

Thames river basin district: climate change risk assessment worksheet

Hanson Quarry Products Europe Limited

Our permit reference number (if you have one): EPR/KB3309MQ/A001

Document ref. 4656-CAU-XX-XX-RP-V-0301.A0.C1

The client wishes to undertake a waste recovery operation in accordance with the Waste Recovery Plan to import approximately 279,000 tonnes (155,000m³) of inert waste for the revised restoration scheme for the plant area under a waste recovery activity. It is expected that restoration will be completed in no more than 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore, the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry but an assessment has been undertaken to cover the potential that operations may extend beyond 5 years.

Risk assessment worksheet for the 2050s

Thames river basin district

You must carry out a climate change risk assessment for any new bespoke waste and installations permit applications if you expect to operate for more than 5 years. Use the [user guide](#) to complete the table. You can add in extra pages if necessary.

Consider how your operations will be affected by the changes in weather and climate described in the table. Consider any changes to average climate conditions that may impact on your operations, for example extreme rainfall.

Also consider:

- critical thresholds - where a 'tipping point' is reached, for example a specific temperature where site processes cannot operate safely
- changes to averages - for example an entire summer of higher than expected rainfall causing waterlogging
- where hazards may combine to cause more impacts

You can add in other climate variables if you wish.

If you have stated on your application form that you do not expect to be operational in 2050, you must still consider climate change risks for the time you do intend to operate. Whilst the variables are for the 2050s, this is an estimated date and you may experience these conditions before then.

This worksheet will sit in your management system. It must appear on the management system summary you submit with your application, even if you do not need to submit the whole risk assessment with your application.

If your pre-mitigation risk score (column D) is 5 or higher, you must complete columns E to H.

Potential changing climate variable	A Impact	B Likelihood	C Severity	D Risk (B x C)	E Mitigation (what will you do to mitigate this risk)	F Likelihood (after mitigation)	G Severity (after mitigation)	H Residual risk (F x G)
1. Summer daily maximum temperature may be around 7°C higher compared to average summer temperatures now.	<p>Very little impact on restoration activities, these are not dependant on temperature.</p> <p>Impact on water levels on surface water lagoons used for dust suppression measures (bowser). Water levels may be too low for use in summer periods</p>	3	3	9	<p>Mains water will always be available should the surface water lagoons be too low to be used for dust suppression.</p> <p>It is expected that restoration will be completed in 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry.</p>	1	1	1
2. Winter daily maximum temperature could be 4°C more than the current average, with the potential for more extreme temperatures, both warmer and colder than present.	Very little impact as restoration activities not dependant on temperature	1	1	1	N/A	N/A	N/A	N/A

<p>3. The biggest rainfall events are up to 20% more intense than current extremes (peak rainfall intensity)*.</p>	<p>Restoration activities not dependant on rainfall. If anything, will provide more available water for dust suppression in lagoons.</p> <p>The majority of the Site is located within the EA Flood Zone 1 area, 'low risk of flooding – less than 0.1%'. with a small area of the south eastern section falling in a Flood Zone 2 area (0.1% risk of flooding) and a very minor area within a Flood Zone 3 area (1% risk of flooding). However, these areas are incorporated pond areas in the final restoration landform.</p> <p>Flood risk and flood modelling storage capacity modelled in the 'Hydrological Assessment (September 2019) document ref. HNCASS/HA/001/19, has indicated that the Site area will provide an increase in storage capacity across the site for flood levels up to and exceeding the maximum predicted flood elevations (in this case 1% flood risk plus 70% climate change allowance. (see Table 7 of the Hydrological Assessment).</p>	2	5	10	<p>No dewatering shall be undertaken while nearby watercourses are running bank full under flood conditions.</p> <p>Also see Amenity & Accidents Risk Assessment, document ref.4656-CAU-XX-XX-RP-V-0302.A0-C1</p> <p>Incorporation of ponds within the final restoration design as per drawing ref: C4/HAN/05/04-constructed in continuity with sand and gravel deposit so the south will provide attenuation capacity for control of run-off. Ponds will provide an increase in flood storage capacity compared to existing landform. Direction of run off to the ponds will provide adequate control for runoff water to prevent an increase in local flood risk. Based on the incorporation of the pond areas within the final restoration landform, planning controls/further mitigation are considered unnecessary with regard to the potential for post-restoration impact upon extant flood risk in the locality.</p> <p>It is expected that restoration will be completed in 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry.</p>	2	1	2
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<p>4. Average winter rainfall may increase by 36% on today's averages.</p>	<p>Restoration activities not dependant on rainfall. If anything, will provide more available water for dust suppression in lagoons.</p> <p>The majority of the Site is located within the EA Flood Zone 1 area, 'low risk of flooding – less than 0.1%'. with a small area of the south eastern section falling in a Flood Zone 2 area (0.1% risk of flooding) and a very minor area within a Flood Zone 3 area (1% risk of flooding). However, these areas are incorporated pond areas in the final restoration landform.</p> <p>Flood risk and flood modelling storage capacity modelled in the 'Hydrological Assessment (September 2019) document ref. HNCASS/HA/001/19, has indicated that the Site area will provide an increase in storage capacity across the site for flood levels up to and exceeding the maximum predicted flood elevations (in this case 1% flood risk plus 70% climate change allowance. (see Table 7 of the Hydrological Assessment).</p>	2	5	10	<p>Also see Amenity & Accidents Risk Assessment, document ref.4656-CAU-XX-XX-RP-V-0302.A0-C1</p> <p>Incorporation of ponds within the final restoration design as per drawing ref: C4/HAN/05/04-constructed in continuity with sand and gravel deposit so the south will provide attenuation capacity for control of run-off. Ponds will provide an increase in flood storage capacity compared to existing landform. Direction of run off to the ponds will provide adequate control for runoff water to prevent an increase in local flood risk. Based on the incorporation of the pond areas within the final restoration landform, planning controls/further mitigation are considered unnecessary with regard to the potential for post-restoration impact upon extant flood risk in the locality.</p> <p>It is expected that restoration will be completed in 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry.</p>	1	1	1
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5. Sea level could be as much as 0.6m higher compared to today's level *.	‘Very Low Risk’ as indicated in the gov.uk long term flood risk map. The site area has a chance of sea flooding of less than 0.1%	1	1	1	N/A	N/A	N/A	N/A
6. Drier summers, potentially up to 42% less rain than now.	<p>Very little impact on restoration activities, these are not dependant on temperature.</p> <p>Impact on water levels on surface water lagoons used for dust suppression measures (bowser). Water levels may be too low for use in summer periods</p>	3	3	9	<p>Mains water will always be available should the surface water lagoons be too low to be used for dust suppression.</p> <p>It is expected that restoration will be completed in 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry.</p>	1	1	1

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7. At its peak, the flow in watercourses could be 35% more than now, and at its lowest it could be 75% less than now.	<p>The majority of the Site is located within the EA Flood Zone 1 area, 'low risk of flooding – less than 0.1%'. with a small area of the south eastern section falling in a Flood Zone 2 area (0.1% risk of flooding) and a very minor area within a Flood Zone 3 area (1% risk of flooding). However, these areas are incorporated pond areas in the final restoration landform.</p> <p>Flood risk and flood modelling storage capacity modelled in the 'Hydrological Assessment (September 2019) document ref. HNCASS/HA/001/19, has indicated that the Site area will provide an increase in storage capacity across the site for flood levels up to and exceeding the maximum predicted flood elevations (in this case 1% flood risk plus 70% climate change allowance. (see Table 7 of the Hydrological Assessment).</p>	2	5	10	<p>Also see Amenity & Accidents Risk Assessment, document ref.4656-CAU-XX-XX-RP-V-0302.A0-C1</p> <p>Incorporation of ponds within the final restoration design as per drawing ref: C4/HAN/05/04-constructed in continuity with sand and gravel deposit so the south will provide attenuation capacity for control of run-off. Ponds will provide an increase in flood storage capacity compared to existing landform. Direction of run off to the ponds will provide adequate control for runoff water to prevent an increase in local flood risk. Based on the incorporation of the pond areas within the final restoration landform, planning controls/further mitigation are considered unnecessary with regard to the potential for post-restoration impact upon extant flood risk in the locality.</p> <p>It is expected that restoration will be completed in 5-6 years and possibly sooner depending on the availability of suitable materials. Therefore the impact of potential changing climate may not impact the operations at the Plant Site area, Cassington Quarry.</p>	2	1	1

*Indicates data has come from climate change allowances as part of the spatial planning process. Evidence from your planning submission is acceptable evidence for this worksheet.