min}$.
 - The measurement time interval should be sufficient enough to obtain a representative value of a typical background when the specific noise source will be operating.
- l. All noise monitoring results and any derived averages should be rounded to the nearest whole integer, with 0.5 being rounded up.
- m. All meteorological conditions and weather effects such as wind speed and direction, temperature gradient, relative humidity and cloud cover, are to be documented in the beginning of each monitoring period and monitoring point location. The following two points shall be considered, where relevant:
- Measurements should ideally be carried out under dry conditions; when the road surface is dry; and the wind velocity is of up to $2ms^{-1}$. (At this wind speed the noise levels are enhanced by up to 2dB(A) when compared to still conditions).
 - Monitoring should not be performed if wind speed exceeds $5ms^{-1}$ or wind gusts exceed $10ms^{-1}$ or if it is raining as stipulated in ISO standard.
- n. The background noise measurements shall be accompanied by a critical listening of all the other noise sources present in the background.
- o. Adjustments: Due to certain acoustic features such as tonality, impulsivity and intermittency the inclusion of specific noise level plus any adjustment for the different noise characteristic features, the rating level, $L_{Ar,Tr}$ should be reported in accordance with BS 4142:2014, depending on the subjective assessment made while taking the readings.

3. Road Traffic Noise

In order to determine whether the proposed development shall give rise to an increase in noise level due to operational traffic, the potential increase in peak traffic needs to be identified (Peak Traffic Forecast).

The increase in traffic will have an influence on the existing noise climate. Typically, a halving or doubling of flow produces a 3dB change in noise levels, (The Institute of Environmental Management and Assessment UK, IEMA, Guidance Notes No I, Guidelines for the Environmental Assessment of Road Traffic).

- a. The baseline and future noise levels shall be estimated using the procedures set out in the Calculation of Road Traffic Noise (CRTN). These use the L_{A10} noise index, which corresponds to the arithmetic mean of the noise level exceeded for 10% of the time; typically one hour or 18hours (18 sets of measured $L_{A10,(1hr)}$ and $L_{Aeq,(1hr)}$ over the course of 18 hour period).
- b. Road traffic noise may require two separate considerations: day-time: $L_{Aeq,16hrs(0700-2300)}$ and night-time noise: $L_{Aeq,8hrs(2300-0700)}$.
- c. For the noise levels to be in terms of L_{Aeq} over a 16 hour period, an approximate conversion between L_{Aeq} and L_{A10} as estimated from CRTN is given by:

$$L_{Aeq,16hr(0700-2300)} \approx L_{A10,18hr(0600-2400)} - 2dB$$

And; $L_{A10(1hr)} = L_{Aeq(1hr)} + 3dB$

- d. For heavy traffic flow roads, it is usually the case that $L_{A10,1hr}$ is 1dB higher than an average 18hr value, however this depends on the nature of the traffic.

4. Report

The report shall include the following:

- a. A description of the surrounding areas within approx. 1km radius from the site– this shall include identification of the types of activities, whether residential or commercial, roads and other amenities. These shall be location-specific taking into account their location with respect to the site.
- b. Identification of the closest noise sensitive receptors – this shall be carried out after assessing the noise levels in the plant's perimeter and in the other locations identified in point 14 above under normal operating conditions of the plant. The various measurement points shall be identified with a unique code and an analyses of the ambient noise to which each monitoring point is subjected. The consultant, in collaboration with ERA, shall seek advice from the Local Council during the selection of the sensitive receptors.
- c. A summary of the data obtained after the survey has been commissioned in relation to the noise sensitive receptors identified above shall be submitted.
- d. Impact assessment of traffic noise on the sensitive receptors – this shall include an assessment according to the guidelines BS 4142:2014, ISO1996, ISO9613, ISO 8297: 1994, ISO 3744: 1995 and ISO 3746:1995; and any revision thereof.
- e. A noise map maybe required both for baseline studies and for prediction showing the sensitive receptor exposure to noise. The maps will be generated using the above highlighted standards.

5. Impact Significance

- a. The level of significance is determined in relation to the magnitude of impact together with the sensitivity of the receptor. Different Noise Sensitive Receptors (NSR) can be classified in three levels of sensitivity: High, Medium and Low.

Sensitivity	Description of Sensitive Receptors
HIGH	Receptors where people or operations are vulnerable to noise, such as: Residential, Recreational Areas, Educational Institutions, Hospitals, Homes for the elderly, Places of worship.
MEDIUM	Receptors are moderately sensitive to noise, if it causes some distraction or disturbance, such as: Offices, Bars/Cafes/Restaurant.
LOW	Receptors where distraction or disturbance from noise is minimal, such as: Night Clubs, Sports Ground, Factories.

Table 9.1: Level of Sensitivity Associated with various Sensitive receptors

- b. After all noise sensitive receptors have been identified and prioritised according to their level of sensitivity as identified in the table above, the magnitude of the impact is classified as none/negligible, minor, moderate or major according to the noise monitoring study.

Road Traffic (Change in Noise level)	Noise level [dB]	Magnitude of Adverse Impact
Forecast – Existing Traffic Noise level < 3dB	>5	Major
	≤5 but ≥3	Moderate
	<3 but ≥1	Minor
Day Time: L _{Aeq} [16hrs(07:00-23:00)] Night Time: L _{Aeq} [8hrs(23:00-07:00)]	<1 but ≥0	Negligible
	0	No Change

Table 9.2: Classification of magnitude on noise impact criteria

- c. The different levels of significance relating the magnitude of impact with the sensitivity of the receptor are defined below:

Magnitude of Adverse Impact	Level of significance Relative to NSR		
	Low	Medium	High
Major	Moderate	Substantial	Severe
Moderate	Minor	Moderate	Substantial
Minor	Minor	Minor	Moderate
Negligible / No Change	Minor/Neutral	Minor/Neutral	Minor/Neutral

Table 9.3: Level of Significance

Where:

Severe environmental significance is associated with the impacts where mitigation is not practical or would be ineffective and could influence the decision whether or not to proceed with the project.

Substantial environmental significance is associated with the effects that are important considerations, which could result in adverse effects if they are not mitigated.

Moderate environmental significance could have an influence on the decision unless it is mitigated.

Slight/Neutral environmental significance will not have an influence on the decision or require modification on the project design or alternative mitigation and noise need not be considered as a determining factor in the decision process.

6. Mitigation for onsite impacts

A summary report of findings from the noise impact study and any remedial action and/or mitigation measures which are to be implemented by the developer in order to reduce impacts resulting from the site of operation should be included. A number of various ways to control the noise exposure to people should be limited through one of the following designs:

- Sound insulation and facade insulation treatment;
- Containing noise – acoustic screening and barriers around site; and
- Protecting noise-sensitive buildings and areas – improving sound insulation, screening with purpose-designed acoustic barriers.

Appendix III

Terms of Reference for an Air Quality Assessment

Legal background:

Regulation 29 of S.L. 549.59, grants ERA the power to issue guidance notes on the conduction of Air Quality Studies which are required by any Regulations issued under the Environment Protection Act including the EIA Regulations (S.L. 549.46).

Part II of Schedule 7 to S.L. 549.59 sets the following (legally binding limit values): an annual limit value of $40\mu\text{g}/\text{m}^3$ for PM_{10} , a daily limit value for PM_{10} of $50\mu\text{g}/\text{m}^3$ which can not be exceeded on more than 35 calendar days (90.4% of the daily readings in a calendar year should be $< 50\mu\text{g}/\text{m}^3$), an annual limit value $40\mu\text{g}/\text{m}^3$ for NO_2 and an hourly limit value of $200\mu\text{g}/\text{m}^3$, which can not be exceeded more than 18 times per calendar year.

Regulations 19 and 20 of LN 78 of 2010 give ERA the responsibility to ensure that the above mentioned limits are complied with across Malta and Gozo.

0. **Applicability**

These terms of reference are applicable to all development applications irrespective of whether or not it qualifies for an Environmental Impact Assessment, as long as the expected increase in traffic flows due to the operation of the project is ≥ 1000 passenger cars AADT or ≥ 200 HDV AADT.

The Air Quality study shall be conducted as follows:

1. **Content**

The air quality study shall *inter alia* include the following sections:

- a) *The relevant details of the proposed development:* This should include an overview of the expected traffic changes when the project is FULLY operational. The report should also include a brief introduction to the sensitivity of the area to increases in traffic flows and changes in air pollution levels keeping in mind the NO_2 levels registered by the passive diffusion tubes (include in ERA's network) sited closest to the site.
- b) *Description of the relevant immission standards with reference to S.L. 549.59.*
- c) *The assessment methods:* This section shall include any relevant details on the methods used in order to monitor the base line levels of NO_2 and PM_{10} , including any proof of equivalence to the reference method(s) as applicable (see 2.i and 2.n below). The section shall also include a part outlining the core details of the model (including version number) being used in order to predict the impact of the development. The consultants shall also include details on all the input data used and its source, including features of the traffic flows used, speeds, apportionment by vehicle type etc.
- d) *Site selection:* This section shall include the considerations made by the consultants in the selection of the monitoring site. The consultants shall also show how the selected site matches the site selection criteria in Annex I and the additional criteria Section 2 paragraph k).
- e) *Model verification:* Model verification involves a comparison between the predicted and the measured values for both PM_{10} and NO_2 . Any errors between modeled and measured values should be adequately corrected. In addition consultants are expected to include estimates of the uncertainties in the traffic flows, vehicle emission factors and background concentrations. Any modeled concentrations should include a cumulative sensitivity analysis for these uncertainties (the effect of each uncertainty

should be clearly outlined). The limitations of the model should be clearly stated e.g. the software's inability to model dispersion of air pollutants if the air flow is affected by trees or the inability to model pollutant concentrations in street canyons.

- f) *Identification of sensitive receptors*: For the projects in Annex II to this document and within the scope of S.L. 549.46, the consultants will be required through the use of software modeling traffic flows, to delineate the extent of the area affected by increased traffic flows due to the project. Baseline studies may be required for more than one location. Any sensitive receptor within this area shall be clearly identified through the use of a GIS package. For any other project the identification of sensitive receptors shall be limited to a 3km radius around the site. Sensitive receptors include schools, retirement homes, residential units, hospitals, etc.
- g) *Description of the baseline conditions*: This section should details on location of the points at which the air quality monitoring was carried out, the reason for which this particular site was used the sampling period, data capture, the scale up factors provided by ERA and if possible a break-up of the base line levels of the pollutant by the source.
- h) *Assessment of impact*: Results of the modeling for the "with development" scenario should be clearly set out in tables and also through the use of contour maps (which shall include the sensitive receptors identified in e) above), this should be compared to the "without development" scenario with respect to both the table and the contour map. The comparison between both scenarios shall also be applied to each of the sensitive receptors identified in e) above.
- i) *Determination of the significance of the impact*: The table in section 4 (and the tool made available through the ERA website) shall be used for each of the sensitive receptors identified in e) as well as for the modeled concentrations at the site where the monitoring was carried out.
- j) *Cumulative impacts*: If in the area there are other planned developments, which have already been granted development consent then the contribution of these developments should also be considered at a point in the future when these are fully operational.
- k) *Mitigation measures*: If the effect of the project is substantially adverse or worse, then the report shall include any mitigation measures, which have been identified and, which will reduce the impact of the project to at least slightly adverse. Non-quantifiable measures will not be expected.
- l) *Summary of the report*: The report should be written in clear, concise, grammatically correct English. If the English of the report is unacceptable, the report shall be sent to the consultants for correction and ERA will not take any responsibility for any delays in the process.

2. **Base Line Studies**

- a) The baseline levels of PM₁₀ and NO₂ shall be established through *in-situ* monitoring;
- b) Baseline levels of PM₁₀ shall be determined using the reference method (EN 12341:2014) for the determination of PM₁₀;
- c) The consultants should use the reference method for the sampling and measurement of PM₁₀;
- d) The design criteria for the samplers shall be as per Annex B to the said standard and shall be as per Section IV of Annex IX: EN 12341: 2014;

Inlet Design

Flow rate

Filters

See Section 5.1.2 and Annex A of EN 12341:2014	To a nominal value of 2.3 m ³ .hr ⁻¹ see Section 5.1.5 of EN 12341:2014	The instantaneous value of the flow rate shall be kept within 5% of the nominal value. The volumetric flow rate averaged over the sampling period shall be within 2% of the nominal value, see Section 5.1.5	Circular: such that the diameter of the exposed area through which the sampled air passes is between 34mm and 44mm.
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Figure 1.1 design criteria for the samplers.

- e) The resolution of the balance used for the weighing of filters sampled using an LVS shall be at least 10 µg, Section 5.2.2 of EN 12341:2014;
- f) The filters should be conditioned for at least 48 hours (Section 6.2 of EN12341:2014) at 50% relative humidity (+ or - 5%) with an uncertainty of ≤ 2% RH and at 20 °C (+ or - 1 °C) with an uncertainty of ≤ 0.2 °C, according Table 2, Section 5.2 of EN12341:2014.
- g) The filters should be weighed at least twice for concordance (the difference between successive readings shall ≤ 40µg, Section 6.2 of EN12341:2014) with a time lag of at least 12 hours between the two weightings;
- h) Flow rates are at ambient volumes not at normalised volumes. The weighing shall take place in the same climate controlled room at the same environmental conditions as in f);
- i) Consultants can use alternative sampling and measurement methods if they demonstrate to ERA's satisfaction, equivalence to the above mentioned method under the Maltese air pollution climate. Equivalence shall be determined using the [European Commission's method for the determination of equivalence](#); any other method shall be deemed unacceptable. ERA will accept certificates of equivalence issued by third parties, which have been based on the method herein;
- j) Compliance with non-European standards does not satisfy the requirements above;
- k) Regarding the siting of the sampler/diffusion tube, the consultant shall submit a method statement indicating the location of the sampler/diffusion tube. The sampling point(s) should not be within the site to be developed or exactly adjacent to it, but should be sited at a location representative of the thoroughfare on which the highest traffic impacts (due to the project) are expected. In addition the consultant is obliged to use all the criteria in Annex I to determine the sampling location. In addition the ERA may at its discretion ask the consultant to change the location of the sampler;
- l) The sampling time shall be no less than 6 weeks and extendible by a further 3 weeks depending on the nature of the case and the consultant shall use a scale up factor to scale this up to a yearly average. The scale up factor shall be forwarded by ERA to the consultant;
- m) The consultants shall discard readings influenced by Saharan dust intrusions. These episodes are characterized by a marked spatial consistency, demonstrated by concomitant peaks in the levels of PM₁₀ (and PM_{2,5}) across the Maltese Islands (see Figure 1 below). The consultants shall use this in conjunction with following two tools to confirm the occurrence of these episodes a) [MACC ensemble](#) and b) [HYSPLIT back trajectory model](#).

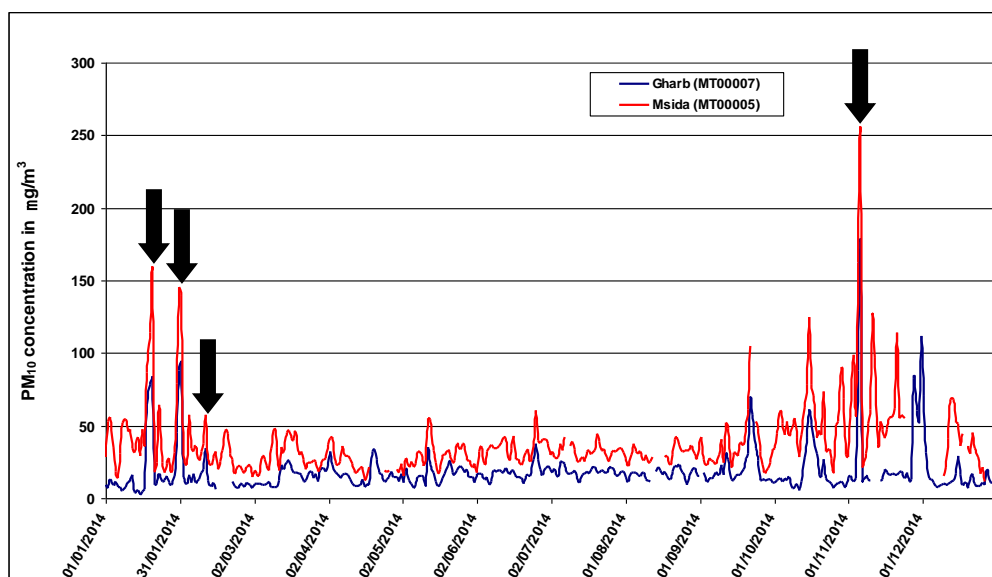


Figure 1: Comparison of the PM₁₀ levels in Għarb (blue) to the PM₁₀ levels in Msida (red) measured in 2014. The black arrows show some of the Saharan events throughout 2014.

- n) The PM₁₀ dataset shall in no case consist of <42 or <63 (depending on whether the baseline monitoring period has been set for 6 or 9 weeks) daily readings, excluding any discarded readings.

Baseline levels of NO₂.

- o) Baseline levels of NO₂ shall be determined using EN 14211:2005. The consultant may use passive diffusive tubes if it is shown that the latter are equivalent to the reference method.
- p) If the consultant opts for passive diffusion tubes, he shall forward at least 1 article in a peer reviewed journal e.g. Pfeffer *et al.* (2010) – *Gefahrstoffe-Reinhalt der Luft*, 70, 500-506, which shows that the equivalence of these tubes has been demonstrated for field trials (not exposure chambers) in at least 1 EU Member State. Equivalence should preferably, also have been demonstrated in Malta. The field trial shall include the comparison of at least 40 individual measurements taken throughout a whole calendar year. Equivalence shall be determined using a modification of European Commission's method for the determination of equivalence for PM₁₀; any other method shall be deemed unacceptable
- q) The sampling point for NO₂ shall be the same as for PM₁₀.
- r) The sampling time shall be identical to the one for PM₁₀ (i.e. no less than 6 weeks and extendible by a further 3 weeks depending on the nature of the case). The consultant shall use a scale up factor to scale this up to a yearly average. The scale up factor shall be forwarded by ERA to the consultant.

Annualisation of the 6 (or 9) week averaged values for PM₁₀ and NO₂.

- s) The factor in l) and p) above shall be based on the use of the following equation (adapted from LAQM TG(16), April 2016 version):

$$CAA = \frac{p_{y+1}^{x \text{ weeks}}}{p_y^{x \text{ weeks}}} \times P_y^{52 \text{ weeks}}$$

Where:

CAA is the corrected annual average;

$p_{y+1}^{x \text{ weeks}}$ is the concentration of NO_2 or PM_{10} measured by the consultants throughout the 6 (9) week (baseline) monitoring period;

$p_y^{x \text{ weeks}}$ is the concentration of NO_2 or PM_{10} measured throughout the same 6 (9) week monitoring period of the preceding year at a comparable ERA fixed station; and

$P_y^{52 \text{ weeks}}$ is the annual average of NO_2 or PM_{10} measured at the comparable ERA fixed station.

Traffic Counts.

- a) The consultant shall also take traffic counts at the main junctions near the monitoring site. The number and location of the counters are to be approved by ERA, (unless longer term traffic counts are already available).
- b) The traffic count shall take into consideration the vehicle type and the legislation class.
- c) The consultant shall use an appropriate model in order to scale the traffic counts obtained during the 6 (or 9) week period to AADT.

3. Modeling

a) Once the baseline levels have been obtained the consultant shall determine the impact of the project on air quality through dispersion modeling.

b) The following models are deemed acceptable by ERA:

IMMIS^{em}

BREEZE Roads.

ADMS-Urban

c) The model used should use the logic outlined by e) below,

d) The consultant shall use exclusively the emission factors in the latest version of the Handbook of emission factors for road transport emissions ([HBEFA v 3.2](#)). The average age of the Maltese vehicle fleet shall be taken as 13 years.

e) The use of other emission factors is not acceptable.

f) The consultant shall estimate the ambient background levels for both NO₂ and PM₁₀. The approach in Figure 2 below shall be deemed acceptable for both pollutants.

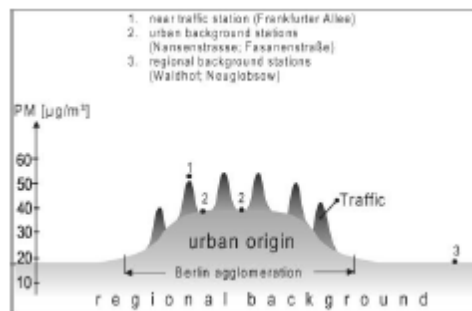


Figure 2: Horizontal profile for PM₁₀ concentration, Lenschow *et al.* (2001) – *Atmospheric Environment* 35, 29-33.

g) The rural background can be captured through the use of the [EMEP](#) or [LOTOS-EUROS](#) model at a resolution of 50km × 50km (The [GAINS](#) model might have to be used for emissions data for the EU), the urban background can be captured through the use of a model such as [CHIMERE](#) at a resolution of 7km × 7km.

h) The predictions of the model shall be assessed by comparing the modeled data to the monitoring data provided by the baseline studies. The modeled data must not deviate by more than ±20%.

i) Other methods can be used in order to determine the background levels of NO₂ and PM₁₀, including statistical methods aimed at deriving “horizontal profiles” similar to the ones in Figure 1 (see e.g. Gómez-Losada *et al.*, 2016 – *Atmospheric Environment* 127, 255-261) and based on a full year’s dataset, interpolation of data from the nearest ERA diffusion tubes, etc.

j) The consultant should clearly explain the rationale behind the determination of the background levels.

k) The consultant shall use the model to project the annual PM₁₀ and NO₂ levels into the future, when the project is fully operational taking into account the cumulative impact of projects in the area, which have been granted development consent.

l) The consultant shall model two distinct scenarios: A) without the project and B) with the project.

- m) Results shall be displayed as a colour-coded contour map with the modelled annual concentrations of NO₂ and PM₁₀ as well as the calculated 90.4th percentiles for the daily PM₁₀ levels (calculated using the equation in q) within a 3km radius and especially at the sensitive receptors in point 1e. The position of the sensitive receptors shall be clearly labeled.
- n) For the annual averages of NO₂ and PM₁₀ as well as for the 90.4th percentile of the PM₁₀ levels, the contour maps shall show the situation with the scheme and without the scheme.
- o) Contour plots for the 90.4th percentile of the PM₁₀ levels shall include the error in the prediction of this value, which shall be calculated using the equation in q).
- p) For the three criteria above the consultants shall also draw colour-coded contour maps expressing the difference in the annual levels/90.4th percentile, between the two scenarios (with and without the scheme) in terms of the significance criteria in 4 b) and 4 c).

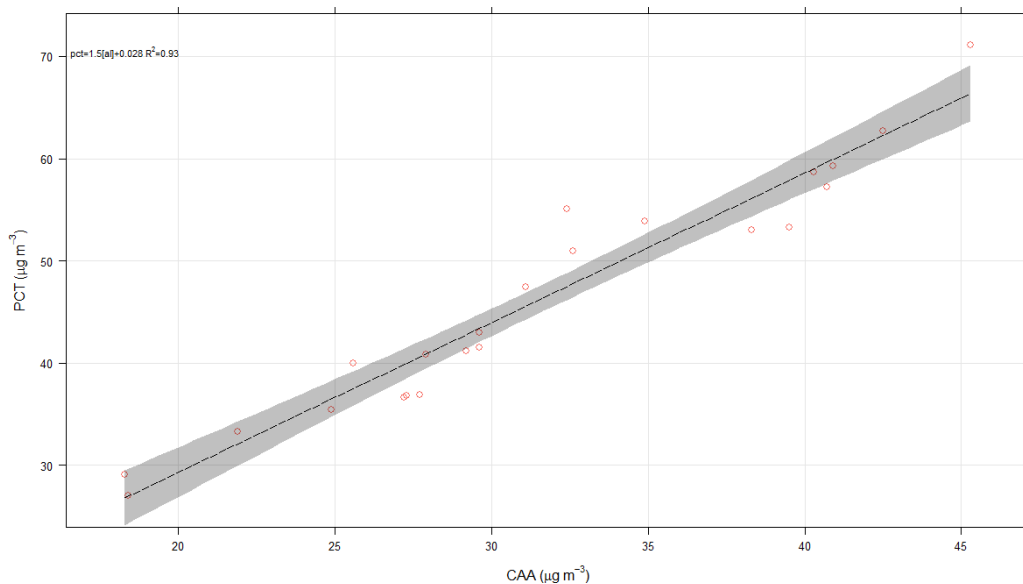


Figure 3: Plot of CAA vs PCT
see e.g. Querol *et al.* (2004) – *Journal of Aerosol Science* 35.9, 1151 – 1172.

- q) The consultant shall calculate the baseline of the 90.4th percentile of the daily PM₁₀ using the following equation:

$$PCT = (1.46 \times CAA) - 0.03$$

Where CAA (in µg/m³) is the average of the 6 (or 9) week monitoring period and corrected to an annual average using a factor, which shall be determined by ERA, PCT is the 90.4th percentile of the daily PM₁₀ averages in µg/m³. The equation above will be modified on a yearly basis by ERA.

- r) If PCT > 50 µg/m³ then it is likely that the site is not in compliance with the 90.4th percentile criterion.
- s) The consultant shall also use the modeled annual levels for PM₁₀ (AA) to calculate the PCT due to the project using the same equation as in n) but substituting AA for CAA.
- t) For scaled up annual averages (CAA) <29µg/m³ the consultants will not be obliged to analyse for compliance with the 90.4th percentile criterion.

- u) For NO₂ the consultant shall assume that the annual mean is always exceeded before the allowed number of hourly exceedances.
- v) Any assumptions must be clearly stated by the consultant.

4. Significance Criteria

- a) The following criteria of significance (adapted from IAQM's Planning for Air Quality Guidance, January 2017 version) shall be used by the consultant to determine the significance of the impact at all sensitive receptors and at any point within the 3km radius at which the impact of the project on traffic increases is the highest.
- b) A significance criteria tool shall be made available on the ERA website, for guidance and interpretative purposes.
- c) For annual levels of NO₂/PM₁₀ in µg/m³.

		<i>Change in the annual NO₂/PM₁₀ (dAA) levels due to scheme (µg/m³).</i>			
		<i>dAA ≤ 0.4 µg/m³</i>	<i>0.8 µg/m³ ≤ dAA ≤ 2.0 µg/m³</i>	<i>2.4 µg/m³ ≤ dAA ≤ 4.0 µg/m³</i>	<i>dAA > 4.0 µg/m³</i>
CAA for NO₂/PM₁₀ (µg/m³)	CAA ≥ 44µg/m ³	MODERATE	SUBSTANTIAL	SUBSTANTIAL	SUBSTANTIAL
	43.6 µg /m ³ ≤ CAA ≤ 41.2 µg/m ³	MODERATE	MODERATE	SUBSTANTIAL	SUBSTANTIAL
	40.8 µg /m ³ ≤ CAA ≤ 38.0 µg/m ³	SLIGHT	MODERATE	MODERATE	SUBSTANTIAL
	37.6 µg/m ³ ≤ CAA ≤ 30.4 µg/m ³	NEGLIGIBLE	SLIGHT	MODERATE	MODERATE
	CAA ≤ 30 µg/m ³	NEGLIGIBLE	NEGLIGIBLE	SLIGHT	MODERATE

- d) For compliance with the 90.4th percentile criterion for PM₁₀.

		<i>Change in the PCT (dPCT) due to scheme (µg/m³).</i>			
		<i>dPCT ≤ 0.5µg/m³</i>	<i>1.0 µg/m³ ≤ dPCT ≤ 2.5 µg/m³</i>	<i>3.0 µg/m³ ≤ dPCT ≤ 5.0 µg/m³</i>	<i>dPCT > 5.0 µg/m³</i>
PCT (µg/m³)	PCT ≥ 55µg/m ³	MODERATE	SUBSTANTIAL	SUBSTANTIAL	SUBSTANTIAL
	54.5 µg /m ³ ≤ PCT ≤ 51.5 µg /m ³	MODERATE	MODERATE	SUBSTANTIAL	SUBSTANTIAL
	51.0 µg /m ³ ≤ PCT ≤ 47.5 µg /m ³	SLIGHT	MODERATE	MODERATE	SUBSTANTIAL
	47.0 µg/m ³ ≤ PCT ≤ 38.0 µg/m ³	NEGLIGIBLE	SLIGHT	MODERATE	MODERATE
	PCT ≤ 37.5 µg/m ³	NEGLIGIBLE	NEGLIGIBLE	SLIGHT	MODERATE

- e) Whenever the impact of the project is determined to be “negligible” no further action will be required from the developer.
- f) If the impact of the project is classified as “substantially adverse” then ERA will not recommend approval unless the project is modified in such a way (including scaling down) that the significance of the impact is measurably lessened to at least “slightly adverse”. In this case a green travel plan will not be considered as sufficient.
- g) If the impact of the project is “moderate adverse” then the developer will be asked to modify the project. The modifications can include a green travel plan which has to include specific, measurable⁴ and achievable objectives together with their respective implementation time-frames. The developer will be asked to finance at least in part, the implementation of the green travel plan. The implementation of the plan will have to be audited and eventually updated by the developer on a periodic basis. If the green travel plan does not lower the significance of the impact then the developer will be asked to take additional measures, which may include scaling-down the project.
- h) If the impact of the project is slightly adverse then the developer will be asked to consider alternatives, which will lessen the impact of the project.

Concluding Remarks

- a) The air quality study shall consider the **cumulative** impact of all development taking place and/or which is planned for the site in question irrespective of the number of separate Planning Applications involved.
- b) If the applicant decides to develop a part of the site at some point in the future, then a full air quality study will be requested and this will have to consider the cumulative impact from the whole site, in line with the ERA Guidelines on the issue. This requirement will apply irrespective of the incremental increase in traffic flow as a result of the latter development.

⁴ The term measurable in this context means that the green travel plan shall quantify the reduction in the pollutant levels (in $\mu\text{g}/\text{m}^3$), over the scenario leading to the classification of the impact as “moderately adverse”.

ANNEX I

Site selection Criteria mention in Section 1 d) and in Section k).

- i. PM₁₀ samplers shall sited at least 500m from:
 - a) dust piles;
 - b) construction/demolition/excavation sites & quarries;
 - c) dirt tracks;
 - d) un-asphalted surfaces;
 - e) surfaces which are visibly covered with dust; and
 - f) any other surface or activity likely to lead to the entrainment of dust
- ii. There shall be absolutely no bends in between the PM₁₀ sampling head/sampling inlet for NO₂ and the analyser.
- iii. The height of the PM₁₀ sampling head/sampling inlet for the NO₂ analyser/NO₂ passive diffusive tube shall be $\geq 1.5\text{m}$ and $\leq 4\text{m}$ above the ground.
- iv. For active samplers, the exhaust outlet shall be positioned in such a way that recirculation of the exhaust air to the sampling inlet is avoided.
- v. The distance of the PM₁₀ sampling head/sampling inlet for the NO₂ analyser/NO₂ passive diffusive tubes from the edge of any road junction shall be $\geq 25\text{m}$.
- vi. The PM₁₀ sampling head/sampling inlets for the NO₂ analyser/NO₂ passive diffusive tube shall be placed at $\leq 10\text{m}$ from the kerbside.
- vii. The flow around the PM₁₀ sampling head/sampling inlets for the NO₂ analyser/NO₂ passive diffusive tube shall be unrestricted, without any obstructions in the vicinity of the sampler i.e. free in an arc of at least 270°.
- viii. The PM₁₀ sampling head/sampling inlets for the NO₂ analyser/NO₂ passive diffusive tube shall in no case be at < 0.5 from the nearest building.

Note: The selection of the site is solely the consultants' responsibility. ERA will not waive the requirement for in situ monitoring due to erroneous readings resulting from poorly chosen monitoring sites. The 6 (or 9) week monitoring period will apply regardless of any time constraint the consultants might have. ERA will therefore not assume responsibility for any delays caused by this issue.

ANNEX II

(Projects identified in section 1f).

Projects falling within the scope of the following categories in Schedule I of LN 412 of 2017 are covered by the article above:

All Section 1 (*General land use*) projects depending on the type of project.

The following projects within Section 2 (*Transport Infrastructure Projects*):

Section 2.1 (*Roads*) - Category I

2.1.1.1;
2.1.1.2.

Section 2.1 (*Roads*) - Category II

2.1.2.1.

All projects in Section 2.2 (*Airports*) irrespective of the Category;

The following projects within Section 6 (*Development on the coast or at sea – including ports*):

Section 6.1 (*Ports, Marinas and Waterways*)

6.1.1.1;
6.1.1.2.

All the projects in Section 7 (*Urban Development and Recreational Projects*), with the exclusion of:

Section 7.1 (*Urban Development Projects*)

7.1.2.2;

7.1.2.3 unless it is accompanied by a Section 2, Section 6 or a Section 7 project, which is not covered by this exclusion.

Section 7.2 (*Recreational or Sporting Establishments*)

7.2.1.1;
7.2.2.3;
7.2.2.4.

The following projects within Section 12 (*Industrial Development*)

Section 12.7 (*Industrial Estates*)

12.7.2.1.

Section 13.0 (*Changes or Extensions to approved projects, and reactivation of projects*) on a case by case basis.