| # | **Post Consultation and Submissions Resource Consent Conditions for Surfing Impact Mitigation – August 2016** |
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| | **Surf Mitigation Management Plan** |
| 1[1] | Not less than 6 months prior to the commencement of the construction of the runway extension the consent holder shall prepare and submit to the Manager GWRC for certification a Surf Mitigation Adaptive Management Plan (SMAMP). The SMAMP shall be prepared by an appropriately qualified expert, following consultation with the steering committee set out in condition 2. The purpose of the SMAMP shall be to provide:<br>(a) A description of the key performance design criteria for the Submerged Wave Focusing Structure (SWFS) to offset the loss in surfing quality predicted in the middle and western sections of the beach;<br>(b) Confirmation of the proposed location of the SWFS;<br>(c) Details of the methodology and material to be used to construct the SWFS; and<br>(d) Monitoring, reporting and maintenance requirements following the construction of the SWFS. |
| | **Surf Steering Committee** |
| 2 | Prior to the preparation of the SMAMP, the consent holder shall establish a steering committee that incorporates representation from stakeholder groups including but not limited to Wellington Board Riders Club, and local Surf Lifesaving Clubs (Surf Steering Committee), The steering committee shall continue to exist for the life of the consent. The Surf Steering Committee shall:<br>(a) Have input into the detailed design phase of the structure in accordance with condition 3 (below);<br>(b) Review baseline monitoring results including those prepared for the SWFS and provide feedback;<br>(c) Review the draft SMAMP and to provide feedback;<br>(d) Review the operational monitoring results and provide feedback;<br>(e) Act as a liaison group for WIAL whenever any maintenance work is being carried out by the consent holder that may impact on the surf at Lyall Bay, including 'the Corner'. This shall include maintenance of the rock wall at 'the Corner' where it runs parallel to the runway;<br>(f) Act as a liaison group for WIAL as to any emergent swimmer safety issues that arise as a result of the SWFS.<br>The consent holder shall engage and fund the costs of an independent and appropriately qualified and experienced expert to assist the Surf Steering Committee with undertaking its functions as required. Other costs incurred by the Surf Steering Committee in undertaking its functions shall be met by the consent holder. |

[1] These conditions supersede proposed conditions 66 – 79 in Chapter 8 of the AEE.

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| | **Key Performance Criteria** |
| 3 | The consent holder shall ensure that the key performance design criteria for the SWFS as described in the SMAMP prepared in accordance with condition 1 achieve the following objectives:<br><br>(a) That the SWFS shall be designed to meet the following parameters, in a wide representative range of surfable wave conditions (ranging from average to very good quality conditions):<br><br>i. the generation of localised wave focusing across its footprint thereby forming pronounced wave peaks; and<br><br>ii. after generation, each wave peak shall propagate into shallower water to form peeling waves suitable for surfing (as opposed to waves tending to close-out), and as far as is practicable, the structure shall be designed to result in surfable rides of at least 50 – 100 metres in length; and<br><br>iii. the overall number and distribution of quality surfable rides post the completion of the runway extension shall be either equal to or better than for existing surfing conditions;<br><br>(b) That the SWFS shall not cause an increase in safety risk to swimmers during mild wave and weather conditions;<br><br>(c) That the crest height of the structure shall be low enough to prevent waves breaking on the structure except during rare periods of exceptionally large wave heights;<br><br>(d) That the SWFS is located and designed in such a way so as to have negligible adverse effects on surfability at the surf break known as the Corner;<br><br>(e) That the SWFS shall not pose a safety risk to board riders, or other recreational users within Lyall Bay (other than risks normally associated with surfing and other recreational activities);<br><br>(f) That the SWFS shall not cause adverse coastal erosion or accretion when assessed against the baseline information obtained to meet the requirements of Conditions 5 and 6;<br><br>(g) That the SWFS shall be built in such a way that its structural integrity is not compromised by excessive seabed mobility or localised scour; and<br><br>(h) That the material selection and construction method shall not cause any adverse impacts on significant marine habitat or species. |
| | **Design of SWFS** |
| 4 | In preparation of the SMAMP in accordance with condition 1, further modelling to confirm the final overall shape, size and position of the SWFS shall be undertaken by an appropriately qualified expert(s) to confirm that the location and design of the structure will meet objectives (a) – (h) of Condition 3. This modelling shall include a review of a range of alternative design iterations and predicted swell events/scenarios that could arise as a result of each. The preferred design shall be selected in consultation with the Surf Steering Committee as set out in condition 2 and the reasons for its selection and predicted swell events/scenarios shall be described in the SMAMP. |

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| | **Baseline Monitoring of Existing Surf Conditions** |
| 5 | Before preparation of the SMAMP in accordance with condition 1, the consent holder shall commission monitoring by an appropriately qualified expert(s) in order to provide additional baseline information which shall include:<br><br>(a) An assessment of detailed wave measurements (length, height, period) at the Lyall Bay entrance, 'The Corner', and the anticipated location of the SWFS. Detailed measurements shall be obtained for a period of not less than six months and include at least three occurrences of each of the swell and weather scenarios outlined in section 5.3 of the draft SMAMP [attached as Annexure 1 to these conditions];<br><br>(b) Seasonal surveys of nearshore bed morphology of the Lyall Bay area including at the anticipated location of the SWFS; and<br><br>(c) A pre-construction surfing amenity survey. |
| 6 | The monitoring of the sea bed morphology required by condition 5(b) shall be undertaken using LiDAR or similar technology to survey Lyall Bay on a quarterly basis for a period of one year. The purpose of this monitoring shall be to assess and quantify seasonal variations in sediment movements within Lyall Bay. |
| 7 | The surfing amenity survey required by condition 5(c) shall entail the use of suitable tracking devices fitted to surf boards to assess the distribution and length of surfable wave rides in Lyall Bay in a range of surf conditions. The study shall involve at least 10 surfers surfing concurrently at agreed locations in Lyall Bay during each event. The survey shall take place over a period of at least three months. |
| | **Construction of SWFS** |
| 8 | The consent holder shall ensure that the SMAMP prepared in accordance with condition 1 includes a detailed description of the methodology and materials that will be used in the construction of the SWFS. This shall include, but is not limited to:<br><br>(a) Confirmation that the material selected to construct the SWFS has proven durability in the marine environment;<br><br>(b) Confirmation that the SWFS shall be designed to require minimal repair or maintenance for the life of the structure;<br><br>(c) Provision of a construction methodology that takes into account the local characteristics of the site including sourcing of material, construction plant and machinery, construction timeframes, potential risks (i.e. storm events), the need to minimise any adverse effects on public access and use in and around the construction site to the extent practicable; and<br><br>(d) Detailed design and engineering plans of the SWFS including:<br><br>i. Location of the SWFS backed by a geo referenced aerial photograph. The layout will include as a minimum; exact distance offshore, orientation in relation to shoreline, plan shape, major axis length and minor axis width, indication of batter slopes, location of nearby natural reef features; and<br><br>ii. Typical sections through the SWFS along the major and minor axes sufficient to describe the main elements and significant form variations of the structure. Typical |

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| | sections will include as a minimum existing seabed levels (relative to AHD), main tidal plane information, design crest heights (relative to AHD), and average properties of structural materials. |
| 9 | Once the SMAMP prepared in accordance with condition 1 has been certified by the consent authority, the consent holder shall prepare and submit to the consent authority relevant construction details. |
| 10 | The consent holder shall ensure that the SWFS is constructed in accordance with the construction details required by condition 8. Construction shall commence at the same time as or immediately following the placement of rock armouring around the runway extension reclamation (Stage B of the construction). Once commenced, work to complete the construction of the SWFS shall be carried out in a continuous manner so that the SWFS is completed within a single construction phase and so as to ensure that it is completed within a period of twelve months from the date of commencement. |
| | **Post Construction Performance Monitoring** |
| 11 | Once the SWFS has been established, the consent holder shall be required to monitor the effects and performance of the SWFS. This monitoring shall commence within six months of completion of the construction of the SWFS. The monitoring requirements shall include:<br>(a) An assessment of detailed wave measurements at the Lyall Bay entrance, 'the Corner' and the location of the SWFS;<br>(b) A survey of nearshore bed morphology of the Lyall Bay area, including at 'the Corner' and the location of the SWFS in accordance with condition 5(b) and 6;<br>(c) A surfing amenity survey undertaken in accordance with conditions 5(c) and 7.<br>The purpose of this monitoring shall be to provide a comparative analysis of the effects of the SWFS on wave quality in order to confirm its success and fulfilment of the objectives of the SMAMP. This monitoring shall also confirm that the structure is not resulting in any significant adverse effects with respect to sea bed morphology or adverse erosion/accretion, and swimmer and/or recreation safety within the Lyall Bay area. |
| 12 | A report shall be prepared by a suitably qualified and experienced expert summarising the results of the post construction performance monitoring undertaken in accordance with condition 11 and submitted to the Manager GWRC. |
| 13 | If analysis of the monitoring undertaken in accordance with condition 11 determines that the SWFS is not achieving the objectives of the SMAMP, the consent holder shall be required to investigate the likely cause, and detail appropriate mitigation or remedial action. This shall be discussed with the Surf Steering Committee set out in condition 2.<br>If any such mitigation or remedial action is required this shall be completed within six months of receipt of the post construction monitoring report, subject to any additional consents or approvals being required. In these circumstances further and ongoing monitoring programme to determine the effectiveness of mitigation measures will also need to be developed and implemented by the consent holder. |
| 14 | If analysis of the monitoring undertaken in accordance with condition 11 determines that the SWFS is successful in achieving the objectives of the SMAMP, the consent holder shall be required to repeat the monitoring set out in condition 11 in the following circumstances:<br>• every five years for the duration of the consent; or |

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| | • in circumstances where there is clear evidence that the SWFS has been damaged to the extent that it is unlikely to be meeting the parameters set out in condition 3. |