

# IP 0001/06/C/V1 – Variation to Ghallis non-hazardous landfill- Comments from ERA, Regulatory Consultation and Public Consultation

	ERA Comments – 18.06.2024	WasteServ Replies 16.07.2024	ERA Comments – 07.08.2024	WasteServ Replies – 01.10.2024	ERA Comments – 21.11.2024																
1.	Updated Environmental Monitoring Programme (EMP) or an addendum covering changes in relation to this proposal which addresses all applicable Sections in ERA’s review comments or WSM replies mentioning the EMP.	WSM is currently working on the updates to the Environmental Monitoring Programme (EMP) and shall update the Authority once the updates are carried out. This exercise should be concluded in the coming weeks.	Awaiting updates to EMP in a manner to address all relevant questions of IPPC Application Form C.	The updated EMP is being attached to this reply.	Refer to side comments in attached EMP.																
a.	The update to the EMP should also include: A monitoring proposal for the CHP as per ERA’s last comments to C3.3.4-10.	The EMP shall be updated accordingly as stated above. Furthermore, the following parameters shall be tested annually: <table border="1" data-bbox="905 651 1549 1008"> <thead> <tr> <th>Parameters to be measured</th> <th>Detection limit</th> </tr> </thead> <tbody> <tr> <td>Total dust</td> <td>1 mg/m<sup>3</sup></td> </tr> <tr> <td>Nitrogen dioxide</td> <td>0.56 mg/Nm<sup>3</sup></td> </tr> <tr> <td>Sulfur dioxide</td> <td>0.56 mg/Nm<sup>3</sup></td> </tr> <tr> <td>Flow</td> <td>0.1 Nm<sup>3</sup>/h</td> </tr> <tr> <td>Oxygen</td> <td>0.1%</td> </tr> <tr> <td>Temperature</td> <td>0.1 °C</td> </tr> <tr> <td>Moisture</td> <td>0.01 mole fraction</td> </tr> </tbody> </table>	Parameters to be measured	Detection limit	Total dust	1 mg/m <sup>3</sup>	Nitrogen dioxide	0.56 mg/Nm <sup>3</sup>	Sulfur dioxide	0.56 mg/Nm <sup>3</sup>	Flow	0.1 Nm <sup>3</sup> /h	Oxygen	0.1%	Temperature	0.1 °C	Moisture	0.01 mole fraction	EMP is to be updated accordingly with such parameters clearly indicating for which emission point these are being proposed. Monitoring proposal for both CHP and emergency flare is required. Parameters proposed by ERA for the CHP in review questions C3.3.4-10 are to be considered and included/omitted accordingly.	As is stated in the EMP, “The gas flare is not currently operational, and there are no concrete plans for its future use. Therefore, no monitoring is recommended at this stage. This recommendation is to be reviewed should the gas flare start to be operated for more than 10% of the year (in accordance with UK guidance – Environment Agency (2010). LFTGN 05: Guidance for monitoring enclosed landfill gas flares)”.  Furthermore, monitoring would also be difficult as due to the short stack; measurements will be taken in the combustion zone where hot gases are present.  It is also to be noted that the emergency flare has not been in operation since 2022, and the percentage of operational hours in 2023 was 0%.  However, should circumstances arise that require the use of the emergency flare, WasteServ will create a model that will consider (i) the gas constituents prior to combustion and (ii) thermodynamics of combustion, to create a model which estimates the emissions from the emergency flare.	Replies to questions C3.3.47, are to be revised to consider the use of the emergency flare as backup.  Refer to comment in EMP concerning CHP and emergency flare emissions.
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b.	Monitoring from the emergency flare in view of the current uncertainty about the gas quality and that the flare is to be retained as back-up equipment.																				
2.	Confirmation that the existing gas collection and treatment system addresses the findings of the “Landfill Gas Modelling” – Annex 25 report.	Following the conclusion of the Landfill Gas Modelling report (Annex 25), WSM shall be investing in a new CHP.	Kindly provide timeframes by when such CHP shall be in use.	WSM is currently conducting market research for the procurement of a new CHP. The operational lifetime	Refer to side comments in attached EMP.																

				of Ghallis 1 has been extended through projects such as Frisoli Retaining Wall, Vertical Extension, and moreover, Ghallis 2. Void capacity is projected to last until 2026/2027. New CHPs should be in place upon closure of the landfill, as only then it will be possible to install the full landfill gas extraction network.																			
3.	A surface water drainage plan showing all catchment areas, connections and locations in relation to the mentioned "MN reservoir". This shall clearly indicate how potentially contaminated run-off from the landfill sides and its overflow discharge point locations are also to be provided. Monitoring of such effluent may be considered as per current Surface Water Monitoring regime in the last approved EMP.	As evidenced in the attached drawing (Annex 26), surface water drainage shall be flowing towards the Malta North reservoir.	Kindly include monitoring for such surface water drainage in the EMP in line with existing regime for Ghallis and Zwejra surface water ponds.	This monitoring has already been included in the ongoing update of the EMP.	Refer to side comments in attached EMP.																		
4.	Status update on progress in terms of the plan for leachate treatment as outlined in Annex 21, to determine a feasible timeframe in terms of the permit. WSM shall ensure that the selected technology addresses the BAT criteria as established by Schedule 3 of S.L. 549.77.	<p>Status update on leachate treatment tender below:</p> <table border="1"> <thead> <tr> <th>Activity</th> <th>Timeframe / Target Date</th> </tr> </thead> <tbody> <tr> <td>Tender drafting</td> <td>Completed</td> </tr> <tr> <td>DOC vetting</td> <td>Completed</td> </tr> <tr> <td>Tender publishing</td> <td>September 2024</td> </tr> <tr> <td>Offers evaluation</td> <td>October 2024 – November 2024</td> </tr> <tr> <td>Publication of award notice</td> <td>End of November 2024</td> </tr> <tr> <td>Standstill period</td> <td>December 2024</td> </tr> <tr> <td>Contract signing</td> <td></td> </tr> <tr> <td>System in place</td> <td>June 2025</td> </tr> </tbody> </table> <p>A BAT comparison in line with Schedule 3 of S.L. 549.77 shall be conducted once the equipment is procured. To note that certain provisions are already catered for – example, system shall be an enclosed system.</p>	Activity	Timeframe / Target Date	Tender drafting	Completed	DOC vetting	Completed	Tender publishing	September 2024	Offers evaluation	October 2024 – November 2024	Publication of award notice	End of November 2024	Standstill period	December 2024	Contract signing		System in place	June 2025	Noted.	/	/
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5.	Demonstrate how it shall be ensured that the prospective leachate treatment system can cater for all leachate generated by the whole landfill complex (this proposal, Ghallis1 and Zwejra).	<p>It is to be noted that there is no generation of leachate at the Zwejra landfill.</p> <p>The Ghallis 1 landfill is projected to generate the same quantity of leachate until around 2027, following which, leachate generate shall significantly diminish. Furthermore, the Ghallis 2 landfill will start generating "full" leachate quantities from around 2027 onwards, as a liquid column will not be present immediately as soon as landfilling operations begin.</p> <p>Therefore, it is essential to note that there shall not be simultaneous leachate generation from both landfills. Therefore, the tendered system for leachate treatment should be sufficient for the needs of the whole landfill complex.</p>	Noted.	/	/																		

6.	<p>If available, gas network drawings as per question C1.3(c) and SMS as per question C3.3.34 – were to be submitted by June 2024.</p>	<p>As-built and design of whole gas network were provided in one of the past submissions to ERA.</p> <p>Following consultation, it was confirmed that even with future projects at the Ghallis 1 landfill, the gas system will be able to cope with the extraction of gas from the landfill core and its transfer to the Gas plant.</p> <p>For the Ghallis 2 landfill, the shape of the landfill will ensure uniformity of gas distribution, making gas extraction easier.</p> <p>See drawings titled ‘30499-WSM-SW-35 landfill gas collection system plan’ and ‘30499-WSM-SW-36 Landfill Gas Well Construction Details’.</p>	<p>Replies on gas network are noted.</p> <p>Site management system and associated references in Form C to be updated accordingly.</p>	<p>Work on the SMS document is still on-going. Given the scale of the task, WasteServ is expected to complete the task by November 2024.</p>	<p>Site Management Systems as referred to in this application and review and determined by IP 0001/24 are to be updated and submitted accordingly.</p>
7					<p>With reference to C 3.3.48 page 89, the following aspects do not seem to be addressed in the current Environmental Monitoring Program:</p> <ul style="list-style-type: none"> <li>• Perimeter monitoring is adequate to cover the pathways of migration to identified off-site receptors;</li> <li>• High permeability sections of the cap can be located;</li> <li>• Leaks in the gas collection system will be identified;</li> <li>• Volume of landfill gas sent to utilization/disposal system;</li> <li>• Ingress of air into installation can be detected and located;</li> <li>• Sufficient balancing of the landfill gas collection system will be undertaken;</li> <li>• Performance of boreholes will be maintained to design specification;</li> </ul> <p>Alternatively, kindly demonstrate how the above are addressed through other documented systems, procedures and work instructions for landfill gas monitoring such as the EMS or SMS.</p>

Form A

Section	ERA Comments – June 2023	Comments by WasteServ 13.11.2023	ERA Comments – February 2024
A1.1	Noted.	/	/
A1.2	Noted.	/	/
A1.3	Noted.	/	/
A1.4	Please include PA 3144/19, PA 5136/22 and any others relevant to this proposal, whilst ensuring that plans and sections match those submitted in this variation application.	Form A amended.	Noted.
A2.1	Noted.	/	/
A2.2	Phone number and email address of the operational contact are to be provided.	Form A amended.	Noted.
A3.1	Noted.	/	/
A3.5	The registered number for C30567 is not assigned to Wasteserv Malta Ltd as per Annex 12.	Form A amended.	Noted.

Form C

Section	ERA Comments – March 2023	Comments by WasteServ 13.11.2023	ERA Comments – February 2024	Comments by WasteServ 18.04.2024
C1.1	Name is to be consistent with that provided in form A and reflect the activity on site, namely a landfill.	Form amended.	Noted.	/
C1.2	<p>a) As indicated in the covering letter, this application is being considered as a variation only and thus the first bullet is to be removed. In case, this application is to be considered as a renewal, then the relevant application fees would be due.</p> <p>b) Remaining approved void space in para. 5 of the PDS is to tally with the value indicated in para. 2, page 3 of the non-technical summary and be based on latest available data/surveys.</p> <p>c) With reference to para. 6 of the PDS, applicant is to clarify the relation between the expected void space to be gained of “just under 1.5 cubic metres” and “the creation of an additional waste landfilling volume of circa 1.8 million cubic metres, not including 30,000m<sup>3</sup> of baled waste that will be part of the construction process...”</p> <p>d) With reference to the HDPE and textile protection layers being temporarily supported with ropes, kindly indicate how it shall be ensured that such layers shall remain in place without compromising their integrity once the ropes need to be removed</p> <p>e) With reference to para. 36, kindly provide details of the proposed leachate treatment system as part of this IPPC application. This shall include details and layout plans of all the connections leading to and from the leachate collection points indicated in the PDS and address the requirements of Sections 2.1.16-2.1.18 of this application.</p>	<p>a) Form amended.</p> <p>b) The remaining approved void space will change every day so it is useless to update the PDS. The remaining void space as of June 2023 was 555,900 m<sup>3</sup>. When WasteServ will be asked to provide a consolidate application, WasteServ shall ensure that the latest figure available is included in the Non-technical summary of the Covering Document.</p> <p>c) Void space available in the new cell (ex-haz) amounts to 1,483,000m<sup>3</sup> – worked out on the levels established in drawing 30499-WSM-SW-32. Restoration soils will not take up part of this volume.</p> <p>d) The upper edge of the HDPE and textile will be temporarily supported with ropes tied to the support frame. This will hold the textiles in place against the support frame whilst heat fusion of overlaps is carried out, and also whilst the HDPE is installed. It will hold the HDPE in place whilst welding of the installed panels is carried out. It will hold the geosynthetics in place allowing the placement of the protection waste bales or bulk bags of fines. The ropes will be left in place during waste placement to stop any movement being caused by any settlement of the waste bales (protection). The ropes will only be removed when the subsequent lift of steepwall geosynthetics are installed.</p> <p>e) WasteServ is currently working to put on the market a tender for the leachate treatment. The setup shall take the form of containerised system, not larger than 40-foot container footprint, to be located at Ghallis 1 so that treatment takes place on site. Parameters of treated effluent, as a minimum, shall meet sewer discharge limits. See Purchasing Outline in Annex 21.</p> <p>f) The majority of crushing activity took place during landfill (Ghallis 2) excavation and that task is now complete. Current day, it is not</p>	<p>a) Noted.</p> <p>b) Noted.</p> <p>c) Noted.</p> <p>d) Noted.</p> <p>e) Noted.</p> <p>f) Noted.</p>	/

	<p>f) With reference to para. 42 of the PDS, and reference to “6F2” in Annex 03, applicant is to clarify whether crushing of inert material shall take place during the operation of the landfill including construction of the bulk bags utilised in the Southern Bench. If this shall be the case, applicant is to provide a layout plan showing the location of the crusher and describe associated mitigation measures to prevent the generation of dust and its impact on the surrounding environment.</p> <p>Furthermore, applicant is to identify an alternative daily cover technique to the use of inert material as described in Table 2 which does not generate dust but is equally effective to mitigate odours and prevent/reduce the generation of leachate from percolating rainwater.</p>	<p>clear whether RDF bales or bulk bags (filled with quarry fines) shall be utilised as part of the landfill construction. In case of the latter and therefore the use of a crusher, the following measures shall be in place:</p> <ul style="list-style-type: none"> <li>• Attach rubber chute to crusher to guide output vertically downwards;</li> <li>• Reduce drop height as practically possible;</li> <li>• As may be applicable, apply water spray to limit dust propagation;</li> <li>• Halting of operations in adverse weather conditions.</li> </ul> <p>In the past months, WasteServ modified its landfilling process so that operations take place in cells. To elaborate further, one cell has an approximate surface area of 120m by 50m. Within this cell, the active tipface is only 30% of the referred area, that is, approximately 36m by 50m. Each time a load is deposited on the tipface, the compactor passes on top of the waste multiple times thus achieving the required compaction, stability and volume optimization. In view of the limited size of the active tipface, potential for dust, litter and odour is minimal. Reference to the odour, it is worth pointing out that the organic bag is treated at the Malta North. Therefore, this limits the organic fraction (which is typically the most odorous) from the landfill. Going back to the landfill operation, at the end of the working day, the active tipface is covered by a layer of inert. At the start of the next day, the layer of inert is scrapped off. This new approach (limited active tipface) differs from previous modus operandi whereby before, the work area was more than triple in size. Through experience, this has proved to be the most practical approach for Ghallis landfill.</p>		
C1.3	<p>With reference to the status update of the Improvement Programme of IP 0001/06/C:</p> <p>a) Item 22 – Whilst noting that discussions on the leachate treatment proposal with ERA are underway, the latest proposal submitted to ERA is not satisfactory. Kindly submit a suitable proposal based on the feedback provided by ERA to date. Such a proposal is to include proposed timeframes for its implementation through Item 23 of the Improvement Programme.</p> <p>b) Item 24 – Feedback is being provided separately through the Compliance &amp; Enforcement Directorate.</p> <p>c) Item 25 – Kindly provide new proposed target dates (month and year)</p>	<p>a) WasteServ is currently working to put on the market a tender for the leachate treatment. The setup shall take the form of containerised system, not larger than 40-foot container footprint, to be located at Ghallis 1 so that treatment takes place on site. Parameters of treated effluent, as a minimum, shall meet sewer discharge limits. Purchase Outline included in Annex 21.</p> <p>b) Noted.</p> <p>c) As built gas network drawings shall be submitted 7 months from this reply.</p>	<p>a) Noted without prejudice to any related feedback from Regulatory Consultees.</p> <p>b) -</p> <p>c) Noted to be submitted by June 2024.</p> <p>d) Any such projects require to be assessed through an IPPC variation process and include the requested closure plan in accordance with Article 9(G) of S.L. 549.29.</p> <p>e) Applicant to provide the latest available emissions profile (not limited to pollutants in terms of MCP Directive) and conduct a risk assessment accordingly to determine environmentally acceptable pollution concentrations.</p> <p>f) Item 28 - With reference to Annex 24, in view that the above-ground tank is not being considered as waste by the applicant, kindly submit a declaration from a third party warranted engineer showing that it is in good working order and fit for purpose.</p>	<p>a) /</p> <p>b) /</p> <p>c) /</p> <p>d) Noted, any new project will be captured via an IPPC variation.</p> <p>e) For latest emissions data, please refer to data submitted in 2019 or before. As per Chapter 5 of the EMP, monitoring of CHPs was discontinued in 2019. As stated in Clause 5.1, the CHP has a thermal rating of less than 1MW<sub>thermal</sub> so monitoring was not prescribed. Furthermore, CHP was bought and installed before 2018. These two facts exclude the CHP from monitoring. Therefore, as previous stated, WasteServ shall not be investing in consumables.</p>

	<p>d) Item 26 – A closure plan which considers the change in the landfill contouring being proposed herewith is to be submitted as part of this application.</p> <p>e) Item 32 – Whilst considering the use of the active carbon to reduce silicate compounds in the LFG which were described in IP 0001/06/C, kindly provide an alternative solution to reduce emissions of NOx from the landfill gas engine. Operator may require to further pre-treat LFG prior to combustion within the CHP engine.</p>	<p>d) WasteServ is at present determining feasibility of carrying out further volume gain project/s along the (remaining) sides of Ghallis 1. In view of this, it would be best that a (final) closure plan is submitted as an Improvement Programme to that variation.</p> <p>e) Considering that the CHP was bought and installed before 2018, and given the exemption in the MCP Directive for such category of equipment, WasteServ shall not be investing in consumables. In due time, WasteServ shall either invest in abatement add-ons or shall invest in new CHPs.</p>		<p>f) It is envisaged that there will not be any stationery fuel storage. Reference to the green fuel dispenser which its tank shall be sold as a second-hand item, WSM shall provide a declaration by a third party warranted engineer confirming that it is in good working order and fit for purpose.</p>
C2.1.2	<p>Kindly provide a consolidated site plan showing the boundaries of both Ghallis 1 and Ghallis 2 on the same drawing.</p> <p>With reference to contouring of the formation level indicated in Section C-C of Annex 3, kindly indicate whether Ghallis 2 will be considered as one or two hydrologically independent cells.</p> <p>Kindly clarify whether the area identified for the access road/ramp in Annex 3 will be eventually landfilled.</p>	<p>Site plan included in Annex 03.</p> <p>One cell.</p> <p>Yes, the access ramp will be landfilled gradually along with the remainder of the landfill area.</p>	Noted.	/
C2.1.16	<p>With reference to Annex 3, kindly indicate how the location of both leachate monitoring on either side of the leachate collection point will be representative of the actual leachate head and quality in Ghallis 2.</p>	<p>a. The base of the landfill is covered in a drainage layer. Incorporated within this are perforated leachate collection pipes. The function of drainage layer and the collection pipes is to allow the flow of leachate to the lowest point in the cell where it can be extracted via the leachate collection point. The two monitoring points will allow the monitoring of the leachate level to show that extraction of leachate from the leachate collection point is removing leachate from the whole cell. They also provide additional leachate extraction points if required.</p> <p>b. The leachate extraction and monitoring system is designed:</p> <ol style="list-style-type: none"> <li>i. In line with standard requirements to facilitate extraction and monitoring across the landfill (each cell would generally have such requirements, however there is only one cell in the steepwall landfill due to the limited footprint).</li> <li>ii. With falls towards the sump.</li> <li>iii. To drain leachate to collection sump located at low points where you can remove it from the landfill for disposal or recirculation.</li> </ol>	<p>a. Noted</p> <p>b. Noted.</p> <p>c. Noted.</p> <p>d. Noted.</p>	/

	<p>The location of any leachate treatment equipment referred to in C1.3 above and covering Ghallis 2 needs to be indicated on a layout plan.</p>	<p>iv. To allow the monitoring of the level of leachate at the lowest point in the cell.</p> <p>v. To allow the monitoring of the level of leachate at a minimum of 2 points remote from the extraction point.</p> <p>c. The design allows the monitoring at 3 points; named extraction and monitoring points within the cell. The head of leachate will be able to be monitored from all 3 locations following a period of no pumping to allow levels to stabilise. The levels will be measured at m AOD to facilitate comparison between all points if required. The monitoring requirements will be detailed in the EMP and adhered to.</p> <p>d. There is no reason to suspect the quality of the leachate will vary greatly within the landfill.</p> <p>This detail shall be provided in the future when contract with service provider is finalised.</p>		
C2.1.17	<p>Kindly explain how the proposed leachate monitoring and extraction points made of concrete rings shall be constructed in a manner to withstand the forces exerted by the compacted/settled landfilled waste mass, liners and equipment. Reference is to be made to experience obtained on such concrete wells which were damaged in Ghallis 1.</p>	<p>a. The placement of waste will be in horizontal lifts, and due to the confining nature of the steepwall frame, settlement of the waste will generally be in the vertical direction with very little horizontal movement. Waste placement around the leachate extraction and monitoring points will still have to be carefully controlled to make sure even loading is maintained.</p> <p>b. The leachate chambers at Ghallis 1 are hollow chambers, and the nature of the filling in that landfill is such that lateral loading is experienced due to settlement of the waste. As the steepwall will be constructed in horizontal lifts of 3-4m, no lateral loading will be experienced with this design. The wells are also located centrally to the land raise which will further reduce any lateral loading from the pre/post settlement restoration profile.</p> <p>c. In order to ensure that this will not occur, the chambers will be filled with C40/50 DC4 sulphate resistant concrete from 3.5m above the base of the landfill in order to provide structural integrity. The monitoring and extraction will be undertaken within 315mm OD PE80 SDR 26 well liner.</p>	Noted.	/

C2.1.18	ERA is informed about a pilot project for leachate evaporation proposed in 2021. Kindly provide a process flow block diagram showing how the landfill connects to the leachate treatment plant without recirculation of such leachate. The proposal shall include all material and energy inputs and outputs of the process.	Site plan showing location of equipment shall be provided in the future when contract with service provider is finalised. Other operations details (like mass flow, energy use, etc.) can only be provided once the contract with service provider has been signed and the plant has been operational for a number of weeks.	Noted.	/
C2.1.20	Kindly indicate which parts of the gas collection systems indicated in the plan shall be buried and which parts shall be exposed.	<p>a. Generally, the landfill collection system would remain unburied unless the restoration scheme for the site specifically requires it to be buried. The post closure use or restoration requirements of the landfill will depend on planning permit conditions and will need to be actioned at this stage.</p> <p>b. The design assumes that all gas wells will be constructed as per Drawing Ref: 30499/WSM/SW/36, and all transmission pipework will be above ground.</p>	<p>a. Noted.</p> <p>b. Noted.</p>	/
C2.1.21	<p>Apart from the knock-out pot handling condensation, kindly indicate whether the gas shall be further treated prior to being combusted.</p> <p>Since, as per replies to Improvement Program Item No. 25, the gas collection system shall be redesigned, kindly provide the as-built drawings of the existing gas collection system to which Ghallis 2 will be connected to.</p>	<p>WasteServ shall be in a position to analyse this matter upon start of operation and analysis of the gas composition.</p> <p>As-built gas network drawings shall be submitted 7 months from this reply.</p>	<p>a. Such assessment is to be made at design stage in order to avoid any unnecessary emissions to air. If necessary please provide a landfill gas risk assessment as required in the IPPC application form accordingly.</p> <p>b. Noted to be submitted by June 2024.</p>	<p>a. GasSim for ex-haz cell is included in Annex 25. To note that the GasSim is not 100% accurate (it is a prediction) and can change if waste composition changes.</p> <p>b. Refer to Annex 25 for current as-built gas network.</p>
C2.1.35	-	-	<p>ERA comments on Baseline Report titled: "Sampling, Analysis And Reporting Of Land Investigations At The New Excavated Landfill At The Ecohive Complex In Maghtab" (V1 November 2023):</p> <ol style="list-style-type: none"> <li>1. <b>Para. 14:</b> All sampling locations and depths required were noted to be included, however the exact coordinates need to be specified for each sampling location 1-10. The coordinates should be provided as WGS 84 datum.</li> <li>2. <b>Para. 26:</b> Whilst comparison against the limit values as stipulated in <i>Decreto 152 of 2006</i> are not mandatory, since this has been included, revisions for accuracy are required nonetheless. <ol style="list-style-type: none"> <li>a. A reference to the exceedance of the threshold for residential uses for Cadmium in Sample 7B is to be included.</li> <li>b. A reference to the exceedance of the threshold for residential uses for Mineral Oil in surface Sample 6A is to be included.</li> </ol> </li> </ol> <p>Alternatively, comparison with the limits of the <i>Decreto</i> can be removed in its entirety.</p>	Updated Baseline Report can be viewed in Annex 16.

			<p>3. <b>General:</b> The following parameters are included in the approved Method Statement V2.7 dated April 2022, but have not been included in the compositional analysis results:</p> <ul style="list-style-type: none"> <li>a. Benzo[e]pyrene</li> <li>b. Benzo[j]fluoranthene</li> </ul> <p>The report including Tables A1 (Appendix 2), Table of Results (Appendix 3) and the certificates of analysis (Appendix 4) are to be updated accordingly.</p>	
<p>C2.2.1</p>	<p>Whilst noting the proposed engineered liner and leachate collections system, kindly propose measures which could be used to assess for potential ruptures in the liner and consequent loss of leachate.</p> <p>Please ensure that groundwater control and trigger levels in the EMP (Annex 18) are aligned with data obtained from latest studies such as the HRA (Annex 13). Kindly note that the SMS (Annex 11) does not include any appendices such as appendix 5. Kindly submit a revised complete SMS reflecting the current and proposed management systems at Ghallis.</p>	<p>a. The landfill basal engineering and leachate collection system has been designed in line with EU Landfill directive requirements and other landfill cells on the site. There is no specific requirement within the EU landfill directive for leak detection systems to be incorporated.</p> <p>b. The landfill will be monitored by perimeter monitoring wells which will be designed to function as either groundwater or ground gas monitoring points.</p> <p>WasteServ has analysed HRA in Annex 13, compared it with the EMP and concluded that the current control trigger levels are adequate for the new landfill.</p> <p>The appendices called in the SMS are the following:</p> <p><i>Appendix 1 – Non-hazardous waste types to be accepted</i>  Comment: This appendix is superseded by Schedule 5 of the permit.</p> <p><i>Appendix 2 – Non-hazardous waste types to be used in the restoration</i>  Comment: This detail is typically captured in the closure plan. But landfill closure is not close yet and this topic is to be visited in the future.</p> <p><i>Appendix 3 – Leachate monitoring</i>  Comment: Monitoring is captured via established EMP.</p> <p><i>Appendix 5 – Ground water monitoring</i>  Comment: Monitoring is captured via established EMP.</p> <p><i>Appendix 6 – Landfill gas &amp; ambient air monitoring</i>  Comment: Monitoring is captured via established EMP.</p> <p><i>Appendix 12 – Emergency Response Plan</i>  Comment: Emergency response detailed in ERP submitted (Annex 10).</p>	<p>Whilst noting the design of the engineered liner and leachate collection system, kindly indicate how perimeter monitoring wells shall be used to assess for potential ruptures in the liner and consequent loss of leachate.</p>	<p>WSM conducted a comparison study of the ground water results from 2012 to 2022 sorted from upstream to downstream.</p> <p>This exercise showed that the exceedances found are in the private boreholes (BH 2130 and BH 3308), which can be attributed to seawater intrusion, or other, given that these are constantly used for irrigation purposes. See email correspondence relating to IP Item 24 submitted to ERA on 01.03.2024.</p> <p>Therefore, through this type of monitoring, ruptures in the liner and losses of leachate could be identified.</p>

		WasteServ is currently working on extracting and translating routines described in SMS into procedures. In such manner, these procedures can be integrated into the EMS and their update and control would be easier. Given various other projects, this exercise is expected to be completed by Q1 2024.		
C2.2.3	Grid reference has not been provided.	Reference to 'Plan 1' to be changed to reference to drawing titled '30499-WSM-SW-01 location plan'. Refer to Annex 03.	Grid reference not provided in drawing or associated document.	Drawing '30499-WSM-SW-01 location plan' was included in a previous submission. To facilitate, please refer to attachment in Annex 3 titled '17009-10 Site plan'.
C2.2.5	Kindly describe a safe and secure daily cover system which facilitates leachate head control.  Kindly explain the process to be utilised in order to use monitoring as a leak detection system. This shall include but not limited to establishment of the criteria to be utilised so as to determine whether the engineered containment is leaking.	In the past months, WasteServ modified its landfilling process so that operations take place in cells, and in a smaller active tipface. Furthermore, the compactor passes over the waste multiple times thus achieving the required compaction, stability and volume optimization. The increased compaction yields better resistance to (rain) water ingress in the waste mass and therefore less potential for leachate generation. The application of an inert layer at the end of the day offers further opposition to rainwater ingress.  Monitoring for leaks is done by analysing: (i) leachate in the landfill, and (ii) ground water in an upstream borehole, and in downstream borehole/s.	Kindly provide further details on how monitoring of leaks shall be done by analysing leachate in the landfill and groundwater in upstream and downstream boreholes. Standard operating procedures and criteria are to be provided.	See reply to C2.2.1 above.
C2.2.8	Annex 18 (EMP) does not refer this variation. Kindly revise accordingly.	Discussions are underway with contractor / consultant to update EMP with monitoring for Ghallis 2. Such update needs to happen in tandem with characterisation of both leachate and gas.	A monitoring plan needs to be in place prior to the operation of the landfill and eventual leachate and gas generation. If necessary, provisions should be made for monitoring adaptation to such characterisation. Such proposal needs to be assessed as part of this application.	EMP is being updated.
C2.2.9	See comment in C2.2.1 re EMP.	Noted.	See comment in C2.2.1.	/
C2.2.10	Considering the projects approved to date and alternative segregation and/or disposal facilities, kindly provide an estimate of time until application to surrender permit for landfilling. Reply shall be consistent with the information provided in Annex 1 – PDS.	Refer to reply given for C1.2 b).	Reply concerning void space noted. Kindly provide an estimate of time until application to surrender permit for landfilling as requested previously.	Assuming current waste generation rate, waste composition, compaction rate, daily cover usage and no new projects at Ghallis, it is estimated that an application surrender will be submitted in Q1 2026.

C2.2.25	Kindly indicate whether the gas collection system shall be deployed immediately once landfilling commences so that gas starts to be collected immediately.	Quantity and quality of methane generated within a landfill depend on the waste types being landfill. The degradation of <u>organic</u> waste in landfills is not instant. Peak is not reached until after a few years. The majority of the organic fraction in Malta is collected via the white bag and the said waste type is treated at Malta North.  Because of the above, gas extraction shall not be immediate. Indeed, a desk-based analysis (using GasSim) should first be carried out to have insight on volumes and quality envisaged. Also, WasteServ may opt for the installation of a test rig gas well to confirm predictions. At this instance, quality would need to be confirmed via gas composition analysis.	Kindly provide results of desk-based analysis and risk assessment carried out to date and used for the design of the gas collection system. Such studies need to address the requirements of this section of the IPPC application form and indicate approximate gas generation timeframes based on the proposed waste types to be landfilled.	GasSim for ex-haz cell is included in Annex 25. To note that the GasSim is not 100% accurate (it is a prediction) and can change if waste composition changes.
C2.2.26	EMP to include reference to the area covered by this variation.	This has been noted. The first two sections of the EMP shall be updated to introduce the ex-haz cell.	Please revise EMP accordingly.	Noted.
C2.2.27	Noting that the same existing gas plan permitted under IP 001/06/C and catering for the already existing landfill shall be also utilised for the proposed landfill cell, kindly provide evidence (and calculations as necessary) showing how it will be able to handle landfill gas extracted from both Ghallis 1 and Ghallis 2 simultaneously.	Simulations and calculations are being conducted. Evidence shall be made available by the end of 2023.	Further to C2.2.25, kindly provide simulations and calculations.	See reply for C2.2.25.
C2.2.28	Kindly provide a consolidated updated SMS to reflect both current and proposed management practices which shall also consider the updates indicated in the PDS.	WasteServ is currently working on extracting and translating routines described in SMS into procedures. In such manner, these procedures can be integrated into the EMS and thus their update and control would be easier. Given various other projects, this exercise is expected to be completed by Q1 2024.	Noted. It is understood that an updated SMS and EMS can be submitted by April 2024.	/
C2.2.29	Kindly provide a consolidated updated SMS to reflect both current and proposed management practices which shall also consider the updates indicated in the PDS.	Refer to reply for C2.2.28.	Above comment refers. Updated SMS is required as part of this application to enable due assessment.	/
C2.2.30	Kindly provide a works monitoring method statement showing how these various environmental risks shall be further assessed.	A works method statement shall be made available by WasteServ (via selected contractor). Said method statement shall consider the elements highlighted in the Environmental Risk Assessment (see Annex 23).	WMS is required as part of this application to enable due assessment.	Landfill Construction and Monitoring Method Statement is included in Annex 19; Section 2 details environmental mitigation measures.  Furthermore, as per previous submission, the Environmental Risk Assessment in Annex 23 details impact, rating and controls.

C3.3.10	With reference to drawing “30499-WSM-SW--6, 29” in Annex 3, kindly indicate the fate of the leachate after being collected by the system indicated in this drawing.	Collected leachate is to be ultimately treated in system to be deployed for Ghallis 1.	Noted.	/
C3.3.15	Further to C3.3.10 and whilst noting that leachate treatment is being discussed with ERA, kindly indicate where and how leachate will be stored following collection.	The leachate is to be extracted and stored in reception tanks for further treatment.	Kindly provide an environmentally safe location of such tanks on a layout plan.	The leachate treatment system shall be located at Ghallis 1 and so will the reception tanks. So, these elements shall literally be located on the landfill. Leachate from Ghallis 2 shall be pumped to a bowser, then the bowser will unload the leachate in the reception tanks at Ghallis 1.
C3.3.18	<p>Kindly describe the proposed temporary evapotranspiration method in terms of the materials in and materials out, based on data and observations obtained to date.</p> <p>Such a proposal shall demonstrate how the system is effectively treating leachate in terms of both volume and chemical characteristics and how it can be considered as the Best Available Technique when considering the criteria set in S.L. 549.77 – Schedule 3. This shall include but not be limited to the process parameters required in C3.3.21 – C3.3.26 as deemed applicable by the EMP – Annex 18.</p> <p>With reference to the leachate generation mitigation measures referred to in C3.3.20, kindly indicate the maximum predicted rate of leachate generation for the installation which is being utilised to consider the proposed leachate treatment technology/solution in a manner to ensure sufficient capacity.</p> <p>EMP is to be updated to consider leachate monitoring from the ex-hazardous cell covered by this variation application.</p>	<p>Ghallis 2 is not yet operational and thus WasteServ does not have that information in hand. The generation of leachate depends on the type of waste being deposited in the landfill.</p> <p>Current day, organic waste is treated at MN. Furthermore, recent legislation prescribing mandatory waste separation for everyone is now enforceable – this is expected to further divert organic waste away from the landfill. This equates to less potential for leachate generation.</p> <p>Noted.</p>	<p>Leachate generation needs to be projected based on the findings of the hydrogeological risk assessments in order to determine the design of an adequate treatment system.</p> <p>Kindly provide as part of this application.</p>	<p>Leachate generation is typically based on the following:</p> <ol style="list-style-type: none"> <li>1. Type of material to be landfilled;</li> <li>2. Quality of landfill cover;</li> <li>3. Compaction rates;</li> <li>4. Rain fall;</li> <li>5. Linked to the previous point, surface water or runoff and its in/ability to enter in the landfill mass;</li> <li>6. Weather or rather evaporation.</li> </ol> <p>Reference to Ghallis 2, it is expected that leachate generation shall be lowered compared to Ghallis 1. This is because:</p> <ol style="list-style-type: none"> <li>a) With the introduction of the white (organic) bag, less waste with organic fraction ends up in the landfills;</li> <li>b) WasteServ is achieving higher compact rates which makes the landfill mass more ‘impermeable’ to rainwater;</li> <li>c) Through adequate road design and the installation of gutters / drainage, surface water or runoff shall be kept from going in the landfill;</li> <li>d) In extremis, (excessive) rainwater may be pumped and directed to other facilities which are authorised to take this water.</li> </ol> <p>In light of the variables mentioned in points 1 to 6 above, it is not possible at present to accurately predict leachate generation. Indeed, leachate generation can only be predicted following a number of months of operation.</p>
C3.3.21-26	See comment on process parameters in C3.3.18.	/	Requested information on leachate treatment techniques needs to be provided based on the information provided in C3.3.18.	Refer to Annex 21.

C3.3.30-33	EMP (Annex 18) is to be updated to consider leachate from Ghallis 2 covered by this application and address these questions accordingly.	Noted. Such update needs to happen in tandem with characterisation of leachate. In the eventuality that the composition of the leachate from Ghallis 2 is similar to the composition of the leachate from Ghallis 1, the same regime will apply.	Kindly submit a characterisation proposal for such leachate and update Form C with the correct references to section of the SMS as indicated in applicant's replies to C2.2.1 above.  Monitoring plan can be updated using outcome of the Hydrogeological Risk Assessment referred to in Section C3.3.15.	At this stage, it is not possible to provide a leachate characterisation. Furthermore, leachate composition changes during the life cycle of a landfill – see section 2.3.2 of the HRA. Only chemical analysis can yield the required insight; but this can happen only after a number of months of operation.  For starters, monitoring regime shall be similar to that of Ghallis 1. EMP shall be updated accordingly.
C3.3.34	Site Management System (Annex 11) is to be revised to consider the current and proposed surface water management systems at Ghallis 1 and 2.	Noted.	Please submit revised SMS accordingly.	WasteServ needs more time to complete this task. Target completion: June 2024.
C3.3.35	Kindly describe the systems in place at Ghallis 2 to ensure that the surface water collection, drainage and discharge system will have sufficient capacity to handle the maximum predicted rate of rainfall from the date that waste is accepted.	For the ex-haz cell, 'additional' surface water originates only from the newly formed road along the southern edge of the cell. The other roads shall remain the same. Surface run off, from the south edge road, shall flow downhill along the said road and to the MN reservoir.	Kindly provide an estimate of the run-off generated by these areas and how it compares to the current performance and capacity of the MN reservoir.	Surface runoff to be create from the surface water of the newly formed road (along the southern edge of the cell) is estimated to be 2,236.80 m <sup>3</sup> per year.  The MN reservoir has a capacity of 5,100 m <sup>3</sup> .
C3.3.38	EMP (Annex 18) is to be updated to consider surface water at Ghallis 2 as covered by this application (C3.3.34 amongst others) and address these questions accordingly.	EMP shall be updated to include surface water sampling and testing from the MN reservoir for surface run off.	Kindly update EMP accordingly with requirements of question C3.3.38.	Noted.
C3.3.46	<p>a) Considering the current and expected gas generation and quality rates at Ghallis 1, those expected from Ghallis 2 and the mentioned improved waste segregation at source, kindly provide calculations showing the expected required gas treatment capacity and how this shall be handled utilising the existing or planned equipment. Such calculation shall also consider how any additional condensate generated by Ghallis 2 shall be treated.</p> <p>b) In view that flares shall not be utilised, and an emergency flare PS3 is covered by IP 0001/06/C, kindly indicate how poor quality gas which is not suitable for combustion shall be handled.</p> <p>c) Kindly provide standard operating procedures for gas extraction and collection and engine by-pass procedures following mechanical failure or non-routine situation.</p>	<p>a) Calculations can be provided when GasSim predictions have been finalised.</p> <p>b) Poor quality gas which is not suitable for combustion shall be directed to the RTO within the Gas Plant.</p> <p>c) Refer to procedures (i) GP QP01 Gas Extraction from Landfill and (ii) GP QP02 Gas Treatment Procedure. These procedures need to be updated to include Ghallis 2 – this is part of the EMS work.</p>	<p>a) Kindly provide calculations and indicate how the proposed gas extraction system has been designed accordingly addressing the requirements of C3.3.46 in the application.</p> <p>b) Noted.</p> <p>c) With reference to both procedures: i. revise reference to Flare as per reply C3.3.46/ (b). ii. until such time that EMS is updated, please describe changes required by Ghallis 2.</p> <p>d) Kindly describe the treatment in place for Siloxanes and H<sub>2</sub>S. If applicable, storage capacities, method, location and SDSs are to be provided.</p>	<p>a. GasSim for ex-haz cell is included in Annex 25. To note that the GasSim is not 100% accurate (it is a prediction) and can change if waste composition changes.</p> <p>b.</p> <p>c. i. The flare, although not in use, is a back-up equipment and it should feature in the procedure/s. ii. Procedures shall be updated to include operations at Ghallis 2 at the start of operations at the said landfill. To note that in terms of landfill, operation should not change drastically – so as such, current procedure is still a good reference.</p> <p>d. Landfill gas is being passed through an activated carbon filter. Landfill gas from Ghallis 2 shall also be passed through an activated carbon filter.</p>
C3.3.47	Refer to C.3.3.46, question (b) above and if required amend section accordingly.	/	Please revise any reference to flares in all application documents to reflect that flares are not used on site.	/
C3.3.48	EMP (Annex 18) is to be updated to consider landfill gas from Ghallis 2 covered by this application and address these questions accordingly.	Noted. Such update needs to happen in tandem with desk-based analysis (using GasSim) and possibly composition analysis of the gas itself via extraction from a test rig.	Kindly revise EMP and provide replies to these questions based on the desk-based analysis and any landfill gas risk assessments carried out.	A revised version of the EMP shall be shared with ERA once ready.

C3.3. 53	Control level, detection limit and security are to be provided for the proposed pollutants.	WasteServ shall utilise same ground water monitoring boreholes currently being used for Ghallis 1 (refer to Section 4 the EMP). Of course, the expansion of the scope (that is monitoring for Ghallis 2) shall be clarified in the EMP. CH <sub>4</sub> , CO <sub>2</sub> and O <sub>2</sub> shall be monitored on a quarterly basis as per current regime.	Noted. Please revise EMP accordingly.	Noted.
C3.3. 59	In terms of receptor monitoring for aerial emissions and the proposed relocation to the area previously designated for a hazardous waste cell, kindly explain how the current receptor monitoring points described in the provided EMP will adequately cater for this shift in tipping face.	WasteServ understands that the Authority is talking about offsite aerial emissions. Kindly note that this monitoring has been scoped-out following ERA's guidance (January 2019). Further details are provided in Section 6 of the EMP.  To note that the receptors previous identified were in relation to the ECOHIVE Complex as a whole, and the ex-hazardous cell was already in the said complex.	Noted.	/
C3.3. 60	What do results of existing monitoring of air emissions in receptor situations indicate?	Previous results were communicated to ERA via AERs. As stated above, following review of available results at the time, ERA provided guidance that the off-site monitoring is no longer required.	Noted.	/
C3.3. 61	In view of a shift in tip face, kindly explain how the existing monitoring regime does not require changes/additions to receptor monitoring.	The shift in tip face in reality is a shift of approx. 450m. To note that the receptors previous identified were in relation to the ECOHIVE Complex as a whole, and the ex-hazardous cell was already in the said complex.	Noted.	/
C3.3. 65	Kindly reply to this question in terms of measures related to the structures described in the submitted plans and sections for Ghallis 2.	There are no subsurface pipes, sumps or storage systems included within the design.	Noted.	/
C3.3. 66	Kindly describe the scope of the certifications to be regularly renewed as part of an inspection and maintenance program with timeframes.	Given that section is about sub-surface structures, answer provided by WasteServ was meant to read 'No'. To note that everything constructed will be buried below waste 3 years later. Also, all works will be undertaken in accordance with the CQA Plan for the site and a Validation Report issued following completion of each phase of works.  The features at the base are certified via CQA reporting.	Whilst noting the CQA measures, kindly indicate how it will be periodically ensured that all sub-surface structures remain in good working order following their burial with waste after 3 years.	Ghallis 2 landfill is designed in accordance with the requirements of 1999 EU Landfill Directive (COUNCIL DIRECTIVE 1999/31/EC), in that: <i>it meets the necessary conditions for preventing pollution of the soil, groundwater or surface water and ensuring efficient collection of leachate as and when required. Protection of soil, groundwater and surface water will be achieved by the combination of a geological barrier and a bottom liner during the operational/active phase and by the combination of a geological barrier and a bottom liner during the operational/active phase and by the combination of a geological barrier and a top liner during the passive phase/post closure.</i>  The design of the landfill is such that it incorporates the minimum geological (min 0.5m thick), artificially enhanced geological barrier (GCL) and artificial sealing layer (or bottom liner; 2mm thick HDPE) in its entirety. Any sub-surface structures referred to are only designed to provide temporary means of constructing both the geological and bottom liners. The structures will remain in place but not

				provide any containment and therefore do not require any long-term monitoring. Construction quality assurance will be in place during construction and all works will be detailed in a validation report(s) for sign off by the regulator, prior to any waste deposition being approved. Any long-term monitoring would be undertaken in line with standard requirements, i.e. that in place for Ghallis 1, in terms of perimeter landfill gas migration and groundwater monitoring in line with existing requirements. The requirements for Ghallis shall be no different to the requirements currently required by the existing landfill site permit.
C3.3. 70	Since Section 6 of the EMP does not cover particulate matter (e.g. dust) control measures, applicant is to kindly describe how it shall be adequately managed and controlled with respect to all aspects described in this question and the type of temporary cover to be utilised.	<p>The potential for airborne dust is greater during the excavation of the landfill. During such time, measures can be taken to limit dust, example:</p> <ul style="list-style-type: none"> <li>• Reduce drop height as practically possible;</li> <li>• Apply water spray to limit dust propagation;</li> <li>• Halt of operations in adverse weather conditions.</li> </ul> <p>To note that excavation is now complete.</p> <p>During operation, once the vertical structures are in place, landfilling operation shall be similar to that already happening at Ghallis 1. To note that WasteServ has in the past provided ERA with particulate matter results for several years. After reviewing this data, it was decided by ERA that this monitoring is not required.</p>	Noted.	/
C3.3. 75	Kindly update EMP with the mentioned "additional monitoring point downward from operations" in terms of odour.	Noted.	EMP still to be updated.	A revised version of the EMP shall be shared with ERA once ready.

C3.3. 84- 86	Kindly update EMP with the mentioned “additional monitoring would be required at the site of operations proposed by this variation” in terms of noise.	<p>Quoting response to C3.3.84, noise monitoring would be suitable <u>during the excavation process</u>. That said, one is to note that:</p> <ul style="list-style-type: none"> <li>• Site already committed for such activity / project.</li> <li>• Noise levels would be on a similar level as other construction projects in Malta &amp; Gozo; possibly less considering that receptors are located at the site boundary and therefore further away from activity location.</li> <li>• For those areas which were not already excavated for the hazardous landfill project, after the first few meters, excavation would be happening below the surface plane - this helps containing the noise or limit its propagation.</li> </ul> <p>During landfilling operation, as per norm, a noise impact assessment shall be done once the landfill is up and running to establish if the current monitoring is still relevant or needs to be revised. Once this study is completed, the recommendations shall be included in the EMP.</p>	Noted without prejudice to feedback from Regulatory Consultees below.	/
C3.3. 87	Kindly note that the provided EMP does not refer or cover this proposed variation. Reply to this question concerning noise and vibration within the installation boundary is to be revised accordingly.	Refer to response for C3.3.84.	Noted without prejudice to feedback from Regulatory Consultees. Form C/EMP is to be amended accordingly.	A revised version of the EMP shall be shared with ERA once ready.
C3.4. 1	Kindly describe how the storage area and method used for the plastic and metal, for the creation of the retaining structures used in the new landfill cells, shall consider any accident risk (e.g. fire).	<p>In terms of materials used for the construction of Ghallis 2, only the temporary storage of RDF bales (intended as protection layer) represents a fire risk; the other building materials have very limited, or zero, combustible properties. To mitigate this risk, WasteServ shall:</p> <ul style="list-style-type: none"> <li>• Adopt an Emergency Response Plan.</li> <li>• Train its personnel in firefighting.</li> <li>• Work with a Just-in-time system whereby only the RDF bales needed for that particular area are brought (down) to the landfill.</li> <li>• Keep pile of inert on the landfill so that it can be used to extinguish the fire.</li> <li>• Have available heavy plant (bulldozers, landfill compactors) to handle inert.</li> <li>• Have available firefighting water in reservoirs at ECOHIVE.</li> <li>• Keep ramp leading down to the landfill accessible and viable.</li> </ul>	Noted.	/
C3.4. 4	The Site Management System document dated 2005 is to be revised to consider latest landfill practices and the findings/recommendations arising from the Stability Risk Assessment, particularly in terms of subsidence and landslides.	WasteServ is currently working on extracting and translating routines described in SMS into procedures. This consideration shall be considered and integrated in the EMS.	Awaiting update of SMS/EMS.	Noted.

C3.4.9	Without prejudice to the feedback provided by Regulatory Consultees to the various Improvement Programme items, comments in Section C1.3 refer.	/	Comments in Section C1.3 still to be addressed.	Noted.
C3.3.4-10	Concerning emissions to air from gas engines, kindly provide the requested replies for each pollutant irrespective of whether the plant is classified as a Medium Combustion Plant under S.L. 549.122 and the current monitoring proposal.	For Ghallis 1 please refer to previous IPPC Applications, for there is no change in terms of hardware. For Ghallis 2, GasSim predictions shall give an indication if additional treatment capacity is needed. Should this be the case, WasteServ shall endeavour to procure CHPs which meet limits in force at the time.	Kindly provide the GasSim predictions and revise replies to these questions accordingly. Monitoring is to be proposed by applicant based on the outcome of an associated risk assessment based on such data.  Notwithstanding the EMP is to be updated to consider monitoring of the following pollutants: NOx, CO, SOx, CO2, and TVOC will be required.	GasSim for ex-haz cell is included in Annex 25. To note that the GasSim is not 100% accurate (it is a prediction) and can change if waste composition changes.  The current EMP was drafted at a time when the white bag was not yet introduced on a national scale and separation was not mandatory – which means that back then, more organic waste ended up in the landfill. So, parameters selected then, surely can be kept for today's new reality, which is, less organic waste ending up in the landfill. Therefore, WasteServ deems that current monitoring regime is sufficient and shall keep adhering to the current monitoring regime.
C3.4.2.4	Whilst noting the visual inspection procedure for the landfill and the gas plant maintenance checklist forming part of the EMS, kindly indicate/provide further documentation showing procedure for identifying, reviewing and prioritizing items of elements of the installation for which a preventative maintenance regime is appropriate.	Refer to procedure titled 'GP QP02 Gas Treatment Procedure' in Annex 17.	Noted.	/
C3.4.2.6-7	As part of this application kindly provide the formal maintenance programme based on the other questions in this section that will be in place prior to commencement of waste acceptance at Ghallis 2.	Refer to Annex 17 for the Maintenance Plan of equipment located at the Gas Plant which deals with gas treatment.	Noted. Form C to be revised accordingly.	/
C3.4.2.8	Kindly provide a training programme which clearly shows the training identified for each relevant post.	Refer to Annex 22.	Noted.	/
C3.4.2.10-12	Kindly provide documentation justifying the affirmative answer to each of these questions.	Refer to Annex 22.	Noted.	/
C3.4.2.14	Please note that two versions of the same document have been provided as Annex 10. Furthermore, kindly update documentation to describe the likelihood and consequence of accidents.	The Emergency Response Plan compiled by WasteServ does not take into consideration the likelihood of an accident. It instead considers the scenario that an accident happened and thus it prescribes the measures to take in such instances.  Refer to Annex 23 for an Environmental Risk Assessment; this document considers likelihood and consequence of incidents.	Noted. Form C to be revised accordingly.	/
C3.4.2.15	Whilst noting that the provided plan describes mitigation measures for accidents, whilst they occur it needs to be updated to include preventive measures or otherwise a separate document is to be submitted.	Refer to document titled 'New Landfill - Fire Safety Measures' in Annex 10 and Environmental Risk Assessment in Annex 23.	Noted. Form C to be revised accordingly.	/
C3.4.2.17	Kindly submit procedure for recording environmental complaints.	Refer to procedure titled 'ADM QP15 Complaint Management Procedure' in Annex 17.	Noted.	/

C.3.4 .3.1	Kindly ensure that application is in line with latest drawings/proposal in PA 5136/22 and PA 3144/19 and update Form C accordingly with all such relevant PA applications.	Additional drawings submitted in reply to screening letter.	Noted.	/
C3.4. 4.2	Kindly include PA 5136/22 as permission which has not yet been determined or otherwise depending on its status at the time of replying.	PA 5136/22 is still ongoing. Screening letter was received including a list of additional submissions required by the Authority. Thereafter, a submission was made by WasteServ and acknowledged by PA on 10.05.2023 (acknowledgement of submission is attached). No further feedback was received to date.	Noted.	/
C.3.4 .4.6	Kindly note that Ing. Karl Mizzi is already nominated as TCP for other IPPC installations, so please fill in this section accordingly.	TCP for Ghallis shall be Mr Luke Mercieca.	Noted.	/
C3.4. 4.7	Kindly provide ta training programme outline with timeframes to demonstrate that such persons shall receive ongoing appropriate technical and professional development.	See C.3.4.2.8.	Noted.	/

## Comments from Consultation

Consultee	Consultee Comment – March 2023	ERA Permitting Unit Comments – June 2023	Comments by WasteServ November 2023	Consultee Comment – February 2024	WasteServ Comments – April 2024
Occupational Health and Safety Authority (OHSa)	No feedback was provided.	--	--	--	/
Regulator for Energy and Water Services (REWS)	Wasteserv to clarify, how the 56,000 litres of diesel are being stored / used.  If these are stored /used progressively using REWS fuel distributor license FDR/42 then we have no further comments.  If there are any remaining fuel tanks not known to the REWS, Wasteserv needs to register them accordingly.	Applicant to provide the requested clarification to REWS and act accordingly as necessary.	The 56,000 litres of diesel are stored and used progressively.	--	/
Water Services Corporation (WSC)	1. The greatest concern with regards to the discharge into sewers from this site is the landfill leachate; If WasteServ intends to discharge any effluent to sewer from site, an application for a Public Sewer	Conditions will be included accordingly.  Applicant is to clarify whether any discharges of effluent (including leachate) are envisioned.	1. Treatment system which WasteServ shall endeavour to put in place (see Annex 21) will require the possibility that processed output is disposed in the sewer. To this end, WasteServ will apply for sewer discharge permit.	1. Since a treatment plant will be installed to treat the leachate effluent, it would be prudent to construct a buffer tank to receive the treated effluent so in case of failure of the treatment plant there is a few day's storage capacity that will allow for this low quality effluent to be re-processed.	1. A buffer tank is considered. 2. / 3. WasteServ shall be testing effluent as per list in Annex 21.

	<p>Discharge Permit is to be submitted to initiate permitting process;</p> <p>2. Going forward, when a leachate treatment system/plant is constructed, the allowance of such effluent to be discharged to sewer is dependent on the quality of this effluent and the presence of any prohibited substances as per discharge regulations;</p> <p>3. Under no circumstances will rain water be allowed to be discharged to sewer.</p>		<p>2. WasteServ shall keep as reference the limits prescribed in S.L. 545.08. Adherence to such limits will be included in the specs of the tender document.</p> <p>3. Noted.</p>	<p>2. Given that WSM are contemplating discharge into sewer, an application for a public sewer discharge permit is a must. WSM have already expressed their intent for applying.</p> <p>3. Any treated effluent generated must be analysed at least quarterly for the following parameters:</p> <ul style="list-style-type: none"> <li>a. pH</li> <li>b. Total Suspended Solids</li> <li>c. Chloride</li> <li>d. Total Kjeldal Nitrogen</li> <li>e. Chemical Oxygen Demand</li> <li>f. Biological Oxygen Demand</li> <li>g. Fluoride</li> <li>h. Sulphate</li> <li>i. Total Phosphorus</li> <li>j. Total Petroleum Hydrocarbons</li> <li>k. Arsenic</li> <li>l. Cadmium</li> <li>m. Chromium (III)</li> <li>n. Copper</li> <li>o. Nickel</li> <li>p. Lead</li> <li>q. Zinc</li> <li>r. Silver</li> <li>s. Cobalt</li> <li>t. Mercury</li> </ul> <p>4. WSC-DPU shall be kept apprised of the decisions taken by WSM in terms of the type of waste treatment technology selected and provide documentation confirming that this is the recommended BAT for the intended use.</p> <p>5. If an RO system will be used as part of the treatment process, the concentrated brine produced shall not be discharged to sewer and alternative disposal routes are to be sought and approval sought from relevant Authorities prior to such discharge/disposal.</p> <p>6. Can WSM confirm that this containerised plant will treat all leachate produced at the Ecohive complex or will this only be restricted to the site in question?</p>	<p>4. WasteServ, in its preparation for tender issuance is focusing on the quality of leachate and the quality of processed (out) effluent. With reference to the latter, this shall be compliant with the limits defined in S.L. 545.08.</p> <p>5. Noted.</p> <p>6. The proposed system shall treat leachate from both Ghallis and Zwejra landfills.</p>
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Environmental Health Directorate (EHD)	<ol style="list-style-type: none"> <li>1. With these variations the Directorate has no objection.</li> <li>2. No waste, foul water and contaminated surface water is to exit the scheme.</li> <li>3. The mentioned mitigation measures for both construction and operation phase are to be adhere to.</li> <li>4. Pest treatment must be carried out along the entire scheme since it is prone to rodent attraction.</li> <li>5. Moreover, any other unpredicted impacts and nuisances which may arise from this operation and that may have a significant adverse effect on public health are to be immediately addressed by the applicant and the necessary mitigation measures taken.</li> <li>6. Complaints lodged by the public regarding any adverse impacts/nuisances should be immediately addressed by the applicant. All complaints lodged and actions taken are to be recorded and such records are to be readily available to the Competent Authorities when requested.</li> </ol>	Applicant to note comments from EHD. Conditions will be included accordingly.	Noted.	<ol style="list-style-type: none"> <li>1. When the leachate treatment is in place, the applicant is to carry out the necessary monitoring and mitigation measures to prevent and/or limit odour pollution.</li> <li>2. It is suggested that sprayed water used a dust suppression technique shall be 1<sup>st</sup> class water and treated with a biocide.</li> </ol>	<ol style="list-style-type: none"> <li>1. Noted.</li> <li>2. WasteServ shall be analysing this water for biological agents for this specific purpose (dust suppression).</li> </ol>
Energy and Water Agency (EWA)	No feedback was provided.	--	--	--	/
Civil Protection Department (CPD)	The proposal shall have the Fire safety strategy report covering all premises' s proposal and the <i>access and facilities for the fire service</i> . The applicant's entrusted fire safety engineer shall ensure and declare that premises and its fire safety measures and provisions are adhering the standards approved by the CPD.	Applicant to provide the requested reports according to CPD requirements.	Refer to document titled 'Fire Safety Measures' in Annex 10. Familiarisation visits for the CPD can be coordinated.	CPD went through the fire safety report prepared by Wasteserv Fire Safety Engineer Roberta Apap, and have no further comments to add to what it was reported. It is always important that Wasteserv make sure that their water reservoir is always kept full of water all year round and their fire hydrant ring main is always up and running. The project shall be compliant and adhering the BS 9999.	Noted.
Malta Resources Authority (MRA)	No comments on the application	--	--	-	/

Planning Authority (PA)	This case was recently approved through permit PA 3144/19 and there seem to be no variations from what was already approved by the PA and what is being made available for review, so there is no objection from a land use planning point of view.	--	--	--	/
ERA – Ambient Air Quality and Waste – Air Team	No comments on the application.	--	--	--	/
ERA – Ambient Air Quality and Waste – Noise Team	No comments on the application	--	--	--	/
ERA – Environmental Assessment Unit	The variation to permit IP 0001/06/C in order to permit landfilling activity at the ex-hazardous cell/s within the ECOHIVE Complex is in line with the approved development permit covered by PA 3144/19. No particular concerns from an EIA point of view.	--	--	--	/
ERA - Biodiversity and Water Unit	No feedback was provided.	--	--	--	/
ERA – Compliance and Enforcement Directorate	Annex 11 Site Management System – While it is likely that parts of the SMS are still relevant to the current site procedures, this document needs to be updated to reflect the current state of affairs and the proposed activities being made in this variation application.  Annex 18 – The version of the EMP submitted with this application (V7, dated 7th October 2022) has not yet been approved by ERA. CED had sent an email to WSM with further comments on this version of the document on 23 <sup>rd</sup> February 2023, however to date no reply has been forthcoming.  In terms of Improvement Programme items:	Annex 11 – SMS to be updated accordingly and feedback above in review of Form C.  Annex 18 – EMP to be updated accordingly and in line with above feedback concerning Form C.	Annex 11 WasteServ is currently working on extracting and translating routines described in SMS into procedures. In such manner, these procedures can be integrated into the EMS and their update and control would be easier. Given various other projects, this exercise is expected to be completed by Q1 2024.  Annex 18 Revision V7 is the EMP updated with inclusion of monitoring related to the 2M-MRF which does not fall within scope of this (Ghallis) variation. Feedback on the comments made by the Authority on V7 are being compiled and shall be answered vis-à-vis replies to that variation (2M-MRF).  Item 22	--	/

	<p>Item 22 - ERA is still awaiting an updated proposal following the Authority's reply dated 02/11/2022.</p> <p>Item 26 - This IP is still considered as incomplete.</p> <p>Item 28 – Without prejudice to the REWS feedback above, kindly provide a decommissioning report from a third party warranted engineer for this fuel tank.</p>		<p>Refer to Annex 21.</p> <p>Item 26 In light of a possible / other variation at Ghallis - Frisoli, remaining landfill contour - it would be best that the submission of a closure plan is linked with a future version of the Improvement Programme. It does not make sense to submit a closure plan today when changes are envisaged.</p> <p>Item 28 Refer to Annex 24.</p>		
<p>ERA – Ambient Air Quality and Waste – Waste Team</p>	<p>We would like to receive the Construction Quality Assurance Validation Report which will be submitted to ERA for review as annex 7 indicates (Refer to Annex 7 - Wasteserv Malta Ltd, Magħtab Landfill Site Steepwall Disposal Cell, Specification and CQA Plan, Ref. No. 30499; 24 January 2022).</p>	<p>Applicant to provide the requested report or otherwise indicate time frames when they shall be made available, and ensure timely submission to ERA thereafter.</p>	<p>The document in Annex 7 is the <u>plan</u> on how the new landfill shall be built. The CQA <u>report</u> (capturing how the landfill was <u>actually</u> built) shall be submitted in the future when works have started and/or are completed.</p> <p>The CQA Engineer shall submit to ERA independent Validation Reports verifying compliance of the works and identifying any non-compliance issues prior to any waste placement in the cell.</p> <p>As the liner construction will continue during the operation of the disposal cell, Validation Reports shall be issued in several volumes, as follows:</p> <ul style="list-style-type: none"> <li>• Main Report – after completion of the formation, basal liner, access ramp liner, first section of steepwall liner, protection layers, drainage layer and leachate collection system.</li> <li>• Supplementary Reports – periodically, describing the completed steep wall lifts (subject to confirmation by ERA).</li> <li>• Final Report – describing the capping and closure.</li> </ul> <p>Works shall be certified upon achieving the following milestones:</p>	<p>Noted.</p>	<p>/</p>

			<ul style="list-style-type: none"><li>• Upon commencement of works.</li><li>• Upon completion and approval by ERA of the basal liner and 1<sup>st</sup> lift.</li><li>• Upon completion and approval of each lift (not more than 15).</li></ul>		
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### Comments from Public Consultation

No comments on the application were received from the public.