



ANSWERS TO QUESTIONS FROM COALCLIFF RESIDENTS REGARDING THE STORM ON APRIL 6, 2024

- **Why have two storms in the last two years at Coalcliff been described as "1 in 100 year" events? How is that possible?**
 - Climate change may be contributing to the frequency and severity of the recent storm events. Major storms occurred in March 2022, February 2023 and April 2024.
 - The description "1 in 100 year event" has been largely discontinued by hydrologists who now use "1% Annual Exceedance Probability event" (abbreviated to 1% AEP event) to describe a storm that would be expected to occur once in 100 years based on historical rainfall records. Annual Exceedance Probability may be unfamiliar, but AEP better describes storms as it captures both the intensity and duration of rainfall. More information is available from the Bureau of Meteorology here - <http://www.bom.gov.au/water/designRainfalls/rainfallEvents/why100years.shtml>
 - There is no official rainfall recording for Coalcliff, so Coalcliff rainfall is estimated from nearby weather stations including Bellambi. For Coalcliff, ICC's consulting drainage engineer, Anthony Barthelmess has estimated:
 - The April 6, 2024 storm was a 0.5% AEP rainfall event.
 - The February 9, 2023 storm was rarer than a 0.5% AEP rainfall event.
 - The March 8, 2022 storm was a 2% AEP rainfall event.
- **How severe was the storm on April 6, 2024 at Coalcliff?**
 - The storm on April 6 was severe, causing flash flooding and damage to many low-lying properties and roads across the Illawarra.
 - 194 mm of rain fell at Bellambi, the nearest official weather station to Coalcliff. More than 200mm of rain impacted parts of Sydney and the Illawarra, with around 4,000 NSW SES volunteers responding to 3135 calls for help over a 24-hour period.
 - In the April 6 storm, SES crews responded to more than 220 incidents in the Illawarra, including 60 flood rescues.

- **It has become clear from the 2023 and 2024 storms that existing drainage systems on Lawrence Hargrave Drive need to be upgraded to cope with storms of increased severity. What steps is the Illawarra Coke Company (ICC) taking to support an upgrade to the drainage system on Lawrence Hargrave Drive?**
 - Our Coalcliff neighbours are particularly affected by stormwater because their properties lie below Lawrence Hargrave Drive, which has only informal drains on the western side of the road, both north and south of the Coke Works access road. We believe larger, properly formed drains on the western side of the road will greatly alleviate the problem. We have asked our consulting drainage engineer, Anthony Barthelmess, to provide us with a preliminary design that would form the basis of consultation between community representatives, ICC and Transport for New South Wales about improving drainage on Lawrence Hargrave Drive. Anthony has previously worked with Transport for New South Wales to successfully resolve a similar issue at Wombarra.
 - ICC has also asked Anthony to design a regrading of the main Coke Works access road to reduce water flow down the road during major storm events.
 - We are reviewing the entirety of our drainage system to see if there are other improvements we can make.

- **How does ICC manage and maintain its drainage system?**
 - The Coke Works property sits adjacent to and below a large area of national park, and is bisected by the South Coast Rail Corridor. In addition to the rain that falls on our property in major storms our property also receives very large volumes of water from the national park, some of it after it transits the rail corridor and some directly from the rail corridor itself.
 - ICC maintains an extensive drainage network. We inspect the drains according to a formal schedule, and after significant rainfall. Important drains are inspected weekly, and cleaned on an as needed basis. Our weekly inspections include the main access road drains, including the three drains across the drive. The top two cross road drains divert roadway water to Stony Creek. The lowest cross access road drain diverts most water away from the roadway entrance area to drains on the western side of Lawrence Hargrave Drive.

- **Did a failure of ICC's drainage system contribute to the stormwater damage in Coalcliff on April 6?**
 - Inspection, including on the morning of April 6, indicated that our major drains functioned properly during the storm.

- **Did the Coalcliff dam contribute to the stormwater at Coalcliff?**

- The Coalcliff dam discharges all overflow into Stanwell Creek on Stanwell Tops. None of the water flows to Coalcliff or to Stony Creek. The Coalcliff dam was unaffected by the storm.
- The dam is inspected weekly by a qualified inspector. It was in very good condition before the storm and remains in very good condition.

- **What caused the stormwater damage to LHD on April 6?**

- Sometime during the storm, the flow in Stony Creek exceeded the capacity of the Sydney Trains rail culvert. This culvert ordinarily channels Stony Creek under the rail line. During the storm, water built up at the rail culvert entrance until it overflowed onto ICC's property. A very large volume of water then flowed north beside the rail tracks towards Coalcliff station before crossing the rail corridor directly above the location where it caused damage to Lawrence Hargrave Drive and deposited rocks and mud onto the road. The overflow of water from the rail line towards Lawrence Hargrave Drive caused massive erosion of ICC's property.

Below - Damage to the South Coast rail line at Coalcliff



Source: Transport for NSW update April 8, 2024, 10.03am

Below – Erosion on ICC’s property where the water from Stony Creek flowed after crossing the South Coast rail line at Coalcliff (note the figure in the centre of the photo)



Source: Illawarra Coke Company

- **Why did water come down the Coke Works access road during the storms in 2024 and 2023?**
 - There were different causes in each case.
 - In February 2023 a rock fell into the Coke Works access road main drain during the storm, not far above the main gate to the Coke Works. This unfortunately diverted water onto the main road. This overwhelmed the drain across the road just above the gate and allowed water onto Lawrence Hargrave Drive.
 - On April 6 2024 our main road drain remained clear, but it was simply overwhelmed by the intensity and amount of the rainfall. Similar outcomes of the storm were reported across the Illawarra.
- **Neighbours have reported a large pulse of water coming down Lawrence Hargrave Drive during the early hours of April 6. Did a failure of ICC's drainage systems cause the pulse?**
 - Other than the massive amount of stormwater that entered our property from the rail corridor, we are not aware of what could have caused a large pulse of water on Lawrence Hargrave Drive.

If you have further questions, please send them to us at info@coalcliffcokeworks.com.au