

# Incident Assessment

Incident ID	CIVo460
Location	Barabashova street 44A, 522 Microdistrict, Kharkiv, Kharkiv oblast
Coordinates	<a href="#">50.0249, 36.3251</a> <sup>1</sup>
Date	The exact date of occurrence could not be confirmed, but the incident most likely took place between 24/02/2022 and 27/02/2022, possibly on 25/02/2022.
Time	Unknown

## Description of the Events

On 27/02/2022, footage showing a 9M55k rocket motor impaled into the ground next to a kindergarten in the North-East district of Kharkiv surfaced online. Additional footage surfaced on 28/02/2022, and a second rocket motor was identified just metres away. The 27/02/2022 saw a heavy shelling of multiple districts of Kharkiv. The direction of fire was determined by analysing the footage of the two rocket motors. The analysis shows the possible area impacted by the 9M55K submunitions 1 km north-west of the rocket motors. The area of origin is likely located on a 20 - 70 km arc pointing in the direction of areas north-west of Kharkiv. At the time, the control of these areas was contested by the Ukrainian and Russian forces.

## Key Findings

- On 27/02/2022 an image of what appears to be a 9M55K rocket motor embedded into the ground was published on Twitter.
- Additional footage was obtained, showing that another 9M55K rocket motor impacted a few metres away from the first.
- The incident was geolocated to 50.0249, 36.3251.
- The identified location of the rocket motors borders the grounds of a kindergarten, with one of the rocket motors being located fully within the grounds of the kindergarten.
- The incident was reported to have taken place on 25/02/2022. However, this could not be confirmed with confidence. Due to the date of posting, this incident must have taken place on or before 27/02/2022.
- The area that was affected by the submunitions of this rocket was not identified.
- The exact area of launch was not identified. However, it was possible to identify the general direction of origin.
- No military presence was identified in the vicinity of the impacted location.

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<sup>1</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>

## Description of Searches

The CIVHARM sheet lists a single source for this incident (Source 1) . This source points to an image of the incident within a Twitter thread.

Further searches were conducted to find any other relevant footage of the incident. Search terms included the general location as well as the specific address.

Searches were limited to 24/02/2022 - 28/02/2022, and were conducted in English, Russian and Ukrainian.

## Background Summary of Significant Descriptive Content

### Media Reports

- [Vgorode](#)<sup>2</sup> (a local Ukrainian news outlet) media article published on 26/02/2022 outlines two civilians being killed as a result of shelling, and features a video footage of the impact. This impact was geolocated to 50.0209, 36.3480 and is 1.6km away from the rocket motors seen in Source 1. This impact may be linked to the rocket motors seen in Source 1, but ultimately no link could be conclusively identified.

### NGO Reports

- None identified.

### Other

- None identified.

## Analysis of Examinable Content

- Source 1: [Twitter](#)<sup>3</sup> - an image posted on 27/02/2022 at 10:36 EET, showing a rocket motor impacted into snow-covered ground. Geolocated to [50.0249, 36.3251](#)<sup>4</sup>.

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<sup>2</sup>

<https://kh.vgorode.ua/news/sobytyia/a1199536-hovorjat-o-dvoikh-pohibshikh-saltovka-podverhlas-zhes-tokomu-obstrely>

<sup>3</sup> <https://twitter.com/2022Kharkiv/status/1498034291577610250?s=20&t=msDldxTbhAxlqvhSCA68ng>

<sup>4</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>



- Source 2: [Youtube](#)<sup>5</sup> - a video premiered on 02/03/2022 at 09:56 EET. A local person walks around the rocket motor and films the incident. It provides a better view of the rocket motor and area of impact. Geolocated to [50.0249, 36.3251](#)<sup>6</sup>.



*Left: Source 1 (S1I1). Right: Still from the video on Source 2 (S2V1). Both show the same rocket motor in the same location from slightly different angles.*

- Source 3: [Youtube](#)<sup>7</sup> - a video posted on 28/02/2022. The original video was deleted from Youtube. The same video was reposted on 04/03/2022 at 17:19 EET. It appears to be filmed by a resident of one of the adjacent buildings. The resident says the date of the recording is 28/02/2022. The reposted video was found with the help of a member of Bellingcat's Tech Team. Geolocated to [50.0249, 36.3251](#)<sup>8</sup>.
- Source 4: [Youtube](#)<sup>9</sup> - a video posted on 01/03/2022 at 11:15 EET. The original video was deleted, but reposted on the same day. Another rocket motor is clearly visible in the video. The video was identified with the help of a member of the Tech Team. Geolocated to [50.0249, 36.3251](#)<sup>10</sup>.

<sup>5</sup> <https://www.youtube.com/watch?v=h-gQDclbjMc>

<sup>6</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>

<sup>7</sup> <https://youtu.be/BwU95cMzbjc>

<sup>8</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>

<sup>9</sup> <https://youtu.be/t4u6RhoAI-g>

<sup>10</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>



*Top: Composite panorama of the video on Source 3 (S3V1). Bottom: Composite panorama of Source 4 (S4V1). Both sources show the same location from almost exactly the same viewpoint.*

All sources can be confirmed as depicting the same rocket motor in the same location. Source 3 and Source 4 were filmed from almost exactly the same location, indicating they may have been filmed by the same person.





*Top: A composite panorama of S4V1. Bottom: A still from S2V1.*

None of the sources displayed any obvious indication of having been manipulated. The information presented, that two rocket motors had impacted next to a school in Kharkiv, was consistent across all sources.

## Questions to Investigate

### Where Was the Incident?

The image from Source 1 was posted to Twitter along with the following caption: “9M55K described as at #Kharkiv Saltivka 522 on 25.02.2022”

This caption helped to geolocate the incident. However, the actual location of the incident was identified to Barabashova street 44A, Microdistrict 522 at [50.0249, 36.3251](#)<sup>11</sup>. This is south of the reported location of Saltivka.

The location was identified with the help of two videos posted to Youtube (S3V1 and S4V1). In these videos a distinct, blue, highrise building is visible. This highrise was identified as the “Парус” or “The Sail” building.



*Left: Still from S4V1, with the “Sail” building marked. Right: Image of “Sail” building posted by an individual to [Google](#).<sup>12</sup>*

Furthermore, a building with a distinctive geometric shape was identified in the foreground of Source 4 which was clearly visible in satellite imagery. This building is marked as a kindergarten and is identified as “2” below.

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<sup>11</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>

<sup>12</sup> <https://goo.gl/maps/LfZ6kPnhWWicJKoD6>





*Left: A satellite image taken from Google Maps, unique building layout marked, along with the “Sail” building and kindergarten marked with a pin (Credit: Google/Maxar Technologies). Right: Still from S4V1, with the same geographical identifiers. The kindergarten is marked with a “2”.*

With this in mind the location of the incident has been geolocated to [50.0249, 36.3251](https://maps.app.goo.gl/nzeSekjn86VR3NiU9)<sup>13</sup>. All sources depict this location. In Source 2 and Source 4 it’s possible to identify a second rocket motor which impacted a short distance away from the rocket motor seen in Source 1.



*Still from S4V1, showing another rocket motor (marked as “2”) located close by the rocket motor seen in Source 1, marked as “1”.*

<sup>13</sup> <https://maps.app.goo.gl/nzeSekjn86VR3NiU9>

The location of the incident is a kindergarten, [Kindergarten 264](#).<sup>14</sup> The second rocket motor impacted fully within the grounds of the kindergarten.



*Geolocation of incident. Left: Composite panorama created from still of S4V1. Right: screenshot from Google Earth Pro, satellite imagery from 27/08/2017 (Credit: Google/Maxar Technologies).*

## **When Was the Incident?**

### **Date**

The earliest identified post regarding this incident is Source 1, which was posted in the evening of the 27/02/2022. While the original post claims the incident occurred on 25/02/2022, this claim could not be verified with confidence. The invasion of Ukraine began on 24/02/2022, making it implausible this incident took place before that date. Based on this information it can be said that the incident had to occur between 24/02/2022 and 27/02/2022.

### **Time**

The time of the incident could not be accurately established. No footage of the impact was obtained and all other examinable content was recorded after the fact.

## **What Kind of Munition Was Used?**

The munition seen appears to be a rocket motor for a 9M55K rocket, a surface-to-surface cluster munition rocket fired from a BM-30 with a payload of submunitions.

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<sup>14</sup> <https://goo.gl/maps/oAwTqsSJKk5WepRf9>





Left: S1I1. Right: 9M55K reference photos and identifiers (Twitter: [Mark Hiznay](https://twitter.com/MarkHiznay)<sup>15</sup>).

It must be noted that this is not a 100% match between the source image and reference photos, as in the source image only 2 hinge holes are clearly seen. The reference photos include 3 evenly spaced hinge holes. Despite this, all other details indicate that this is a 300mm 9M55K rocket rocket motor. Using other images of 9M55K impacts, it appears that the discrepancy in the number of hinge holes seen in the reference photo and in the rocket motors in this incident can be caused by the collar on which the fins are mounted sliding forward and buckling against the main body of the rocket.

<sup>15</sup> <https://twitter.com/MarkHiznay/media>



*Example of a buckled collar on a 9M55K identified in a Facebook [post](#)<sup>16</sup> by the Mykoliav State Emergency Service.*

The investigator has assessed that the rocket motors have been bent from the impact. A chunk of soil is missing from the western side of the rocket motor seen in Source 2, indicating a hard impact from that direction. The eastern side appears to feature a bulge of dirt, indicating that the rest of the rocket motor is buried in that area.

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<sup>16</sup>

[https://www.facebook.com/DSNSMYKOL/posts/pfbidoWEkmQ4LxMTRiknztqvGwgdd77wVHtFxBQV-EpQ1tp6Fq17o6pLZRaTS7UoocgEa7l?\\_\\_cft\\_\\_\[o\]=AZWEN1AUKdXi3e6RXa75X9jGNeCOoDzKkSnqLr3ZzkkFz6JWKC0UZJ2WPR76AuHeoxog8Lwfd1\\_16bidewNHrxoi4F3B72SoAd22vFo4n3pe9PciBrz2vZOxI5-DLVzwHVHuOzU1-xq21edMQAksJdgN&\\_\\_tn\\_\\_=%2CO%2CP-R](https://www.facebook.com/DSNSMYKOL/posts/pfbidoWEkmQ4LxMTRiknztqvGwgdd77wVHtFxBQV-EpQ1tp6Fq17o6pLZRaTS7UoocgEa7l?__cft__[o]=AZWEN1AUKdXi3e6RXa75X9jGNeCOoDzKkSnqLr3ZzkkFz6JWKC0UZJ2WPR76AuHeoxog8Lwfd1_16bidewNHrxoi4F3B72SoAd22vFo4n3pe9PciBrz2vZOxI5-DLVzwHVHuOzU1-xq21edMQAksJdgN&__tn__=%2CO%2CP-R)



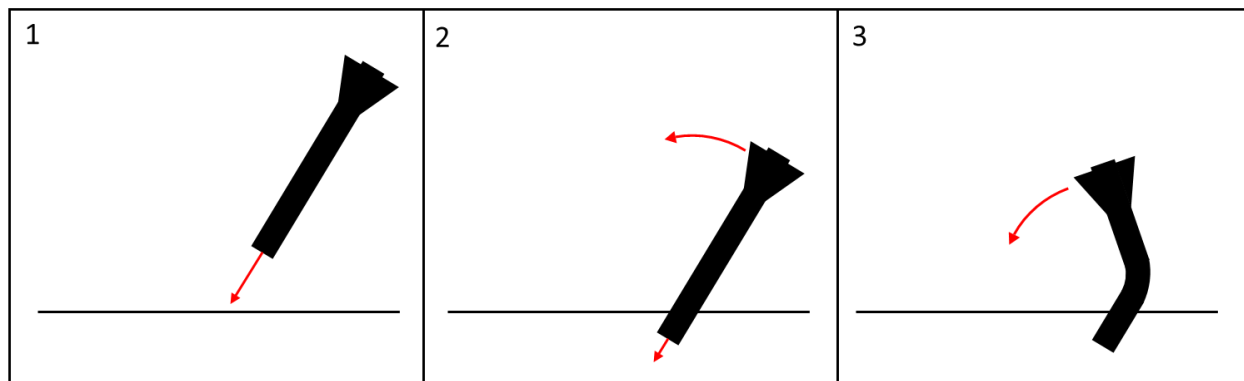


*Close up image of impact from [S2V1](#).<sup>17</sup>*

Signs of lateral stress are visible on both of the rocket motors present at this location, further indicating that they were bent on impact. This can happen when a rocket motor impacts the ground while still having forward momentum. The front section becomes buried, while the rear section continues forward, buckling away from the direction of origin.

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<sup>17</sup> <https://www.youtube.com/watch?v=h-gQDclbjMc>



*Graphic showing how a rocket motor could buckle.*

This buckling is most evident in Source 2.



*Still from S2V1 clearly shows how the rocket motor has buckled.*

### **Is There Any Evidence of the Direction the Munition Came from?**

The general direction of origin was established by assessing the furthest left and furthest right of arc that the rocket motor could have originated from, based on the observed angle of impact and deformation of the rocket motor. This resulted in an arc of 34 degrees from north. While the exact direction of origin was not possible to ascertain, this 34 degree arc provides a good indicator of the general direction of origin.



*Still from S2V1 showing the assessed furthest left and furthest right of arc.*

The second rocket motor seen at the scene appears to be pointing in the same direction as the rocket motor examined above. However there are no close-up images or videos of it, and as such this analysis has focused on the southernmost rocket motor.





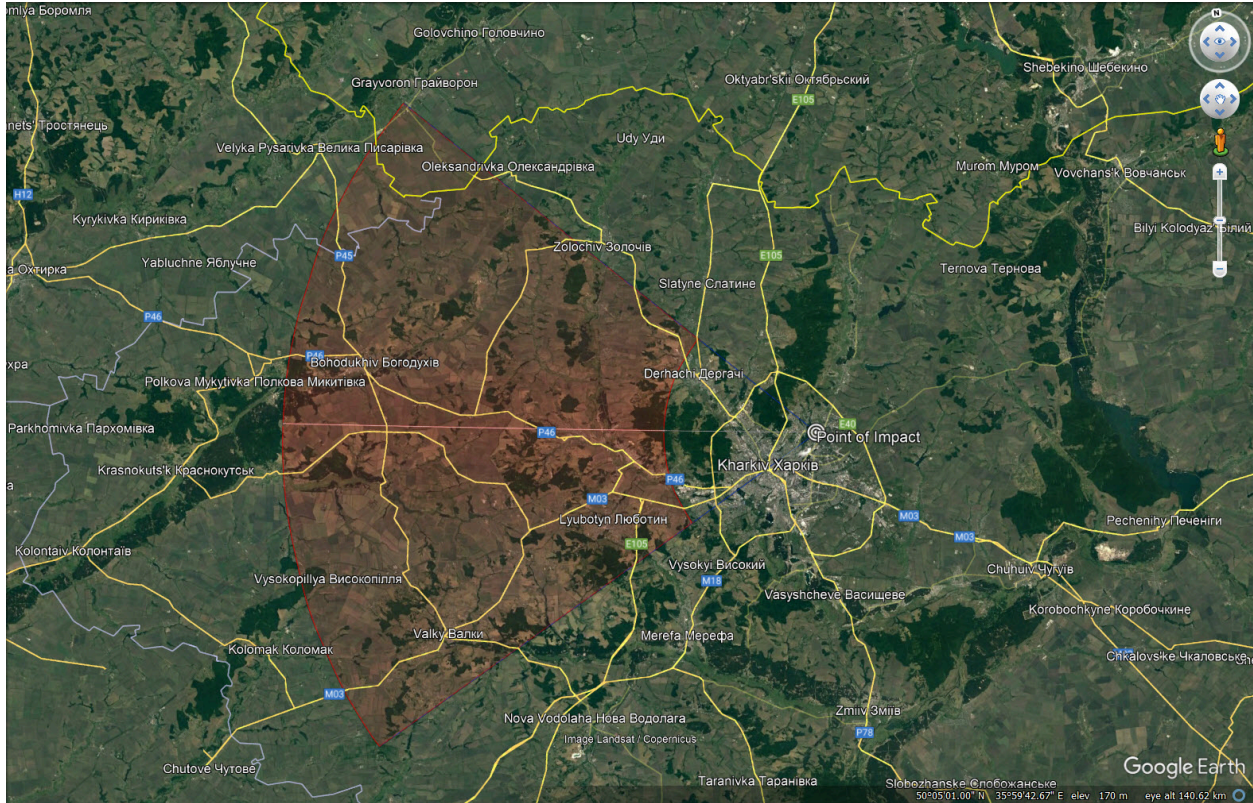
*Still from S4V1 with rough directions of origins marked with yellow arrows. The direction of origin analysis focused on the southernmost rocket motor, marked by the red circle.*

The 9M55K rocket is fired from a BM 30 system which, according to [Army Recognition](https://www.armyrecognition.com/russia_russian_army_vehicles_system_artillery_uk/bm-30_smerch_9k58_300mm_multiple_rocket_launcher_system_technical_data_sheet_information_description.html)<sup>18</sup> has a range of 20 to 70 km. When combined with the arc of direction of origin, this gives us an area of origin within which this 9M55K was likely fired.

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<sup>18</sup>

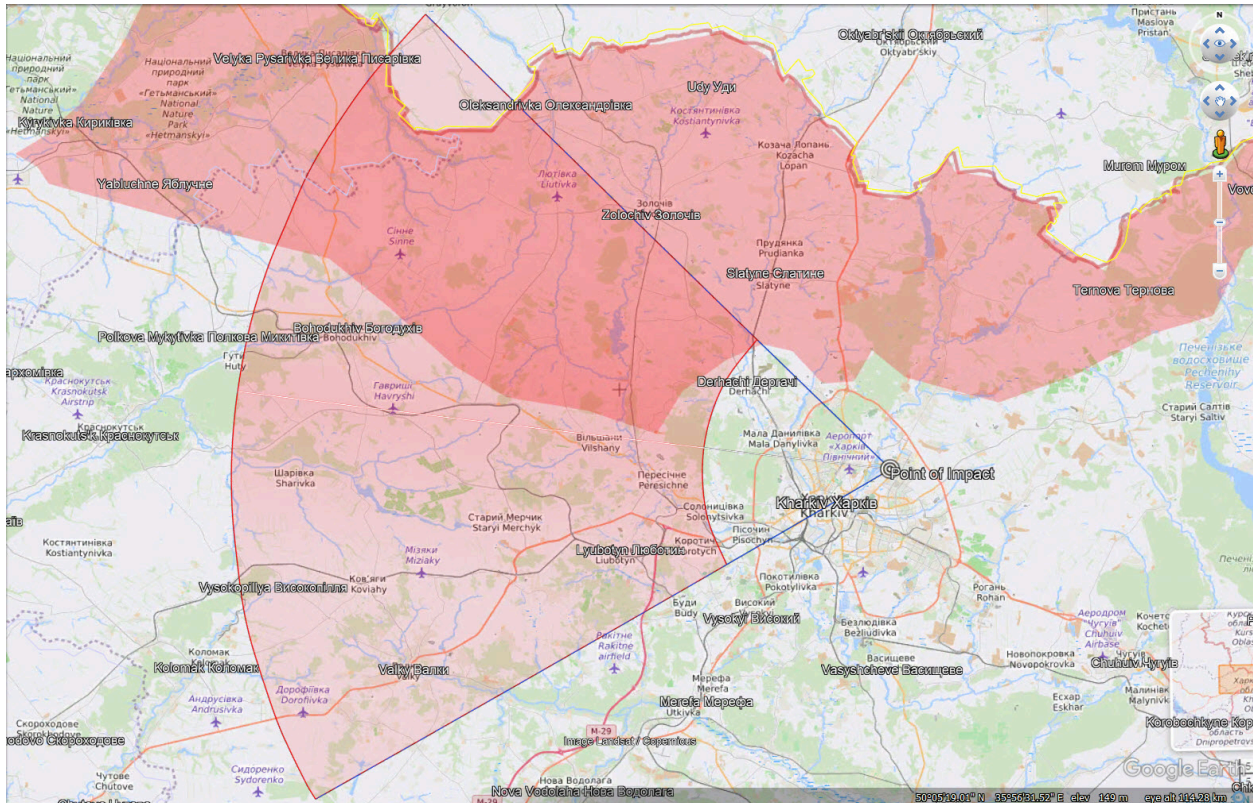
[https://www.armyrecognition.com/russia\\_russian\\_army\\_vehicles\\_system\\_artillery\\_uk/bm-30\\_smerch\\_9k58\\_300mm\\_multiple\\_rocket\\_launcher\\_system\\_technical\\_data\\_sheet\\_information\\_description.html](https://www.armyrecognition.com/russia_russian_army_vehicles_system_artillery_uk/bm-30_smerch_9k58_300mm_multiple_rocket_launcher_system_technical_data_sheet_information_description.html)



*Satellite image from Google Earth Pro. The centre of arc is in red, along with the 20 km to 70 km arcs (credit: Google/Maxar Technologies/CNES/Airbus).*

The 20 km - 70 km arcs can be compared to a map of areas which were reported to be under Russian occupation for the period starting on 25/02/2022, which is the date that the investigator assessed is the earliest likely date for this incident to have occurred. It should be noted that the areas of control within the graphic below should be regarded as estimates.

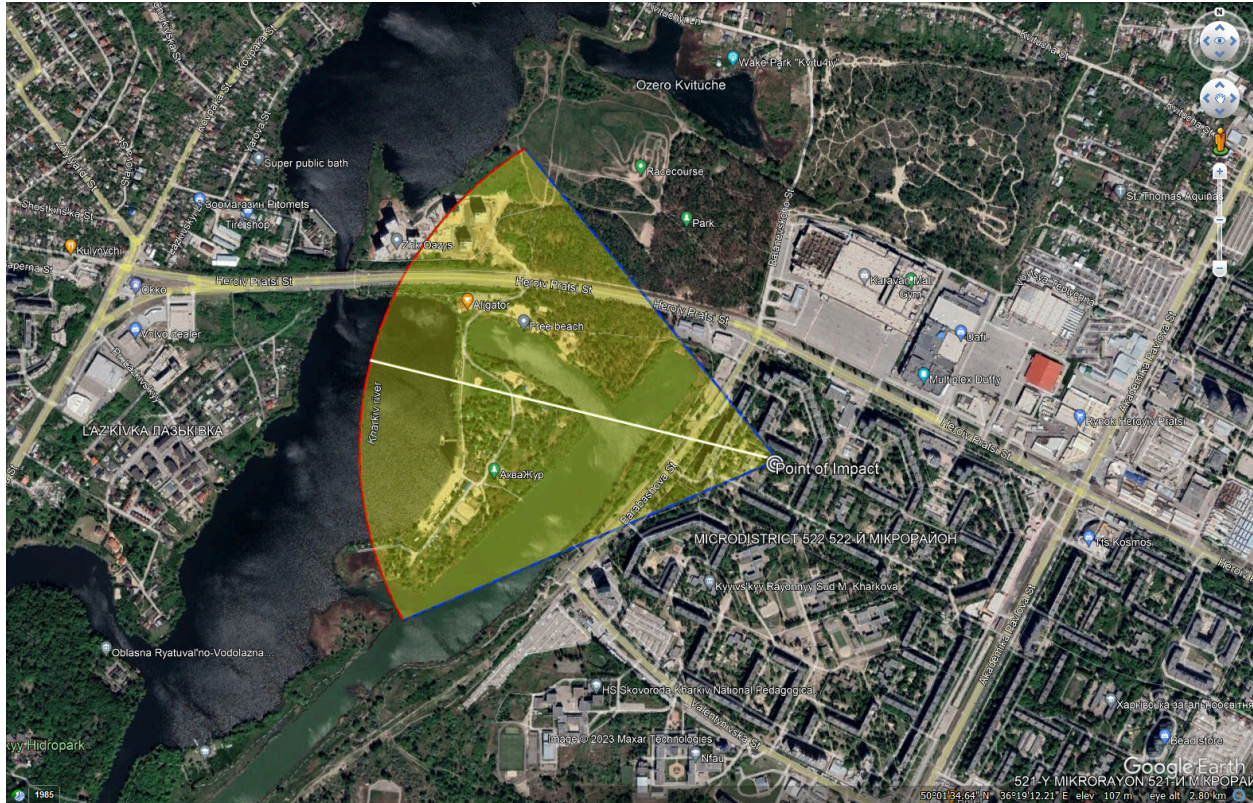




Map of areas which were reported to be under Russian control on 25/02/2022. Source: Liveuamaps<sup>19</sup>.

According to an expert consulted by Bellingcat, typically the rocket motor lands up to 1 km away from the area impacted by the submunitions. Plotting an arc with this range results in the possible area that was affected by the strike:

<sup>19</sup> <https://liveuamap.com/en/time/23.02.2022>



*Satellite imagery taken from Google Earth Pro, with 1 km arc indicating possible area that was targeted (Credit: Google/Maxar Technologies).*

## **Are There Any Indications of What the Location Was Being Used for?**

The location of one of the rocket motors is immediately next to the fence of Kindergarten 264, while the second one is located fully on the grounds of the kindergarten.

The possible area of impact of the submunitions is mostly occupied by a river, with a peninsula running through the middle. The area is residential in nature and features a waterfront and a beach on the river bank. It is unclear why this area might have been targeted.

A commercial zone with a shopping centre and a cinema is located 400 m north of the rocket motor. A commercial zone with multiple car dealerships is located on the west side of the river.

## **Were There Military Structures, Installations or Other Assets in the Area?**

No military objects were identified through open source research.



## **Any Other Information Relevant to Responsibility or Explanation for This Attack?**

No other relevant information could be identified.

## **Timeline of the Incident**

Between 24/02/2022 and 27/02/2022, two 9M55K rocket motors impacted into the ground near a kindergarten in Kharkiv.

## **Statements from Parties of the Conflict**

### **Ukraine**

There are no specific statements from the Ukrainian media regarding this incident. In broader terms this incident refers to the use of cluster munitions in residential areas, which has been covered by the Ukrainian media:

- 1) <https://news.obozrevatel.com/society/rossiya-primenyaet-v-ukraine-kassetnyie-boepripasyi-venediktova-nazvala-regionyi-kotoryie-uzhe-postradali.htm><sup>20</sup>;
- 2) <https://focus.ua/voennye-novosti/509124-v-oon-poluchili-dokazatelstva-primeneniya-rossiyei-kassetnyh-bomb-v-ukraine><sup>21</sup>;
- 3) <https://www.ukrinform.ru/rubric-regions/3454014-rf-sbrasyvaet-na-harkov-kassetnye-bomby-s-parasutov-eto-prestuplenie-protiv-celovecnosti.html><sup>22</sup>.

### **Russia**

- 1) Kremlin spokesperson Dmitry Peskov, denies cluster munitions use in Ukraine: <https://www.gazeta.ru/politics/2022/03/01/14589073.shtml><sup>23</sup>.

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<https://news.obozrevatel.com/society/rossiya-primenyaet-v-ukraine-kassetnyie-boepripasyi-venediktova-nazvala-regionyi-kotoryie-uzhe-postradali.htm>

<sup>21</sup>

<https://focus.ua/voennye-novosti/509124-v-oon-poluchili-dokazatelstva-primeneniya-rossiyei-kassetnyh-bomb-v-ukraine>

<sup>22</sup>

<https://www.ukrinform.ru/rubric-regions/3454014-rf-sbrasyvaet-na-harkov-kassetnye-bomby-s-parasutov-eto-prestuplenie-protiv-celovecnosti.html>

<sup>23</sup> <https://www.gazeta.ru/politics/2022/03/01/14589073.shtml>



## **Conclusion**

On 27/02/2022, footage showing two 9M55k rocket motors embedded in the ground next to a kindergarten in the North-East district of Kharkiv surfaced. It is unknown what its intended target was. Although open sources demonstrate that Kharkiv was under bombardment at this time, it was not possible to identify where the submunitions from this cluster munition impacted exactly. Furthermore, the exact launch site was not identified.

## **Further Action**

- Obtain and compare satellite imagery for dates 24/02/2022 to 28/02/2022.
- Conduct further research to identify impact footage and location.