# Life Cycle Impacts: Concrete

### Credit 19B.1

### Design Review Submission ☐ As Built Submission ☐

|  |  |  |  |
| --- | --- | --- | --- |
| Total Points available: | 3 | Points claimed: | [#] |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Criteria** | **Description** | Points available | Points claimed |
| **19B.1.1** | **Portland Cement Reduction** | 15% of cement in situ and 10% of cement in precast concrete [1 point];  or | 2 | [#] |
|  | 25% of cement in situ and 15% of cement in precast concrete [2 points]. |
| **19B.1.2** | **Alternative Fuel** | All the GP Portland cement is sourced from manufacturers that use 10% alternative fuel. | 0.5 |  |
| **19B.1.3** | **Aggregates Reduction** | At least 25% of coarse aggregate in the concrete is crushed slag aggregate or another alternative materials (measured by mass across all concrete mixes in the project), provided that use of such materials does not increase the use of Portland cement by over five kilograms per cubic meter of concrete. | 0.5 |  |

## Project-specific technical questions (formerly tcs and cirs)

|  |  |
| --- | --- |
| There are no project-specific Technical Questions for this credit. |  |
| There are project-specific Technical Questions for this credit and all responses received from the NZGBC are attached. |  |

19.b.1 general

### Cost of Concrete Summary

|  |  |
| --- | --- |
| Total Cost of New Concrete |  |
| Project Contract Value |  |
| Percent Value of Concrete |  |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation** (Name / title / description of document) | **Reference** (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

19B.1.1 portland cement reduction

|  |  |
| --- | --- |
| The project has reduced the absolute quantity of Portland Cement by replacing it with supplementary cementations materials. |  |
| Provide the % (mass) of Portland cement in situ that has been replaced: | [xx]% |
| Provide the % (mass) of Portland cement in precast concrete that has been replaced: | [xx]% |

### Concrete Mix Summary

**19B.1.1.1 Portland cement in situ**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Mix Label** | **Mpa (following AS1379)** | **Volume (m3)** | **Reference Case Portland Cement Content (kg/m3)** | **Total Portland Cement Content Under the Reference Case** | **Actual Portland Cement Content (kg/m3)** | **Actual Total Portland Cement Content** |
| [Mix 1] |  |  |  |  |  |  |
| [Mix 2] |  |  |  |  |  |  |
| [Mix 3] |  |  |  |  |  |  |
| [Mix 4] |  |  |  |  |  |  |
| [Mix 5] |  |  |  |  |  |  |
| etc |  |  |  |  |  |  |
| Overall Total Portland Cement (kg) | | | | **[x]** |  | **[y]** |
| Overall percentage of replacement (%) | | | | **[1-(y/x)(100)=%]** | | |
| Portland cement content **in situ** was reduced by [%] and [1/2] point/s are claimed | | | | | | |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation** (Name / title / description of document) | **Reference** (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

**19B.1.1.2 Portland cement in precast concrete**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Mix Label** | **Mpa (following AS1379)** | **Volume (m3)** | **Reference Case Portland Cement Content (kg/m3)** | **Total Portland Cement Content Under the Reference Case** | **Actual Portland Cement Content (kg/m3)** | **Actual Total Portland Cement Content** |
| [Mix 1] |  |  |  |  |  |  |
| [Mix 2] |  |  |  |  |  |  |
| [Mix 3] |  |  |  |  |  |  |
| [Mix 4] |  |  |  |  |  |  |
| [Mix 5] |  |  |  |  |  |  |
| etc |  |  |  |  |  |  |
| Overall Total Portland Cement (kg) | | | | **[x]** |  | **[y]** |
| Overall percentage of replacement (%) | | | | **[1-(y/x)(100)=%]** | | |
| Portland cement content **in precast concrete** was reduced by [%] and [1/2] point/s are claimed | | | | | | |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation** (Name / title / description of document) | **Reference** (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

19B.1.2 Alternative Fuel

|  |  |
| --- | --- |
| All the GP Portland cement is sourced from manufacturers that use 10% alternative fuel. |  |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation** (Name / title / description of document) | **Reference** (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

19B.1.3 aggregates reduction

|  |  |
| --- | --- |
| At least 25% of coarse aggregate in the concrete is crushed slag aggregate or another alternative materials (measured by mass across all concrete mixes in the project), provided that use of such materials does not increase the use of Portland cement by over five kilograms per cubic meter of concrete. |  |

### Aggregate Replacement Summary

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Mix Label** | **Mix Volume (m3)** | **Total (Kg/ m3)** | **Total Coarse/Fine Aggregate in Mix** | **Alternative Aggregate Component (kg/ m3)** | **Total Alternative Aggregate** |
| [Mix 1] |  |  |  |  |  |
| [Mix 2] |  |  |  |  |  |
| [Mix 3] |  |  |  |  |  |
| [Mix 4] |  |  |  |  |  |
| [Mix 5] |  |  |  |  |  |
| Totals | |  | **[x]** |  | **[y]** |
| **Overall percentage of replacement (%)** | | **[(y/x)(100)=%]** | | | |
| **Points Claimed** | | **[x]** | | | |

Identify where this information can be found within the supporting documentation provided.

|  |  |
| --- | --- |
| **Supporting Documentation** (Name / title / description of document) | **Reference** (Page no. or section) |
| [####] | [####] |
| [####] | [####] |

## DISCUSSION

Outline any issues you would like to highlight and clarify with the Certified Assessor(s).

## DECLARATION

I confirm that the information provided in this document is truthful and accurate at the time of completion.

Provide author details, including name, position and email address:

[Date]

––– **Report end** –––