

Environmental Impact Assessment

Appropriate Assessment

Water Policy Framework

(Screening according to Schedule III of S.L. 549.46, S.L. 549.44 and S.L. 549.100, respectively)

ERA Ref.: EA/00034/24

PA Ref.: TRK289962

Project title: Demolition of existing boundary walls, site clearance, and excavation to the required levels, followed by the construction of an extension to the existing Sewage Treatment Plant. The extension will include a pre-treatment area, a new water plant room, thickening and dewatering facilities, a ferric dosing kiosk, a subterranean sludge holding reservoir, and an MBR area. The proposal also includes the deviation of an existing public rural road and the construction of traditional rubble walls along the site perimeter.

Location: Site at Iċ-Ċumnija, Il-Mejjeli, Mellieha.

Date: November 2024

I. BACKGROUND

1. Outline of Proposal

- 1.1. The proposal involves the upgrading of the existing wastewater treatment plant (WWTP), through the construction of an additional treatment unit, to cope with the required demand for sewage treatment, and a new underground inlet flow pipe for connection to the existing pumping station (refer to figure 1-3).
- 1.2. The WWTP which has been in operation since 2009, has a current operational water treatment rate of 6,700 m³/day and serves a catchment population of 49,620 residents. Due to increasing population, resulting in an increasing wastewater generation, the plant is proposed to be upgraded to obtain an operational treatment rate of 20,000 m³/day, serving up to 121,000 residents. The extension will meet future operational demands until 2040 (refer to the forecasted parameters in table 1 below).
- 1.3. In view that the continuous wastewater treatment at the existing plant cannot be interrupted, the additional unit is proposed to be constructed on a plot of land adjacent to the site. The proposed additional unit would include Membrane Bioreactor (MBR) technology to ensure the provision of high-quality effluent. Following upgrading, the full treatment cycle would include the following stages (also refer to figures 5 below, showing a conceptual diagram of the treatment process):
 - Pumping of wastewater from the pumping station to the plant;
 - Pre-treatment of the raw wastewater;
 - Phosphorus removal;
 - Biological treatment followed by solid/liquid separation (MBR plant);
 - Sludge treatment; and
 - Water reclamation.
- 1.4. The newly proposed unit would account for the pre-treatment, MBR, sludge treatment and water reclamation, and the detailed process flow is indicated in figure 4 below.

- 1.5. The project is envisaged to generate c. 17,000 m³ of waste, consisting primarily of excavated material (limestone and soil) as well as any dumped material encountered during site clearance works and off-cuts generated during construction works. The proposed works would generate approximately 16 daily trips by heavy construction vehicles and 15 daily trips by cars and minivans.
- 1.6. During operations, the upgraded plant is expected to generate between 8 to 16 m³ of dewatered sludge per day (equivalent to 1-2 truckloads per day), as well as 3-4 truckloads per day of washed screenings and grit. All such waste is proposed to be transported in sealed containers to Wasteserv's landfill. Treated wastewater would be discharged through the existing discharge point, with the volume of treated discharge increasing from 12,000 to 20,000 m³ per day. Due to additional treatment using an Advanced Oxidation Process, 8000 m³ (maximum, during peak operation) of treated wastewater could be reused as 'New Water' for irrigation purposes in agriculture. The increased treatment capacity will reduce the likelihood of any discharge of untreated wastewater during peak flows.
- 1.7. Operational traffic generation will be limited to personnel (2 additional staff members) and the truck movements mentioned above, involving 1-2 hook loader truck trips per day, and 3-4 weekly truck trips, to cart away washed screenings and grit.



Figure 1 – Proposed additional unit to WWTP (Source: PDS)

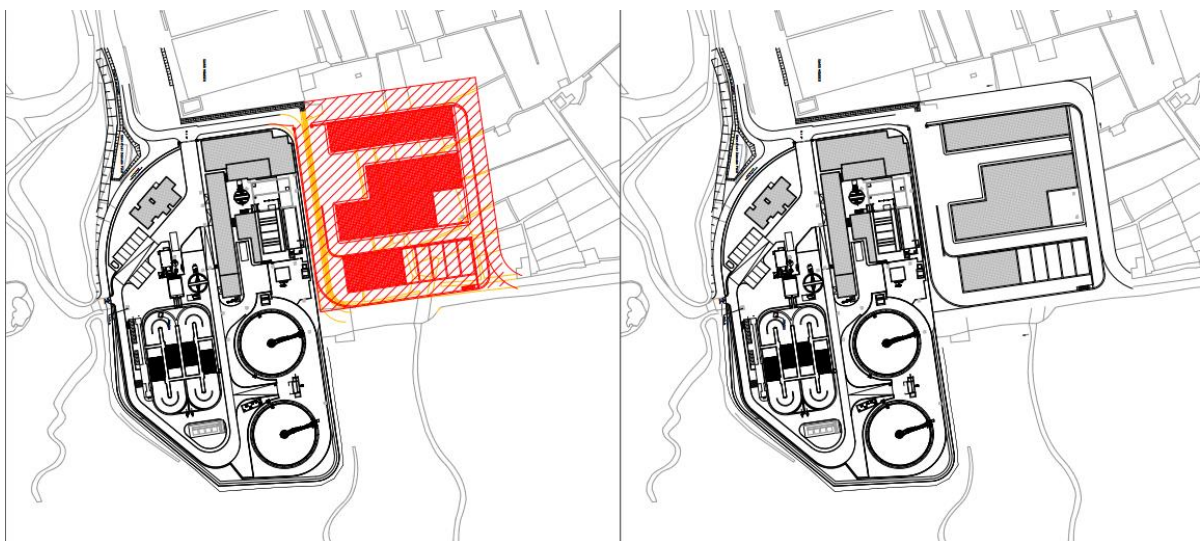


Figure 2 – Left: Existing/proposed plan, right: proposed plan (Source: TRK289962)

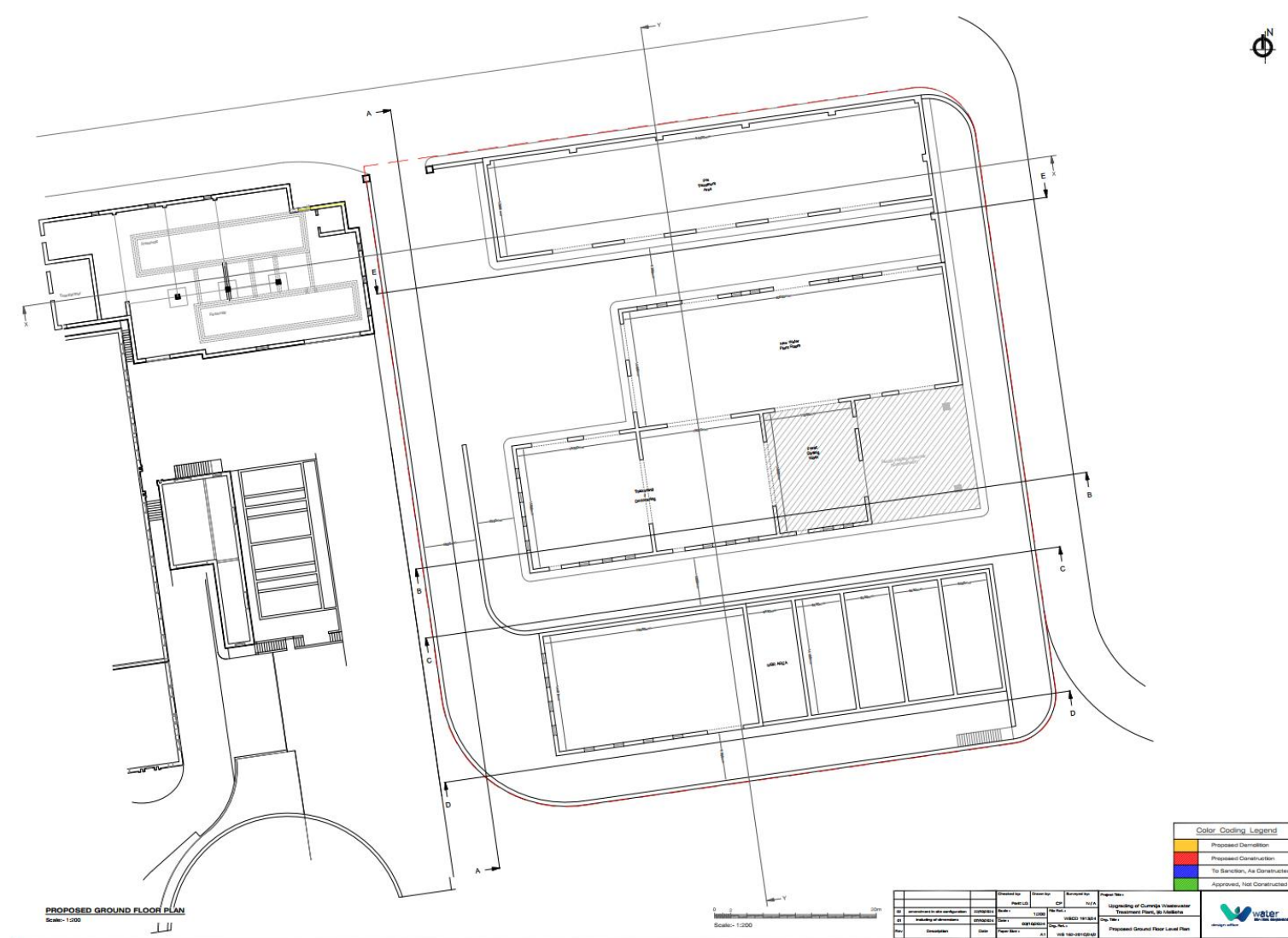


Figure 3 – Proposed plan - detailed (*Source*: TRK289962)

Table 1: Proposed parameters of upgraded WWTP (*Source*: PDS)

VOLUME			ČUMNIJA WWTP RAW WASTEWATER - 2040		
Minimum (m³/d)			5,519		
10%ile (m³/d)			17,054		
DWF 20%ile (m³/d)			17,640		
Average Flow (m³/d)			20,000		
Maximum Flow Pre-Inlet Works			52,919		
Maximum Screened Flow to			30,198		
POLLUTANT (AVERAGE)	AVERAGE		80%ILE (DAILY)		95%ILE
	[mg/l]	[kg/d]	[mg/l]	[kg/d]	[mg/l]
COD - Chemical Oxygen	840.0	16,800	1,009	20,277	2,086
BOD5- Biological Oxygen	293.0	5,860	376	7,261	407
TSS - Total Suspended Solids	381.0	7,619	388	8,721	870
TN - Total Nitrogen	71.0	1,424	82	1,673	99
NH ₄ -N - Ammonia	70.0	1,40	81	1,642	94.24
TP - Total Phosphorus	8.0	159	9.4	195	12.03
Chloride	762.0	15,247	950	18,859	997
Conductivity (µs/cm)	3,677.0	NA	5,054	NA	4,798
pH range	6.4 – 8.0				

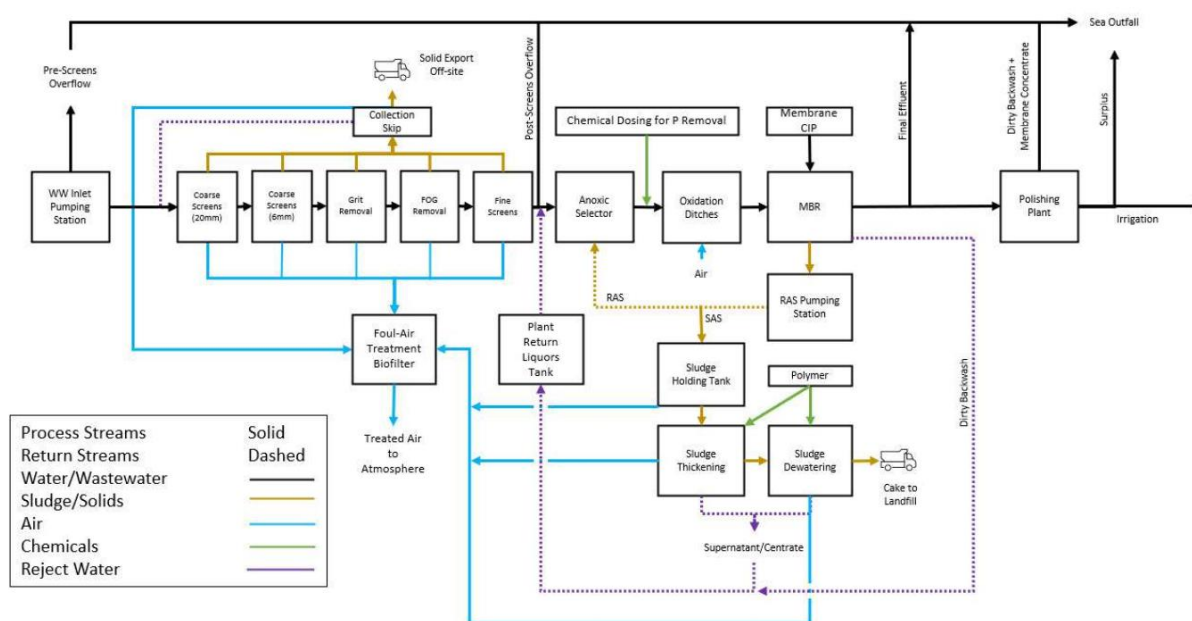


Figure 4 - Detailed process flow of new treatment unit (Source: PDS)

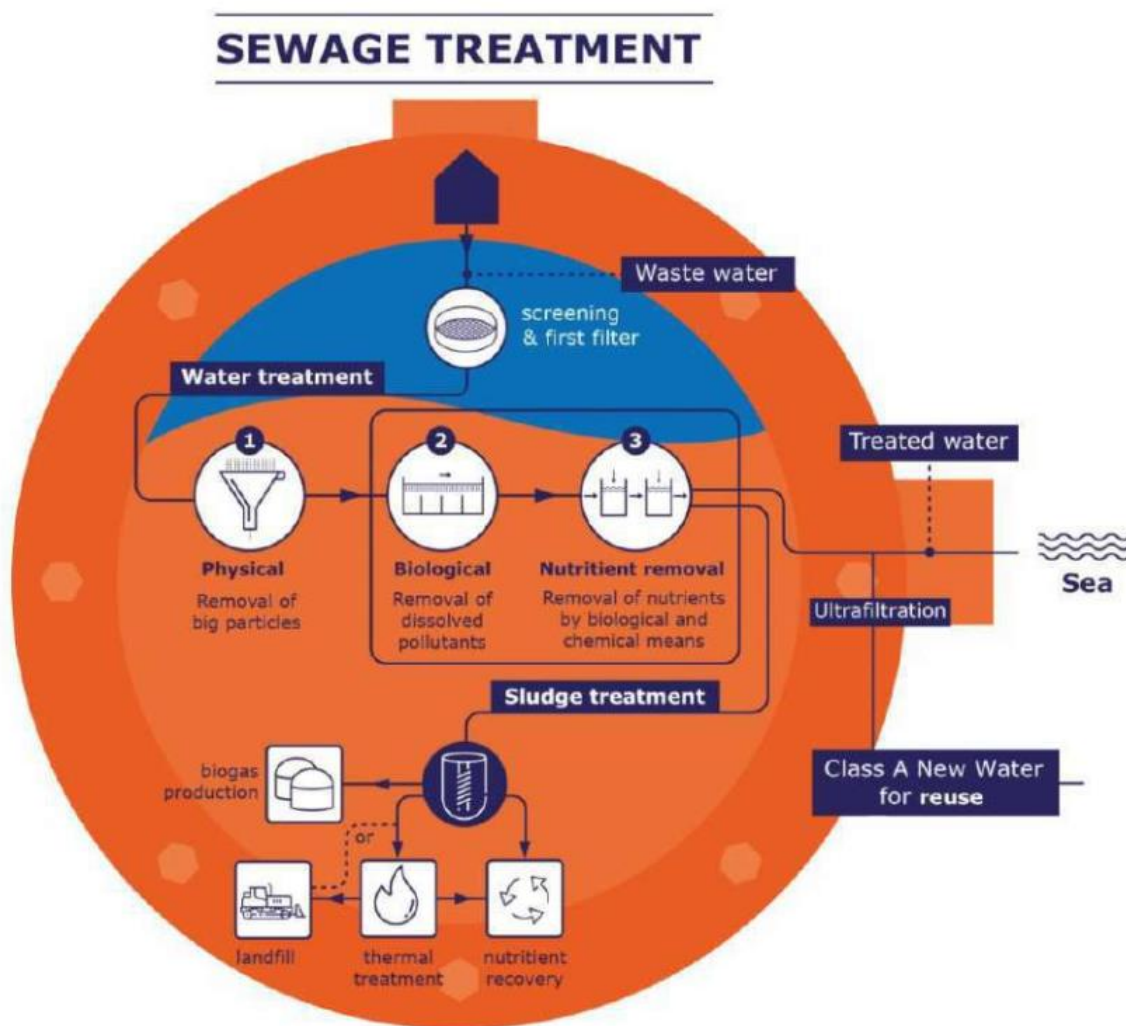


Figure 5 – Conceptual diagram of wastewater treatment process (Source: PDS)

2. Site context and history

- 2.1. The Ċumnija Wastewater Treatment Plan (WWTP) is situated within the limits of Mellieħa, in an area known as iċ-Ċumnija, at the western edge of the Għadira isthmus (see figures 6-7). The site measures approximately 6,500 m², and is in close proximity to the coastal cliffs, where an outflow pipe is reaching the sea. To the east of the site, along the access road, a pumping station is located.
- 2.2. The plant serves the Malta North wastewater catchment area, which includes Mellieħa, St. Paul's Bay and Mġarr. This catchment area has seen an increase in population and usage over the years, resulting in an increase in wastewater generation.
- 2.3. The plot of land on which the proposed additional treatment unit is proposed is presently agricultural land, divided into several parcels. The wider area to the North and East (north of the access road) is also characterised by agricultural uses. The area to the South of the WWTP is predominantly rural, characterised by coastal garrigue. Furthermore, quaternary deposits are present in this valley area.
- 2.4. The geology on site is Upper Coralline Limestone, capped with soil (Terra Rossa soil, from the Xagħra series). A geological fault crosses the site. The site is overlying the Mellieħa Coastal groundwater body (MT009).

- 2.5. The site partially overlaps with two terrestrial Natura 2000 sites, namely MT0000024 (Rdumijiet ta' Malta: Mir-Ramla tač-Čirkewwa sar-Ramla tal-Mixquqa and MT0000015 (L-Inħawi tal-Għadira). In addition, the plant's outflow discharges treated wastewater into the marine Natura 2000 site MT0000112 (Żona fil-Baħar Madwar Għawdex) (see Figure 8. Further details are also provided in section 4.2 below).

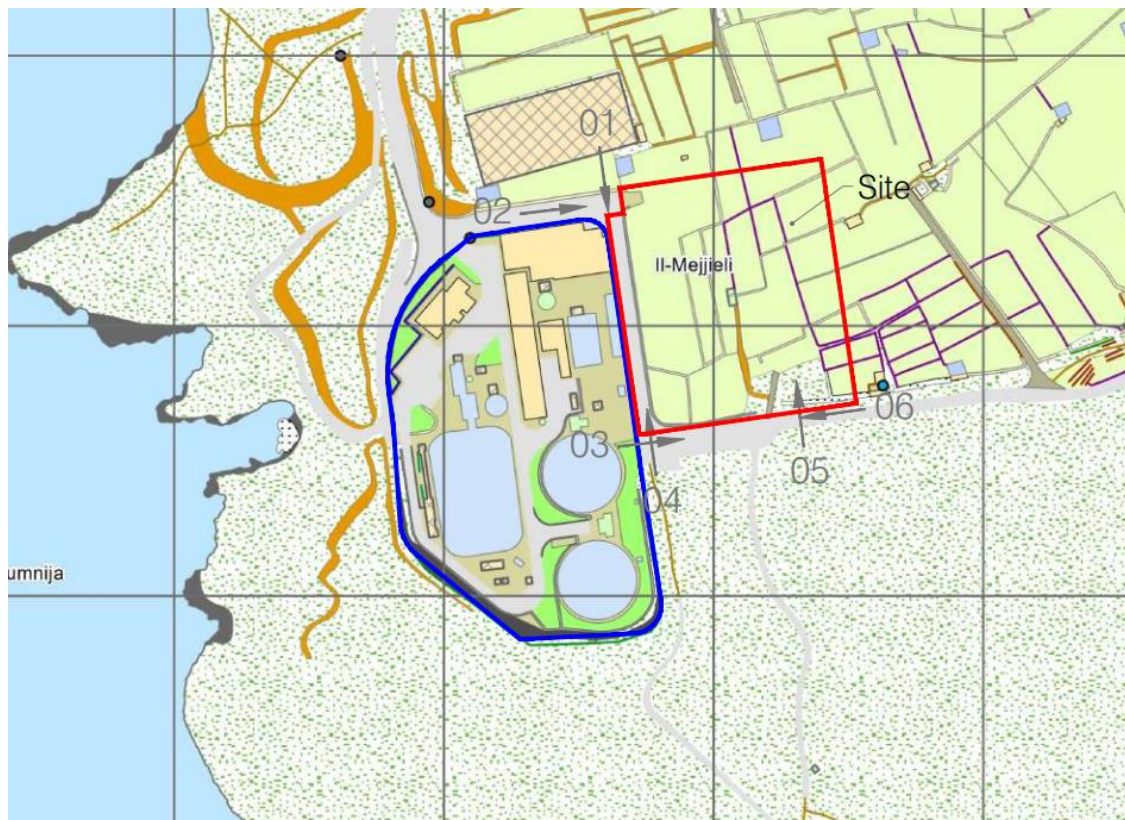


Figure 6 – Site boundary – area for extension marked in red (Source: TRK289962)



Figure 7 – Orthophoto of site and surroundings (Source: Google maps)

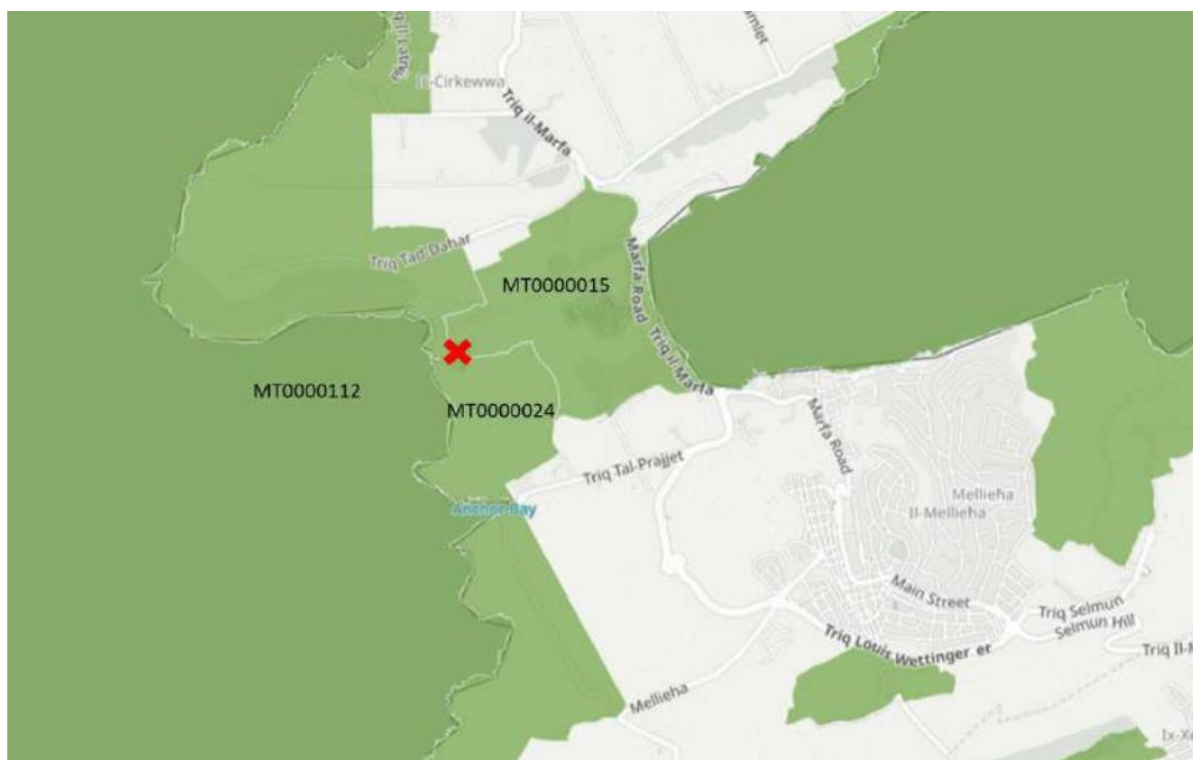


Figure 8 – Location of Natura 2000 sites (Source: PDS)

3. Case history

- 3.1. The existing WWTP was subject to an environmental impact assessment in 2005 by the then MEPA, as per GF 0046/01. This assessment was undertaken in relation to planning application PA/06044/03 (Construction of an urban wastewater treatment plant, iċ-Ċumnija l/o Mellieha) (Approved).
- 3.2. In addition, the plant is also subject the following planning applications:
 - PA/00065/16 - To replace marked weathered stone with new stone, and plaster facade with earth coloured paint to protect it from the natural elements. (Approved);
 - PA/03135/16 - Installation of a communal PV farm system on top of the WSC sewage treatment plant. Includes PV panels inclined at a 10deg angle and necessary trenching works to connect electricity cables to the existing substations (Approved); and
 - PA/04475/21 - Complete removal of heavily deteriorated outer skin of facades, reconstruction with hollow concrete blocks to be then cladded with earth coloured high density natural stone (Approved).
- 3.3. The plot of land on which the plant's extension is proposed is not subject to any previous planning applications.

4. Screening Criteria

4.1 **EIA Screening** (citations refer to S.L. 549.46):

The proposed development falls within the scope of S.L. 549.46, notably in terms of the following Category II criteria in Schedule I:

- Section 13.0.2.1 (Any change to, or extension of, projects [even if the project is already authorised, executed or in the process of being executed], particularly projects covered by Category I or Category II, where the change or extension itself does not fall under Category I but:

(i) meets the thresholds or criteria set out in Category II; or (ii) may have significant adverse effects on the environment); and the associated

- Section 4.2.2.1: *Waste-water treatment plants, not falling within Category I.*

Therefore, the proposal requires screening in terms of Regulation 14 of S.L. 549.46.

4.2 **AA Screening** (citations refer to S.L. 549.44)

The proposal is within the area of influence of the following Natura 2000 sites, as declared through S.L. 549.44:

- MT0000015 (L-Inħawi tal-Għadira); Terrestrial Special Area of Conservation (SAC) and Special Protection Area (SPA);
- MT0000024 (Rdumijiet ta' Malta: Mir-Ramla taċ-Ċirkewwa sar-Ramla tal-Mixquqa) – Terrestrial SAC; and
- MT0000112 (Żona fil-Baħar Madwar Għawdex) – Marine SPA.

Therefore, this proposal requires screening in terms of Regulation 19 of S.L. 549.44.

4.3 **Water Policy Framework Screening** (citations refer to S.L. 549.100)

The proposed development falls within the scope of the Water Policy Framework Regulations (S.L. 549.100) in view that the plant discharges treated wastewater into MTMTC109 (Il-Qammieħ - Fomm Ir-Riħ). Therefore, this proposal requires screening to determine whether assessment in accordance with Article 4(7) of the Water Framework Directive (WFD, 2000/60/EC) is required.

5. Documents used for screening

- Project Description Statement (PDS), including appendices, referred to ERA on 24/10/2024.

II. ASSESSMENT OF PROPOSAL

6. EIA Screening, in terms of Schedule III of S.L. 549.46

General

- 6.1 The proposal involves an extension to the existing facility. The proposed intensification of operations on site are not expected to introduce new environmental disturbances or effects, but will reinforce those already existing, including noise and light generation, and reduce those related to the discharge of wastewater to the sea due to the improved capacity and treatment.
- 6.2 Whereas the construction of the existing plant led to the uptake of natural land and modifications to the local topography, the location of the currently proposed extension is not considered problematic from a land use perspective, as it would abut the existing facility directly from the eastern side (away from the coast) and will not involve the uptake of sensitive coastal garrigue. ERA also acknowledges the need to improve the treatment capacities of the plant, to cater for current shortcomings (discharge of untreated wastewater during peak flows exceeding the plant's current capacity) as well as future increased needs, and that the uptake of additional land for this extension (in this case, agricultural land) is therefore inevitable.
- 6.3 The treatment of wastewater is undertaken in accordance with the Urban Wastewater Treatment Directive (UWWTD) and the respective limit values for the treatment operations are included in the PDS (Table 5). Noting that the UWWTD Update is due for adoption in the near future, updated limit values for the upgraded facility are to be provided. Specific reference in this regard is made to parameters TSS, TP and TN, as reproduced in Table 1 above.

Construction-phase effects

- 6.4 The proposed works will generate 17,000 m³ of waste, mainly comprised of excavated soil and limestone rock, in addition to some minor fractions of off-cuts generated during the works. Such waste generation is not considered significant, noting that the excavated soil will be transported off-site for re-use, and as long as all waste is management and handled in accordance with the Waste Regulations (S.L.549.63) and the Construction and Demolition Waste Framework Regulations (S.L. 549.161).
- 6.5 Excavation and construction works will generate dust, noise, vibration and light emissions. However, such impacts are short-term and can be minimised at source in line with the Environmental Management Construction Site Regulations (S.L. 552.09), e.g. through the proper containment of machinery, equipment, materials, run-off within the construction site boundaries (hoarding), covering of truck loads and material stock-piles, and limitation of works to daylight hours.

Operational effects

- 6.6 While the nature of the operational emissions (noise, light, air) of the proposed extension to the facility are envisaged to be similar to those that currently exist on site, their intensity is likely to increase due to the proposed increased treatment capacity of the upgraded plant. While there are few residential receptors in the surrounding area that could be affected by such effects, the potential significance on the surrounding natural environmental, notably onto the nearby Għadira reserve and the adjacent coastal cliffs and offshore area used by sensitive seabird species, are unclear. Any potential issues concerning run-off into the surrounding sensitive areas during (accidental) malfunctioning of the plant are also unclear. These aspects are discussed in more details in the context of the protected Natura 2000 sites in section 7 below.
- 6.7 Exterior lighting should be kept to the barest minimum, not exceeding existing lighting levels, and abatement measures to mitigate noise generation by additional equipment/machinery (e.g. blowers, pumps) should be implemented. With respect to air emissions, a new odour abatement system for the inlet pumping station and biological filters for the emission points of the facility are proposed, which are envisaged to improve the resulting air emissions to the surrounding area.
- 6.8 From an environmental permitting perspective, the plant's extended operations and all associated mitigation measures and operational limits/parameters require to be duly covered by an Environmental Permit issued by ERA (i.e. update to the existing permit EP17/22).

Conclusion

- 6.9 The impacts of the proposal are unlikely to be significant to the point of warranting an EIA, noting that the unclear issues mentioned above concerning operational effects are to be addressed through the respective procedures discussed in the subsequent section on Appropriate Assessment (section 7 below).

7. Appropriate Assessment (AA) Screening, in terms of S.L. 549.44.

Terrestrial protected sites

- 7.1 The wastewater treatment plant is situated within the boundaries of:
- the large terrestrial Special Area of Conservation (SAC) MT0000024 (Rdumijiet ta' Malta: Mir-Ramla taċ-Ċirkezza sar-Ramla tal-Mixquqa), which runs along the entire west coast of Malta, and is designated for the protection of coastal cliff communities, habitats, and numerous floral and faunal species; as well as
 - the Għadira isthmus, which is designated both as a terrestrial SAC and Special Protection Area (SPA) (MT0000015 - L-Inħawi tal-Għadira) for its variety of habitats, including a saltmarsh, brackish wetland and sand dunes in the eastern part, and garrigue/phrygana, steppe and agricultural land in

the central and western part of the isthmus. The protective designation covers a number of floral species, as well as various bird species typical for the wetlands and other fauna (e.g. mammals, reptiles).

- 7.2 As outlined in the Natura 2000 management plan covering MT000024 (https://era.org.mt/wp-content/uploads/2019/05/Rdumijiet_Cirkewwa_sal-Mixquqa_ManagementPlan.pdf), all natural habitats, native flora and wildlife within this SAC are to be preserved. While no specific reference to the existing plant is made in the Natura 2000 management plan covering MT000015 (Ghadira) (https://era.org.mt/wp-content/uploads/2019/05/L-Inhawi_tal-Ghadira_ManagementPlan.pdf), the plan does require that all wastewater treatment facilities affecting the catchment of the reserve operate in accordance with the relevant environmental permitting conditions and that any associated environmental impacts are duly mitigated and monitored.
- 7.3 While it is noted that the proposal will not result in the direct uprooting or obliteration of any ecologically sensitive habitats or species, and construction-phase disturbances are temporary and can be constrained to the site boundaries (through the adoption of standard containment measures, to prevent spillages of material and dust), the potential significance of any additional disturbance due to permanent light and noise emissions from the increased treatment operations on site are unclear. In this regard, it is also noted that the existing plant is already identified in the above-mentioned management plan (for MT000024) as a point factor currently affecting the protected site. On the other hand, with respect to air emissions, a new odour abatement system at the inlet pumping station and biological filters at the emission points of the facility are proposed, likely resulting in improved emissions to the surrounding area.
- 7.4 In this regard, the operational effects of the upgraded plant onto the surrounding protected terrestrial sites, in terms of light and noise emissions, require further assessment to ensure that the management objectives of the protected sites will not be compromised and the integrity of the sites as a whole will not be adversely affected.

Marine protected sites

- 7.5 The existing facility discharges treated water to the sea, through an outflow located on the rocky shore to the west of the plant. While the outflow point itself falls within the above-mentioned MT000024, the discharged water flows into the sea, which is designated as a marine SPA, MT0000112 - Żona fil-Baħar Madwar Ghawdex. This SPA covers a large offshore area encompassing all of Gozo's marine waters as well as those of the northernmost part of Malta, and serves the protection of seabirds, namely Yelkouan shearwaters (*Puffinus yelkouan*) and Cory's Shearwaters (*Calonectris diomedea*). The proposed upgrading of the facility, and resulting increased capacity, will reduce the likelihood of disposal of untreated sewage in the area. In this regard, the proposed upgrading is beneficial to the marine water body and the habitats and species it harbours. On the other hand, the considerations in relation to operational light and noise emissions discussed in section 7.3-7.4 above apply to the marine SPA and its protected seabirds as well.

Conclusion

- 7.6 Noting the above considerations, the proposed WTP upgrading requires a targeted evaluation of any potential significant effects from increased operational light and noise emissions, as well as potential run-off/spillage effects in the event of any (accidental) malfunctioning of the plant. To this effect, an Appropriate Assessment in terms of Regulation 19 of S.L. 549.44 is deemed necessary, and the attached targeted terms of reference for such study refer.

8. Water Framework Screening, in terms of S.L. 549.100 (in relation to Article 4(7) of the Water Framework Directive (WFD, 2000/60/EC))

- 8.1 As mentioned in section 7 above, the wastewater treatment facility releases treated water into the sea through an outflow point on the rocky shore to the west of the facility. The water body in which the facility discharges is MTC109 (Il-Qammieħ - Fomm Ir-Riħ). Given that the proposed upgrading of the facility's capacity and operations will result in improved treatment and a reduction in likelihood of disposal of untreated sewage in the area, the proposal is not expected to prejudice the achievement and maintenance of good ecological and chemical status of the water body, and no further assessment in terms of the Water Policy Framework Regulations (S.L. 549.100) is deemed necessary.

9. Conclusions and Recommendations

- 9.1 Screening has determined that no further assessment is required in terms of the EIA Regulations (S.L. 549.46) and the Water Policy Framework Regulations (S.L. 549.100).
- 9.2 With respect to the Flora, Fauna, and Natural Habitats Protection Regulations (S.L. 549.44), a targeted study (Appropriate Assessment) is required to evaluate any potential effects from increased operational light and noise emissions onto the surrounding protected sites (notably in relation to the Għadira reserve as well as seabirds and their coastal habitat), and from any (accidental) malfunctioning of the plant and resulting spillages/run-off to the surrounding downstream areas (notably the Għadira reserve and its catchment area).
- 9.3 Terms of reference for the above-mentioned study are included in annex II to this report.