

Mass Graves in North Sinai

¹ A report by Forensic Architecture, in partnership with the Sinai Foundation for Human Rights

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A BACKGROUND

- 3 Since the outbreak of a military campaign in Egypt's North Sinai in 2013, mounting evidence¹ has pointed to serious human rights violations committed by the Egyptian military during its campaign against ISIS-affiliated militants. These violations include extrajudicial executions, enforced disappearances, torture, and extrajudicial detention.
- 4 In 2017, Amnesty International reported² on a video which documented extrajudicial executions, which offered a rare glimpse into the hidden abuses committed in the context of this conflict. Amnesty's research confirmed that members of the Egyptian military were responsible for at least seven unlawful killings, including the point-blank execution of an unarmed man and a 17-year-old boy. In 2021, Amnesty International released another report³ detailing further evidence of extrajudicial executions. Human Rights Watch has also documented similar cases in 2017⁴ and 2022.⁵
- 5 The Sinai Foundation for Human Rights (SFHR) has obtained testimonies⁶ from two members of a local militia allied with the Egyptian military in its war against ISIS, revealing the existence of mass graves in two separate locations in North Sinai. According to their accounts, the Egyptian military used these sites to bury the bodies of detainees held in unofficial detention facilities between 2016 and 2019. They described how groups of blindfolded, handcuffed, detainees were taken out, executed in field operations, and buried in these locations.
- 6 SFHR's team located one of these mass graves approximately 20km from a site known as Battalion 101. Battalion 101, in the city of Al-Arish, was the central command headquarters for Egyptian military operations against ISIS in the region and an unofficial detention site used by the same military. SFHR has collected dozens of testimonies from former detainees who endured severe torture at Battalion 101. Many of them reported that

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¹ Human Rights Watch, "If You Are Afraid for Your Lives, Leave Sinai!": Egyptian Security Forces and ISIS-Affiliate Abuses in North Sinai, May 28, 2019, <https://www.hrw.org/report/2019/05/28/if-you-are-afraid-your-lives-leave-sinai/egyptian-security-forces-and-isis>.

² Amnesty International, 'Egypt: Video of extrajudicial executions offers glimpse of hidden abuses by the military in North Sinai', April 21, 2017, <https://www.amnesty.org/en/latest/news/2017/04/egypt-video-of-extrajudicial-executions-offers-glimpse-of-hidden-abuses-by-the-military-in-north-sinai/>.

³ Amnesty International, 'Egypt: Investigate evidence of extrajudicial executions by Egyptian army in North Sinai', August 5, 2021, <https://www.amnesty.org/en/latest/news/2021/08/egypt-investigate-evidence-of-extrajudicial-executions-by-egyptian-army-in-north-sinai/>.

⁴ Human Rights Watch, 'Egypt: Possible Extrajudicial Killings in Sinai', March 16, 2017, <https://www.hrw.org/news/2017/03/16/egypt-possible-extrajudicial-killings-sinai>.

⁵ Human Rights Watch, 'Egypt: New Videos of North Sinai Executions', August 30, 2022, <https://www.hrw.org/news/2022/08/30/egypt-new-videos-north-sinai-executions>.

⁶ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'VI Mass Graves: How the Evidence Emerged' <https://sinaifhr.org/show/625>

detainees were taken away under the pretence of being released, only to never return home.

- 7 They conducted two site visits to the mass grave site discussed in this report, and its surroundings. During these visits, they documented the presence of numerous human remains and collected evidence to support further investigation⁷.
- 8 For a complete understanding, this report should be read together with the full SFHR report of findings.⁸

B SCOPE

- 9 Forensic Architecture (FA) conducted research into the identified mass grave site to establish a timeline of its use and investigate potential patterns of military presence.
- 10 We analysed historical satellite imagery analysis to detect temporal changes, identifying signs of military activity such as the appearance of outposts, the presence of vehicle, track marks, and ground disturbances in and around the site.
- 11 We also reconstructed the mass grave site in 3D, mapping the locations of the bodies visible in media captured on-site by SFHR researchers.
- 12 We conducted a track mark analysis to compare the dimensions of the track marks found on-site with those of known military vehicles.

C SITE

- 13 The mass grave site identified by SFHR is located at 30°59'9.70"N, 33°55'21.90"E—approximately 12km south of Al-Arish Airport and less than 1km from the Abu Aweigila–Al-Arish highway.

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⁷ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'VI Mass Graves: How the Evidence Emerged' <https://sinaifhr.org/show/625>

⁸ Sinai Foundation for Human Rights 'Killed in Cold Blood', <https://sinaifhr.org/show/625>



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Figure 1: Location of the mass grave - at 30°59'9.70"N, 33°55'21.90"E. The Abu Aweigila-Al-Arish highway is visible in yellow. External image source: Google Earth.

- 16 The mass grave site consists of two large, connected pits: Pit A (246m x 70m, marked blue) and Pit B (312m x 70m, marked white). According to SFHR researchers, farmers used soil from these pits as fertiliser until around 2010.
- 17 The entrance to the site appears to be located at the southwest tip of Pit B. Both pits are accessible via a dirt road branching off the Abu Aweigila-Al-Arish highway. During site visits in December 2023 and January 2024, SFHR researchers recorded media evidence confirming the presence of bodies in Pit A, and observed the presence of remains in Pit B.

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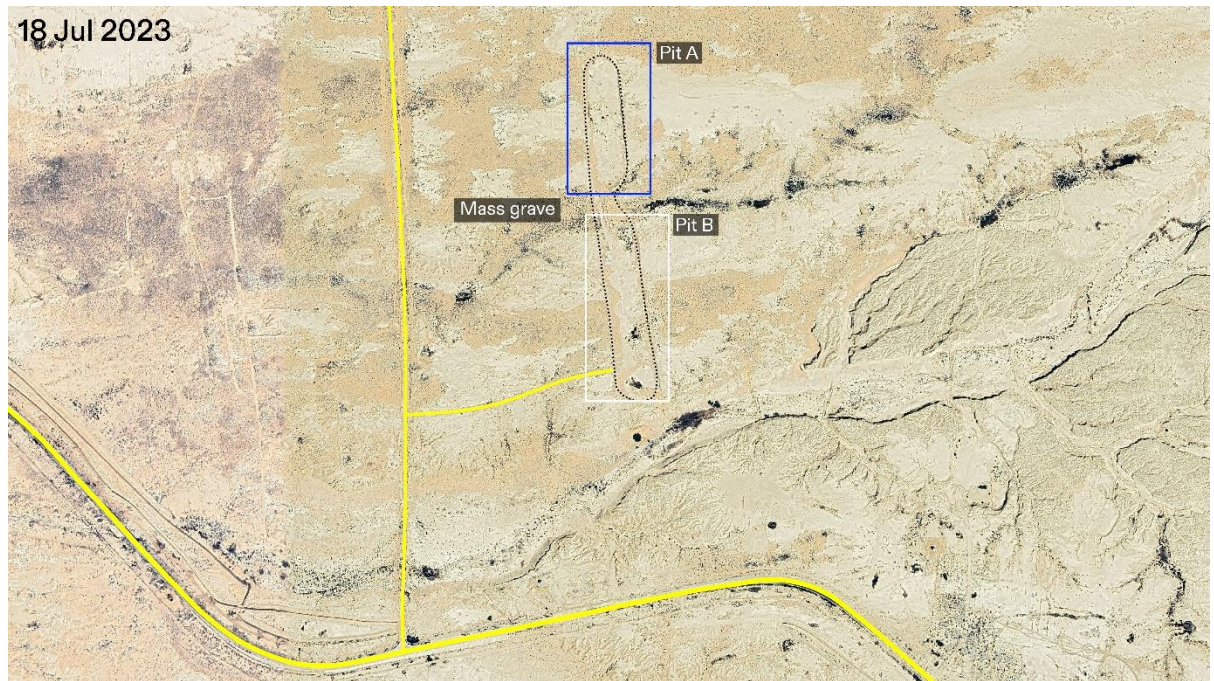


Figure 2: Annotated satellite image of mass grave pits A and B and the access route into the site (yellow). External image source: Google Earth.

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Figure 3: Mass grave Pit A dimensions. External image source: Google Earth.

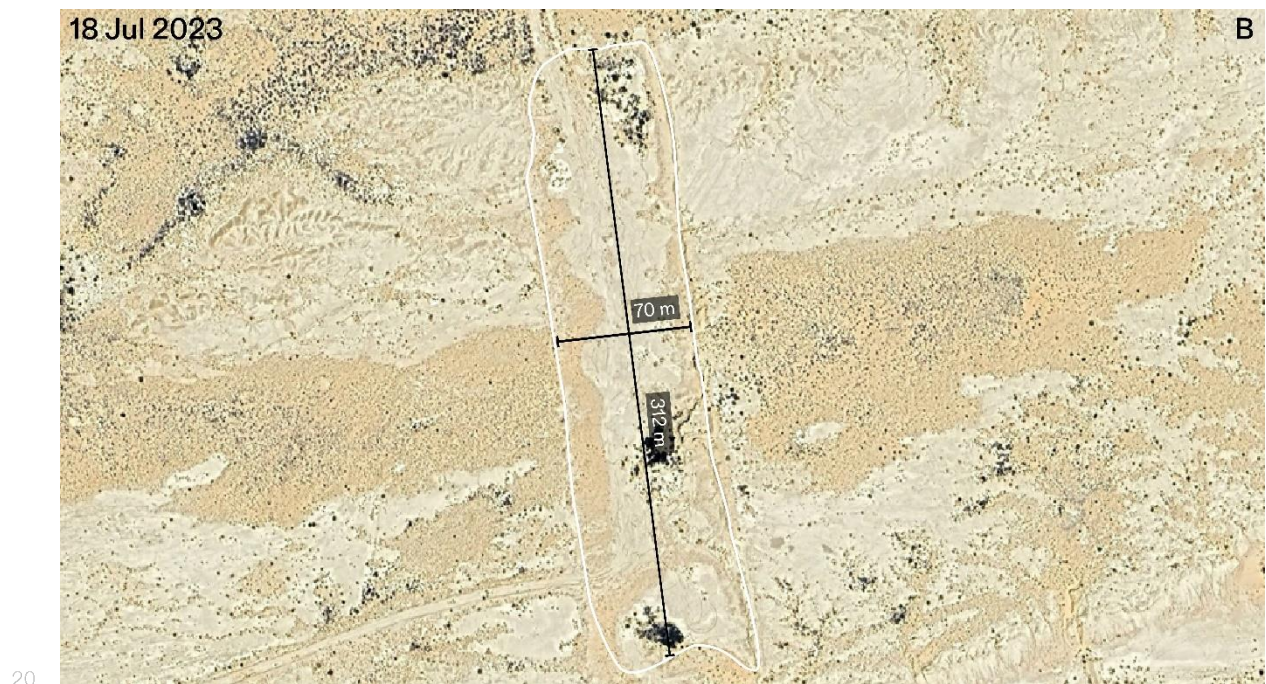


Figure 4: Mass grave Pit B dimensions. External image source: Google Earth.

D SATELLITE IMAGE ANALYSIS

FA analysed high-resolution satellite imagery of the mass grave site identified by SFHR, along with surrounding areas. By comparing imagery across time, we looked for indicators of military presence, such as vehicles, tire tracks, ground disturbances, and other visible evidence. The images used in our analysis were captured on the following dates, from 2005-2023:

2005: 27 September

2010: 20 February

2011: 10 October

2013: 29 August

2015: 25 January, 14 June

2016: 6 May, 15 June, 26 August, 28 November

2017: 3 February, 2 June, 12 June, 13 June, 29 June, 4 December

2018: 6 June, 6 August, 12 December

2019: 7 April, 20 June

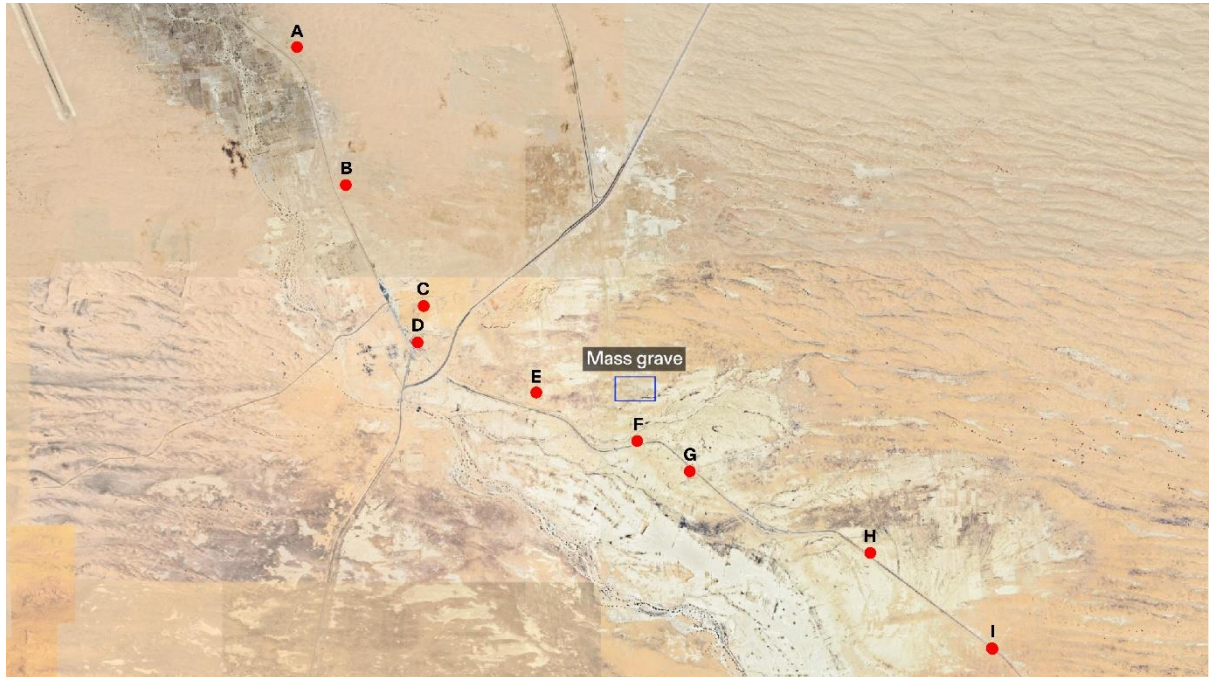
2020: 30 January, 15 March, 3 April, 5 July

2021: 10 November

33 2023: 18 July, 4 August, 26 November

1 Militarisation of the surrounding area of the mass grave 2013 -2016

34 Satellite imagery analysis indicates significant militarisation in the vicinity of the mass grave between 2013 and 2016. Within an 8km radius of the site, nine military outposts have been identified along the Abu Aweigila–Al-Arish highway. Of these, seven appeared between 29 August 2013, and early to mid-2015, while the remaining two were established in 2016.



35 Figure 5: Satellite imagery showing military outposts along the Abu Aweigila–Al-Arish highway near the location of the mass grave. External image source: Google Earth.

36 Outposts C, D, F, G, and H are all first visible in imagery dated 25 January 2015, B appears in the 14 June 2015 image; A is visible in imagery dated 29 November 2015; while outposts E and I first appear in satellite imagery from 15 June 2016.

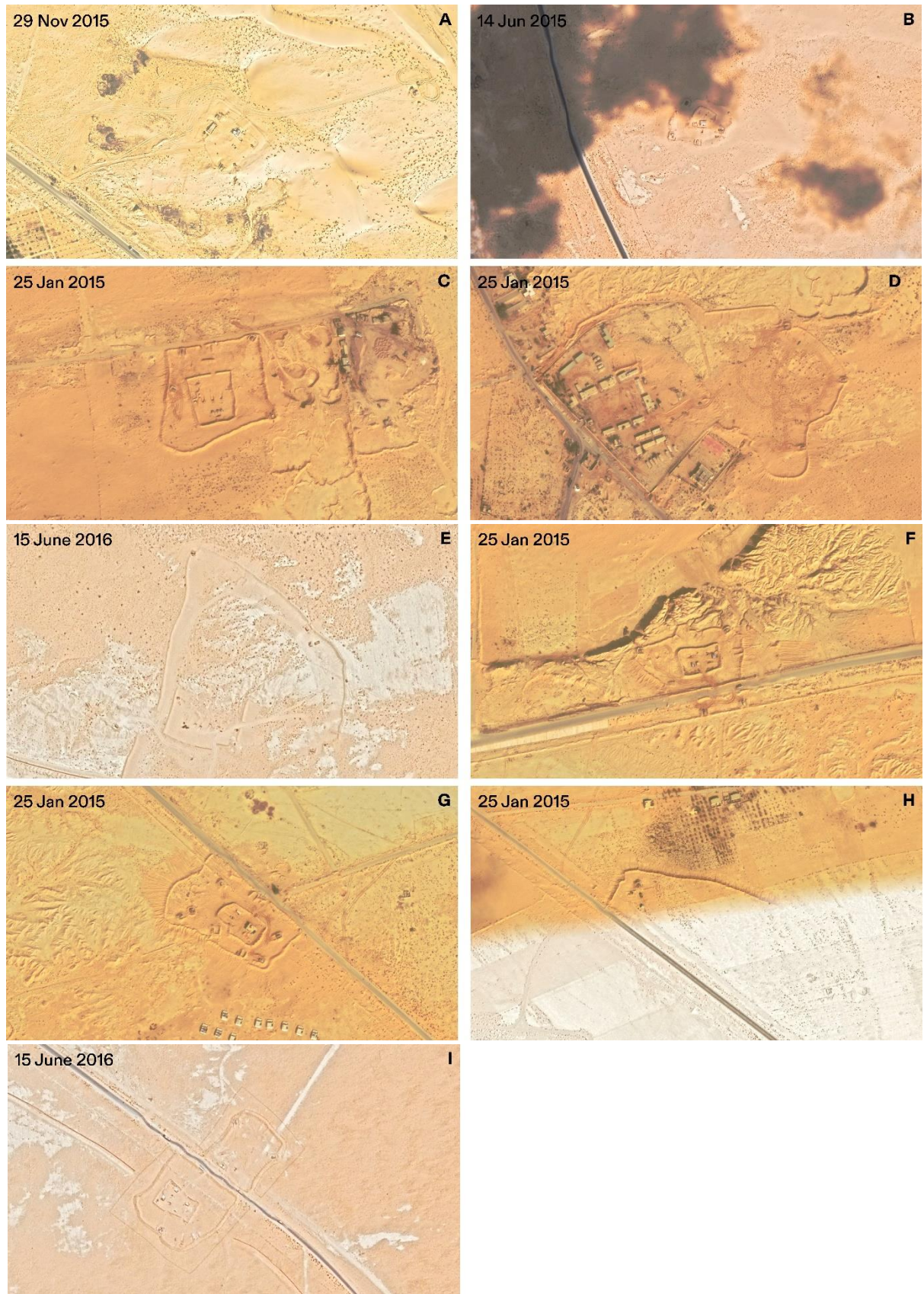


Figure 6: Satellite imagery showing military outposts positioned along the Abu Aweigila–Al-Arish highway near the location of the mass grave. A, B, C, D, F, G, H appear for the first time on a satellite image dated 2015. While E and I first appear in 2016. External image source: Google Earth.

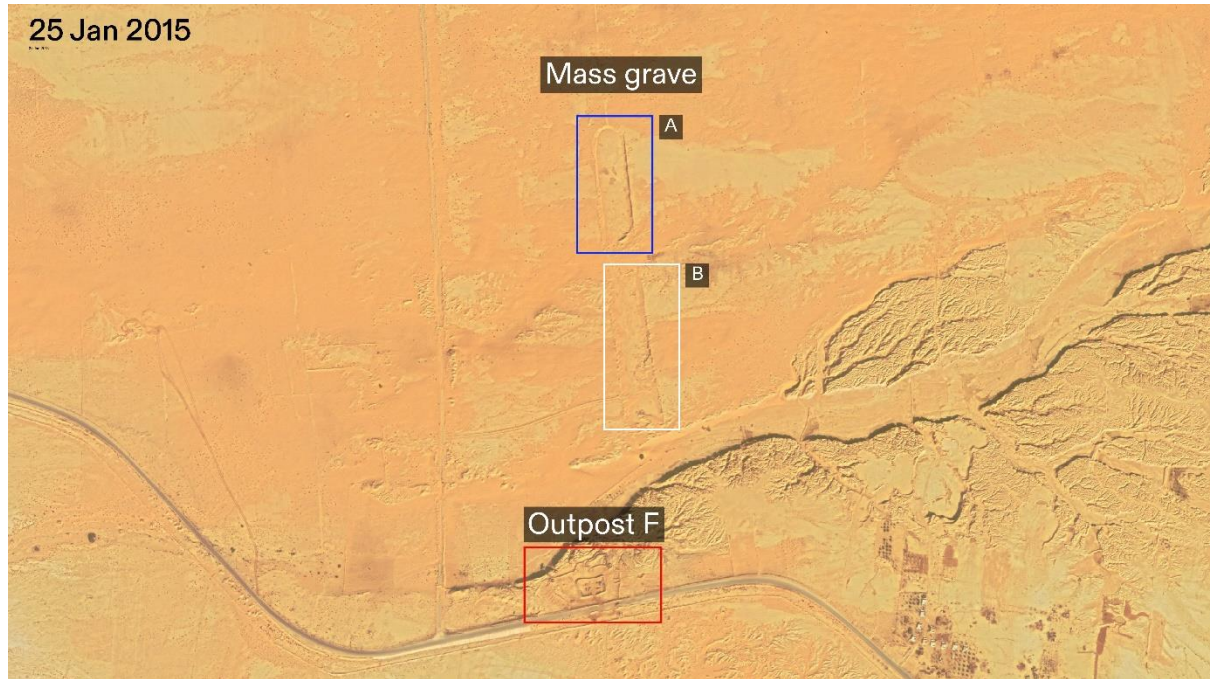


Figure 7: Satellite image dated 25 January 2015, showing military outpost F, approximately 750 m away from the entrance of Pit A, and 400 m away from the entrance of Pit B. External image source: Google Earth.

- 39 The closest outpost to the mass grave site, F, is less than 1km away (Figure 7).
- 40 In addition, we observe in satellite imagery dated 15 June 2016 (Figure 8) that Outposts C, D, E, and F form are connected by sand trenches (in black) on the northern side of the highway. Similarly, Outposts F, G, H, and I are connected by sand trenches on the southern side of the highway. These appear to be designed to conceal activity and facilitate military movements.

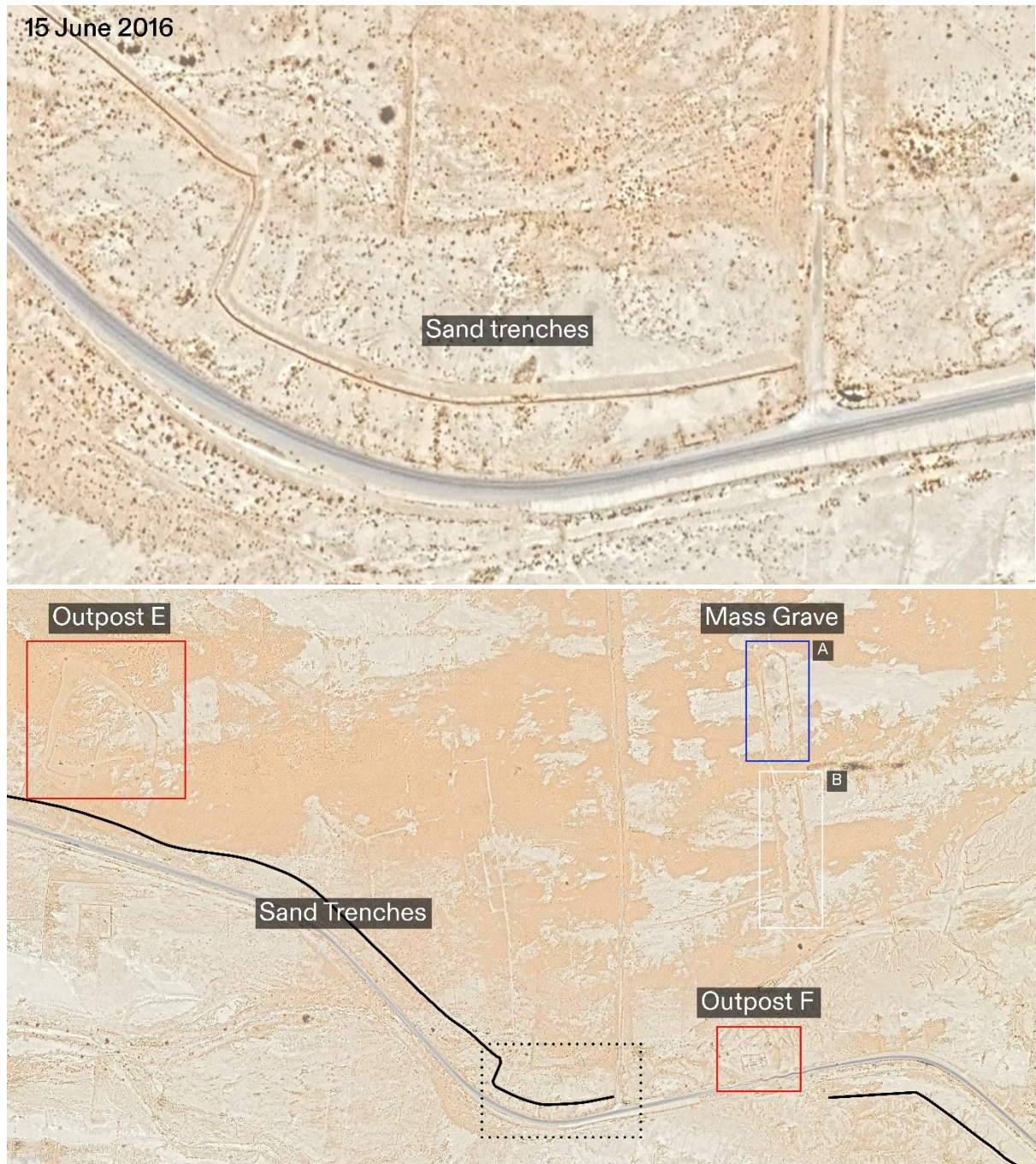
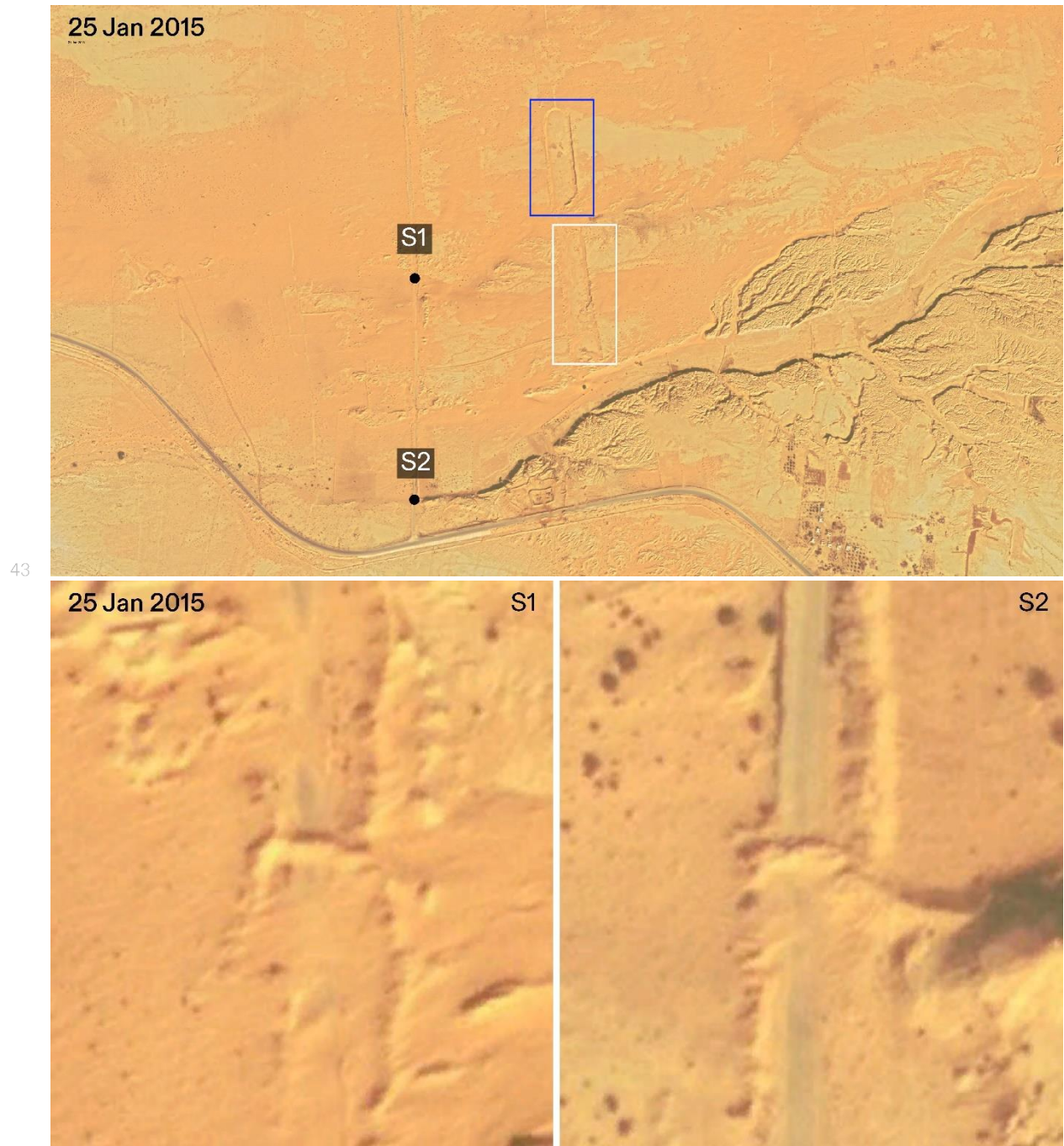


Figure 8: Satellite image dated 15 June 2016 showing sand trenches connecting two of the outposts closest to the mass grave site. External image source: Google Earth.

- 42 Satellite imagery dated 25 January 2015 (Figure 9) also shows sand barriers along the road east of the mass grave site. These are typically used to control movement by reducing vehicle speed or blocking roads, a practice commonly observed near military outposts in Sinai.



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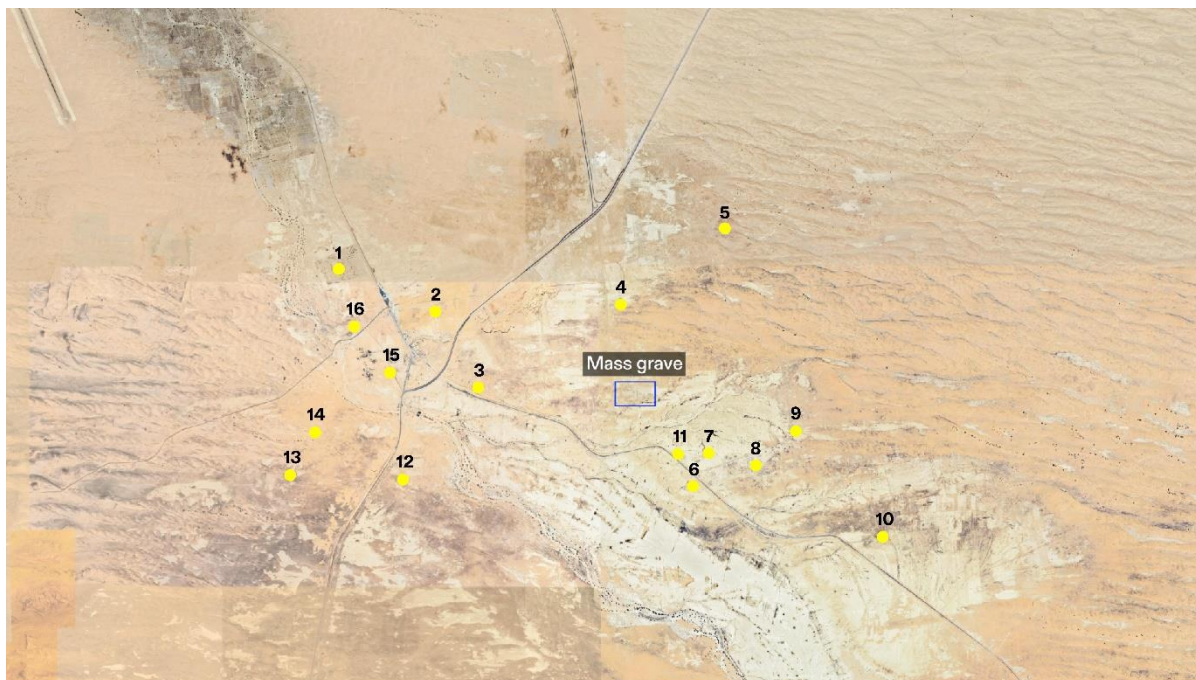
Figure 9: Satellite image dated 25 January 2015, showing the location of the sand barriers. External image source: Google Earth.

- 44 Taken together, this configuration not only highlights the heightened security measures and increased militarisation in the vicinity of the mass grave but also suggests that access to the site is significantly restricted for non-military vehicles.

45 This conclusion aligns with observations made by SFHR during their visits to the site. According to the experience of SFHR researchers, access to the site is extremely difficult for locals, and entails significant security concerns.⁹

2 Destruction of Infrastructure 2013 - 2020

46 Additionally, satellite imagery analysis shows that within the same 8km radius, we find evidence of destruction of buildings, including civilian infrastructure, between 2013 and 2018.



47 Figure 10: Satellite image showing the location of infrastructure destruction between 2013 and 2020, in the vicinity of the mass grave. External image source: Google Earth.

48 Specifically, location 1 was destroyed between 13 October 2013 and 14 June 2015. Locations 3, 6, 7, 8, 9, and 10 were destroyed sometime between 25 January 2015 and 15 June 2016. Location 2 was flattened between 25 January 2015 and 26 August 2016. Locations 11- 14 were destroyed between 14 June 2015 and 15 June 2016. Location 15 was destroyed between 19 June 2016 and 26 August 2016. Finally, destruction at Locations 4 and 5 occurred sometime between 4 December 2017 and 6 June 2018. Location 16 was destroyed between 20 June 2019 and 15 March 2020.

⁹ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'Summary of the Sinai Foundation for Human Rights' Observations of the alleged mass grave site East of al-Arish, 3- Access Constraints <https://sinaifhr.org/show/625>

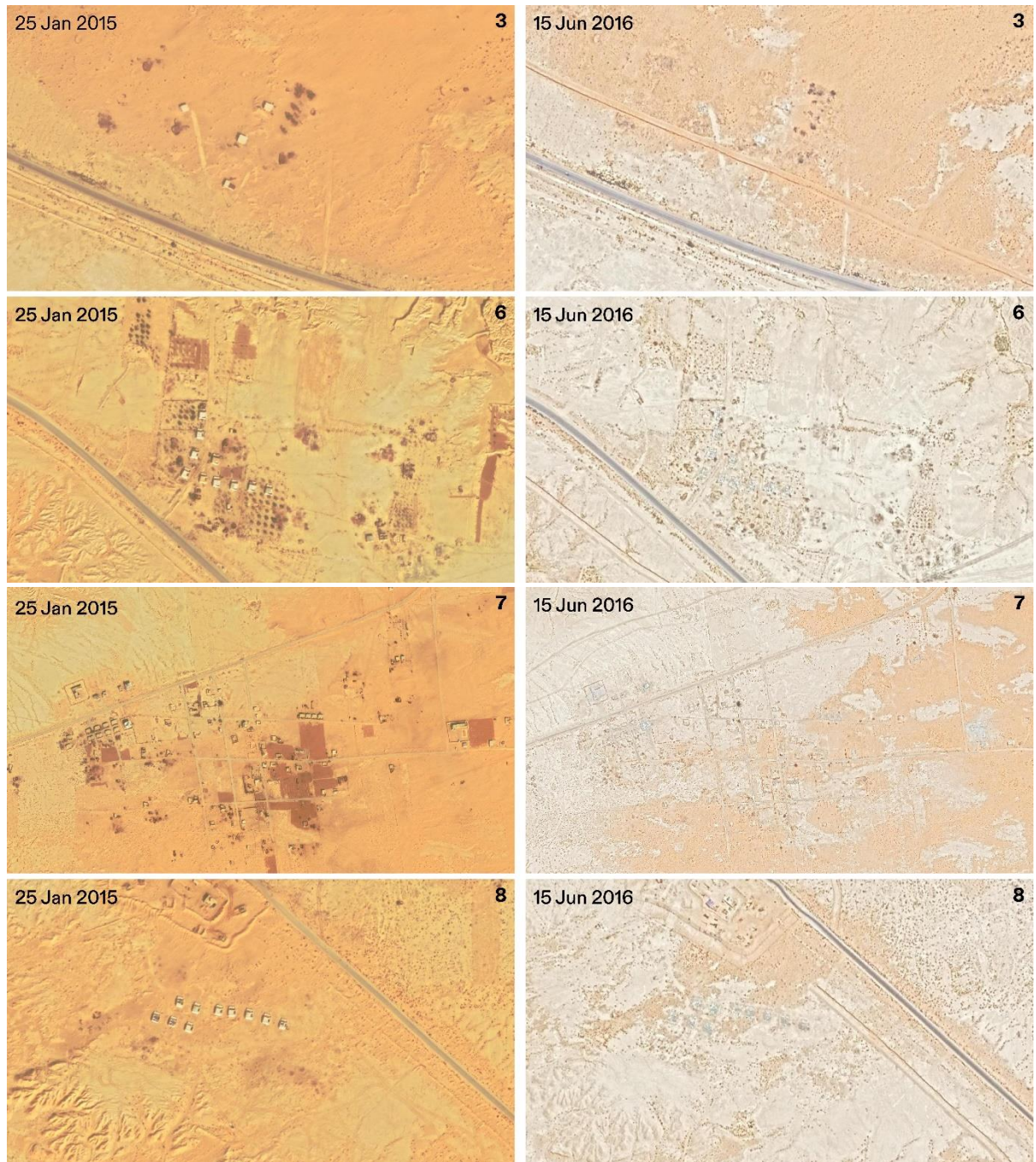


Figure 11: side by side comparison of satellite imagery dated 25 Jan 2015, and 15 June 2016, showing the destruction of infrastructure at location 3, 6, 7, and 8 on figure 4. External image source: Google Earth.

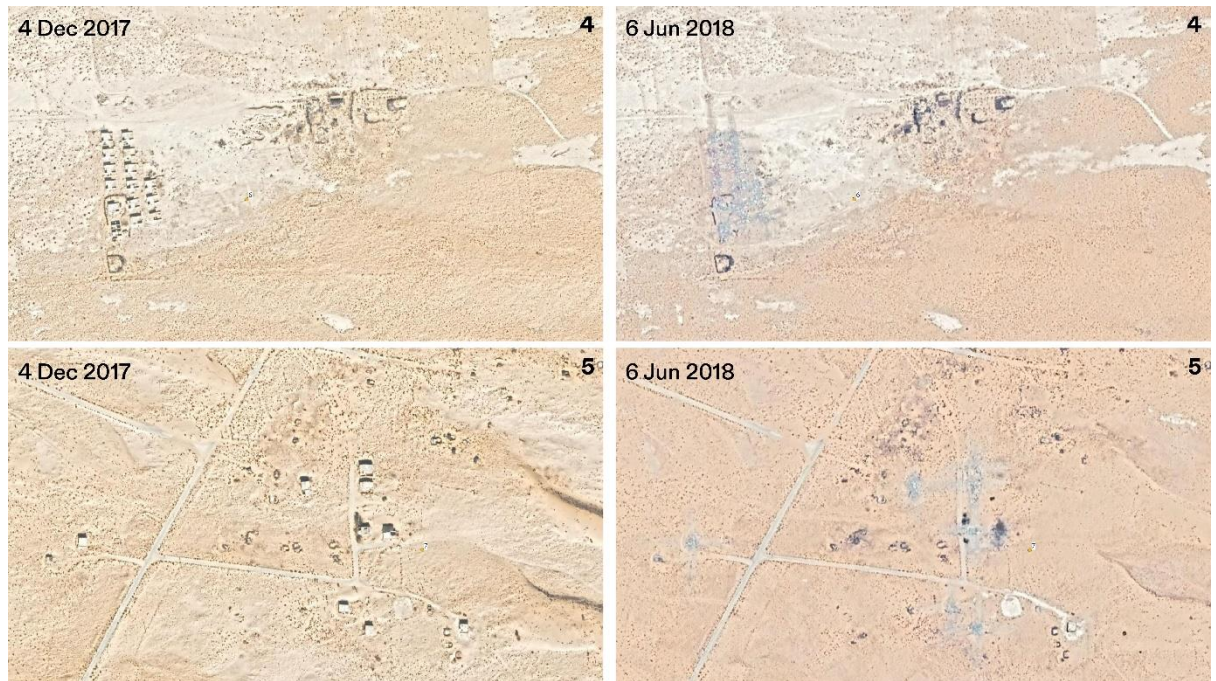


Figure 12: side-by-side comparison of satellite imagery dated 4 December 2017, and 6 June 2018, showing the destruction of infrastructure at locations 4 and 5 on Figure 4. External image source: Google Earth.

3 Timeline of use of the mass grave 2005 - 2023

The satellite image dated 27 September 2005 (Figure 13), shows no visible signs of the mass grave site. By 22 November 2005, the first signs of disturbance are visible with two excavated areas appearing in Pit B (In white below).

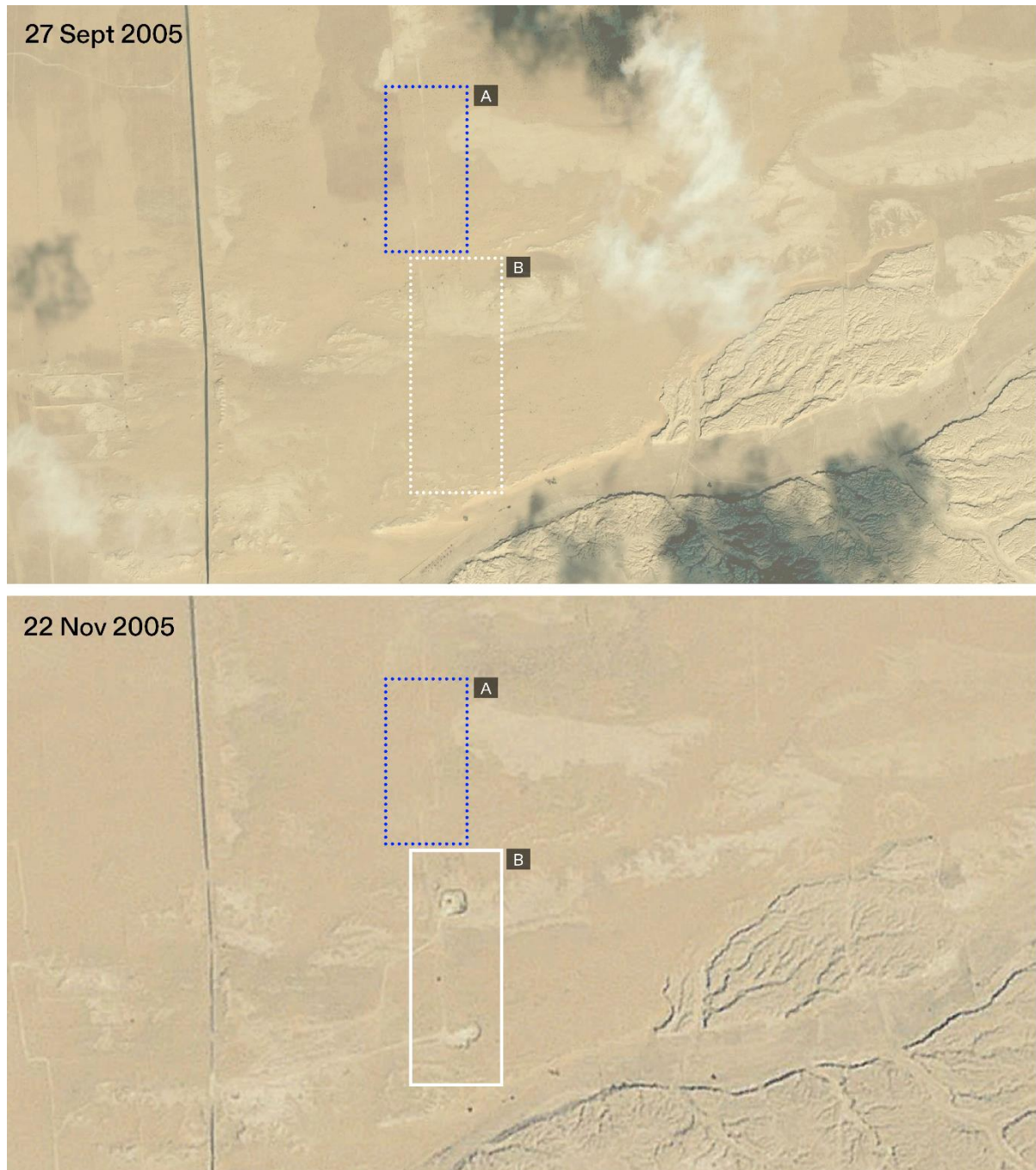


Figure 13: First signs of excavation in Pit B (in white) occurred between 27 Sept and 22 Nov 2005. External image source: Google Earth.

- 54 The subsequent image dated 20 February 2010 (Figure 15), shows the mass grave site in a form largely consistent with its present-day appearance. A few limited track marks are visible, primarily near the entrance to Pit A, and in the northern part of Pit B. Signs of soil excavation are also apparent in Pit B.

- 55 According to SFHR researchers, until 2010 local residents extracted clay from the site to fertilize agricultural soil in the surrounding area, a practice which resulted in the formation of these pits.¹⁰



Figure 14: Pit A and B: 20 February 2010. External image source: Google Earth.



¹⁰ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'VI Mass Graves: How the Evidence Emerged' <https://sinaifhr.org/show/625>

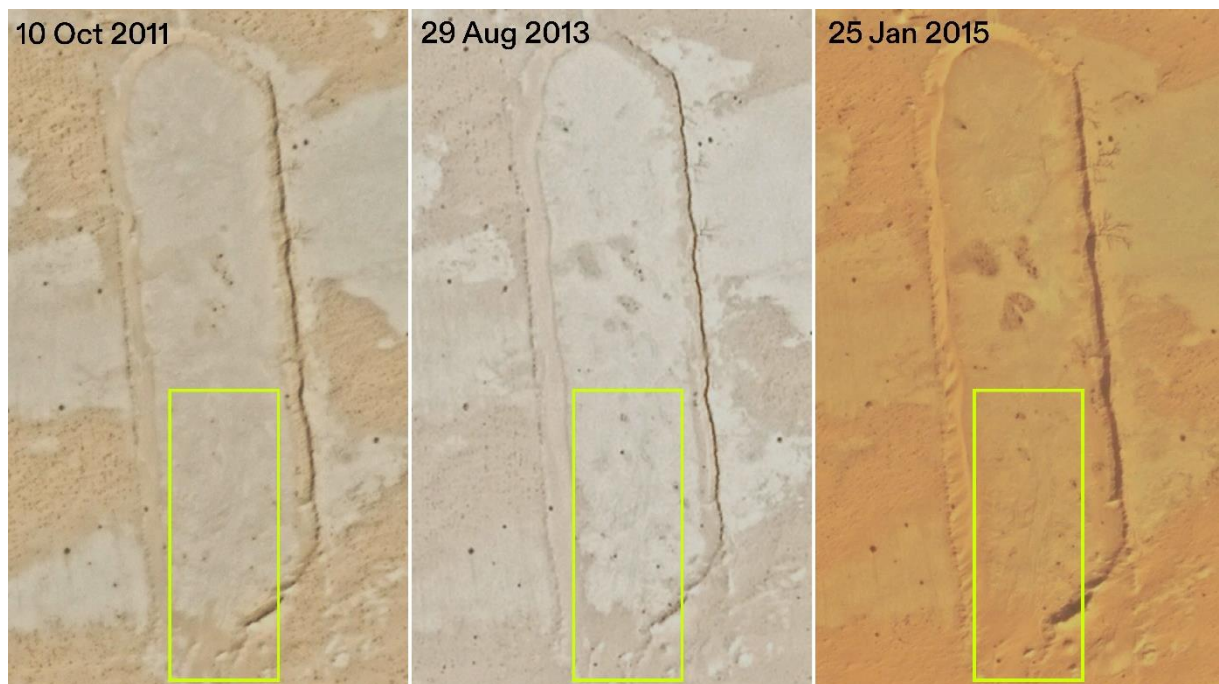
Figure 15: Pit A: Track marks visible at the pit entrance. 20 February 2010. External image source: Google Earth.



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Figure 16: Pit B: Track marks and ground disturbance visible on 20 February 2010. External image source: Google Earth.

- 58 Satellite images dated 10 October 2011, 29 August 2013 and 25 January 2015 (Figure 17), show no significant changes in the shape of the pits. The track marks are still visible.



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Figure 17: Pit A: 10 October 2011, 29 August 2013, 25 January 2015. External image source: Google Earth.

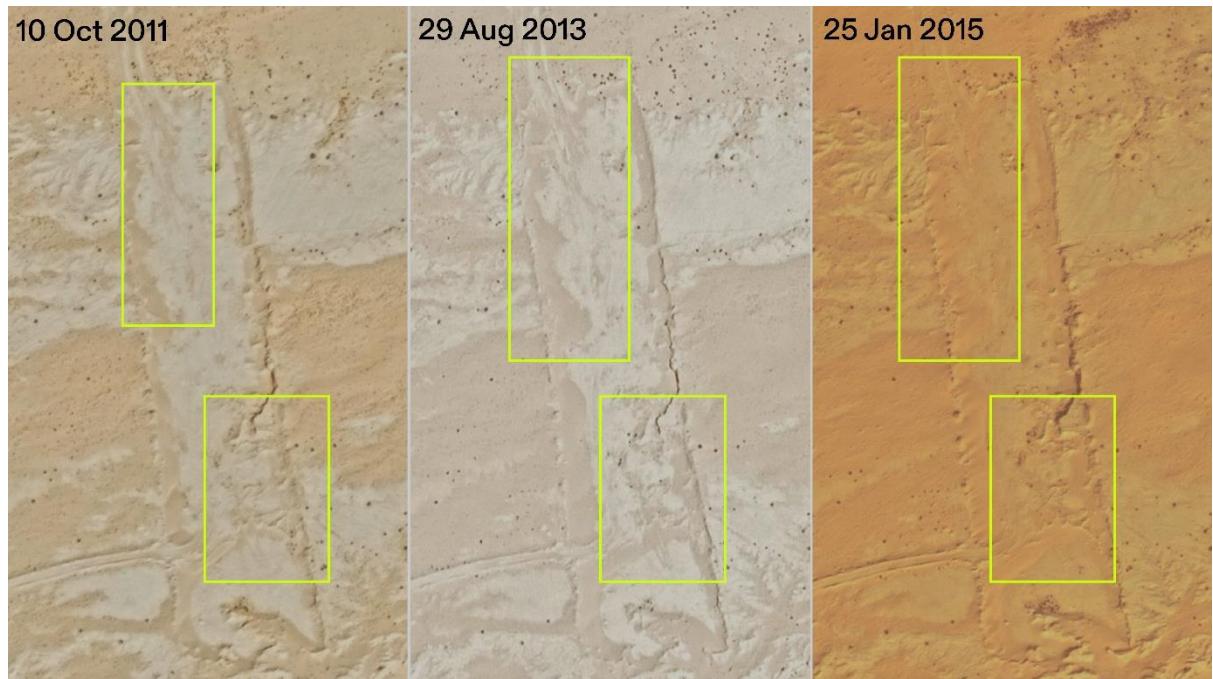
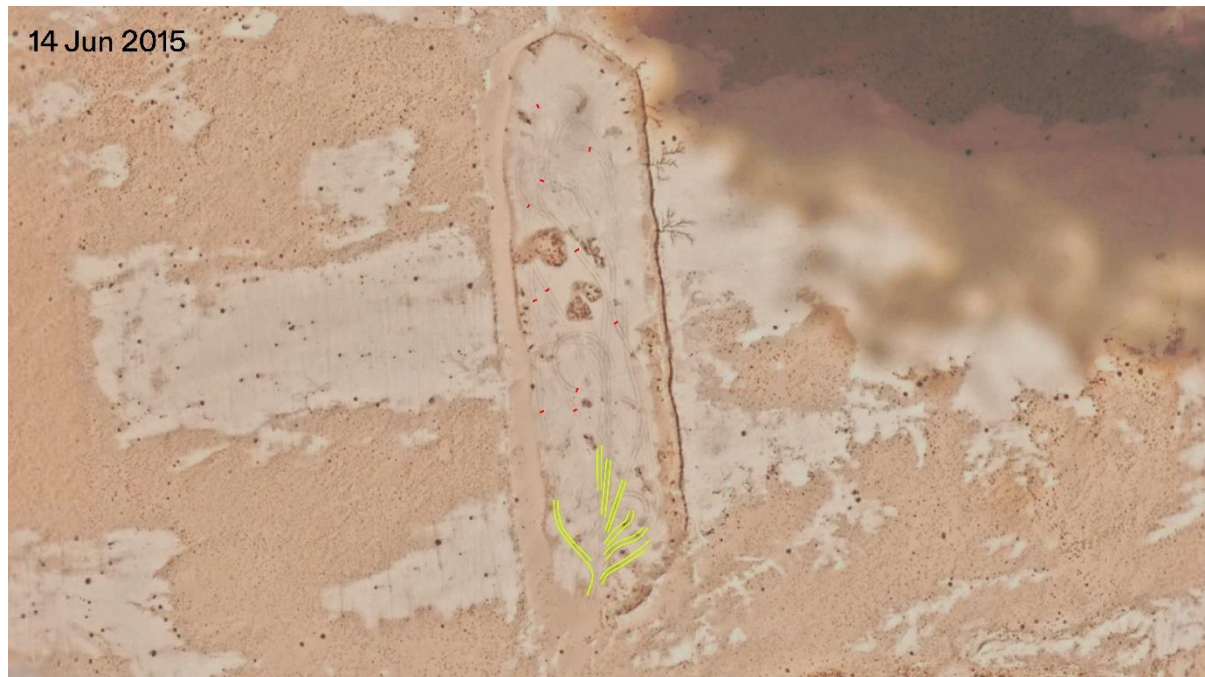


Figure 18: Pit B: 10 October 2011, 29 August 2013, 25 January 2015. External image source: Google Earth.

- 61 The satellite image dated 14 June 2015 (Figure 19), shows a large number of track marks within Pit A, each measuring approximately 2 m in width (centre to centre) and relatively uniform in appearance. Several of the tracks converge at the entrance of Pit A, suggesting repeated use of the same access route. Similar track marks are also visible in Pit B (Figure 20), extending and connecting with the access road located to the west of the pit.
- 62 This suggests that there was activity at the site at some point between 25 January 2015 and 14 June 2015.



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Figure 19: Pit A: 14 June 2015. External image source: Google Earth.



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Figure 20: Pit B: 14 June 2015. External image source: Google Earth.

- 65 The satellite image dated 15 June 2016 (Figure 21), shows signs of earth flattening in the northern part of Pit A, suggesting the creation of a possible new access path into the site. The track marks visible on the 14 June 2015 image have disappeared, and no new track marks are detectable in the 2016 image. The same image also reveals possible traces of three craters, below in green, located in the northern and central parts of Pit A. The satellite image dated 26 August 2016 clearly shows the traces of the three craters. No other significant changes are visible.

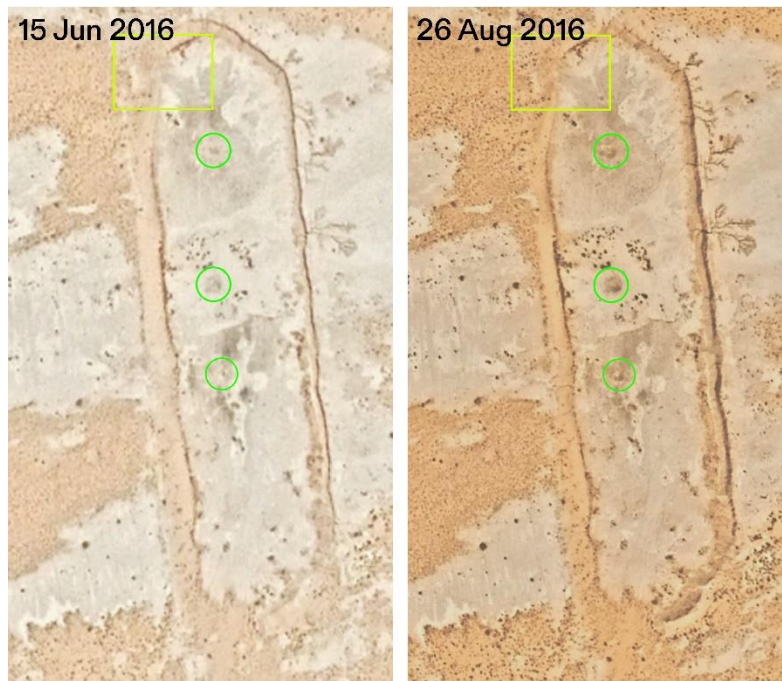


Figure 21: Pit A: 15 June and 26 Aug 2016. External image source: Google Earth.

- 67 The satellite image dated 28 November 2016 (Figure 22), shows a track mark on the southwest side, outside of Pit A.



Figure 22: Pit A: 28 November 2016. External image source: Google Earth.

- 69 The satellite image dated 3 February 2017 (Figure 23), shows multiple track marks on the eastern side, outside of Pit A.

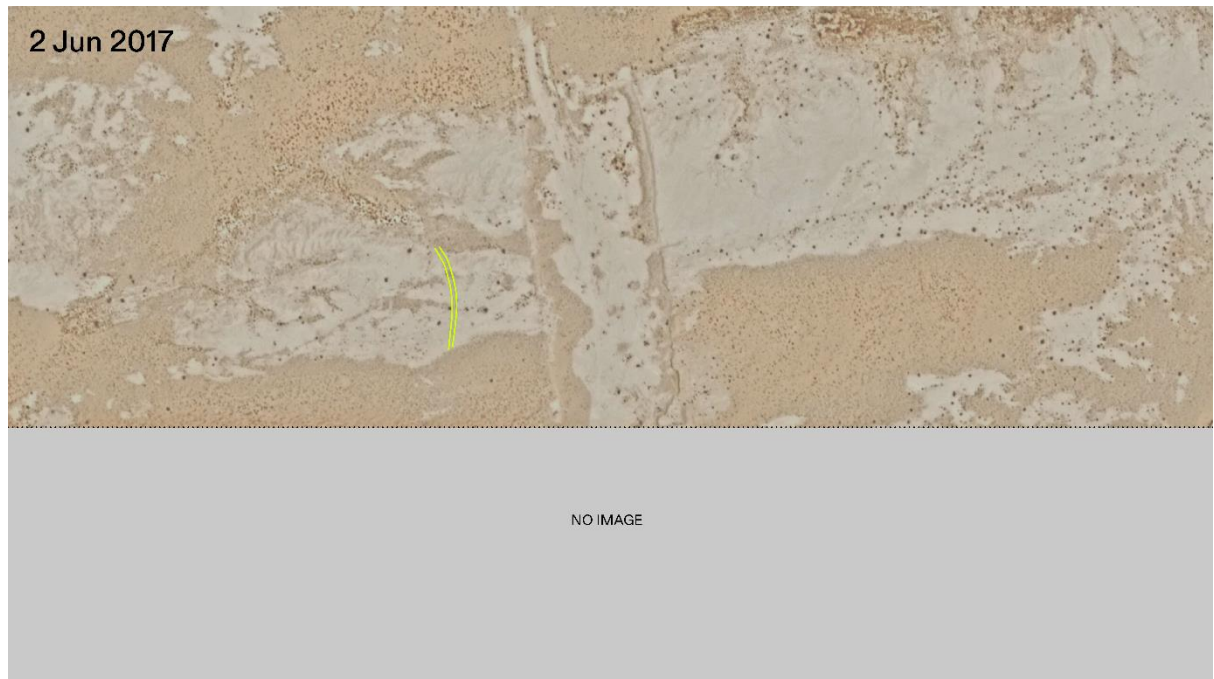


Figure 23: Pit A: 3 February 2017. External image source: Apollo

- 71 The satellite image dated 2 June 2017 (Figure 24), shows new track marks in Pit A, leading toward the northernmost crater as well as around the two other craters. Additional track marks are visible outside Pit A and B, on the western and southern sides. All tracks are approximately 2 m in width and relatively uniform in appearance.



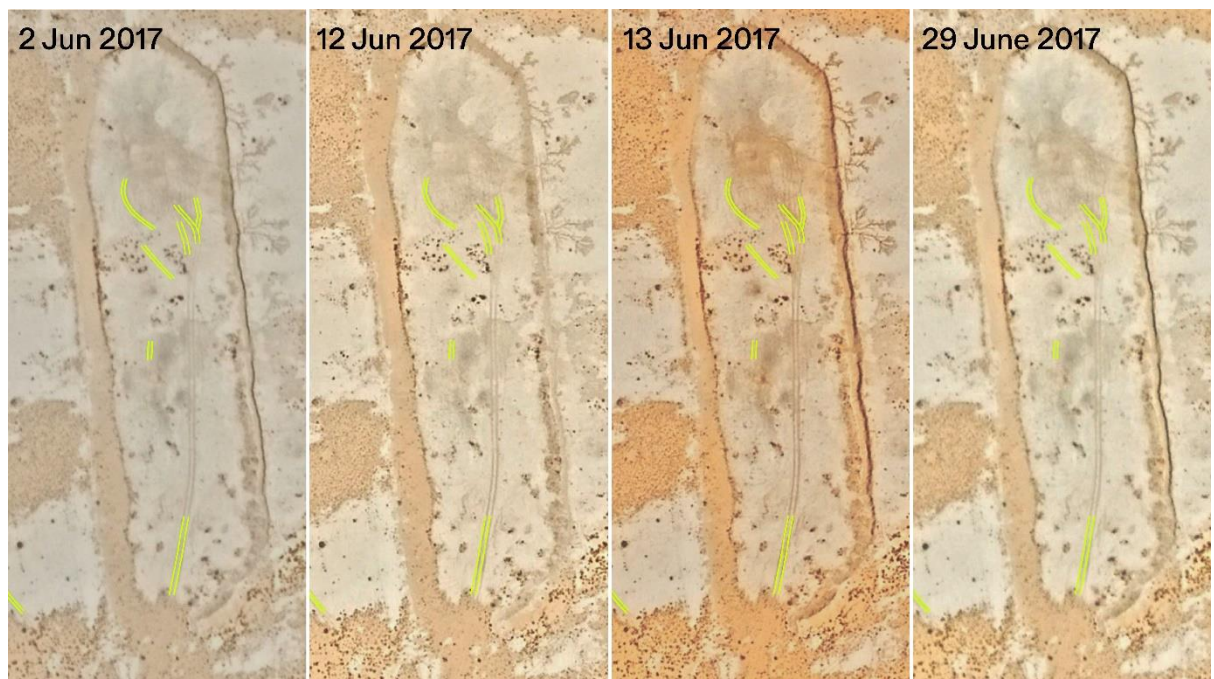
Figure 24: Pit A: June 2, 2017. External image source: Google Earth.



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Figure 25: Pit B: June 2, 2017. External image source: Google Earth.

- 74 No further changes are detected in the satellite images dated 12 June, 13 June, 29 June and 4 December 2017 (Figure 26, 27). The track marks remain intact throughout this period, suggesting that there was likely little to no activity at the site between 2 June and 4 December 2017 (Figure 27).



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Figure 26: Pit A: 2 June, 12 June, 13 June, and 29 June, and 2017. External image source: Google Earth.

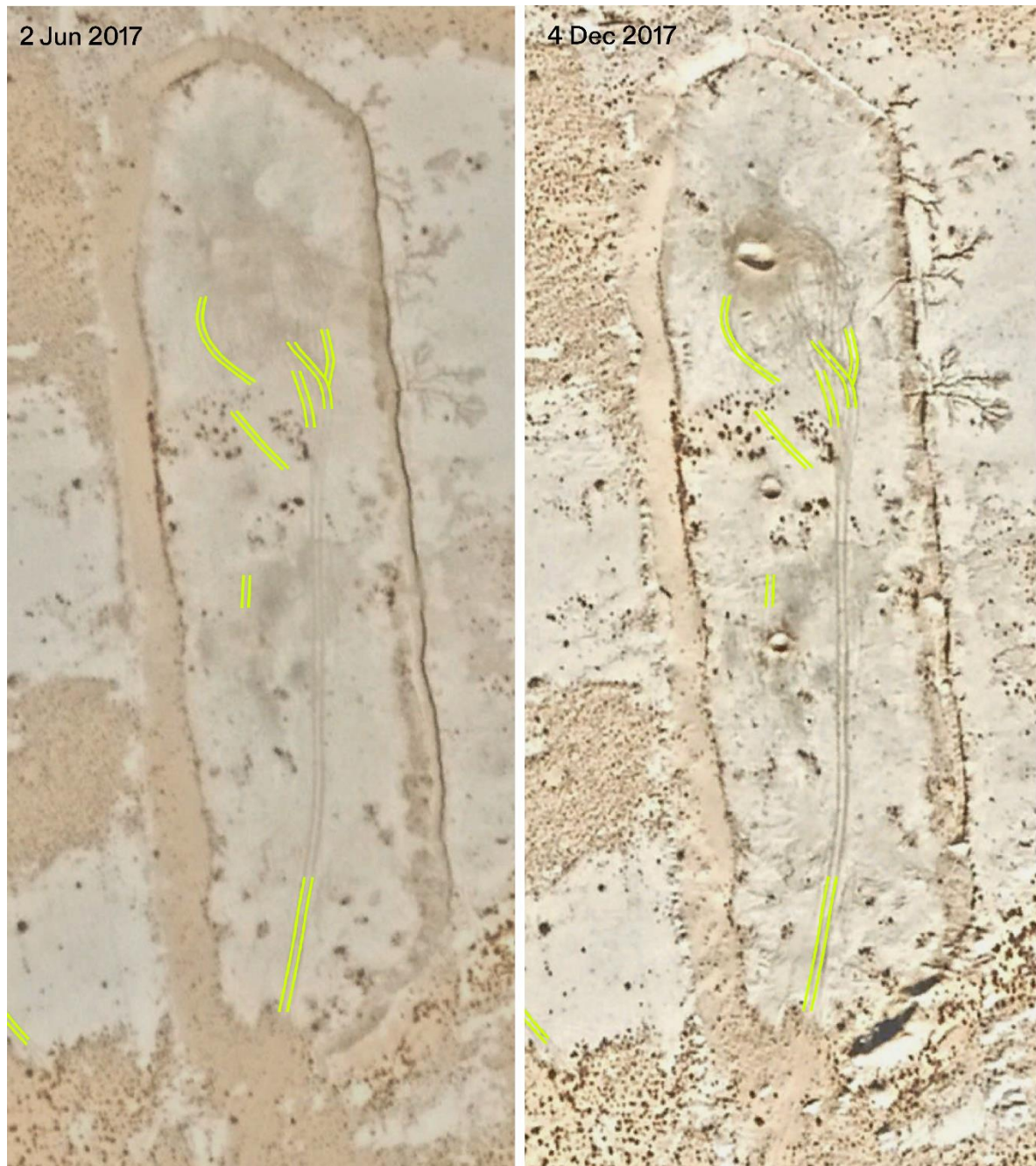


Figure 27: Side by side close-up comparison of pit A: 2 June 2017 and 4 December 2017. External image source: Google Earth.

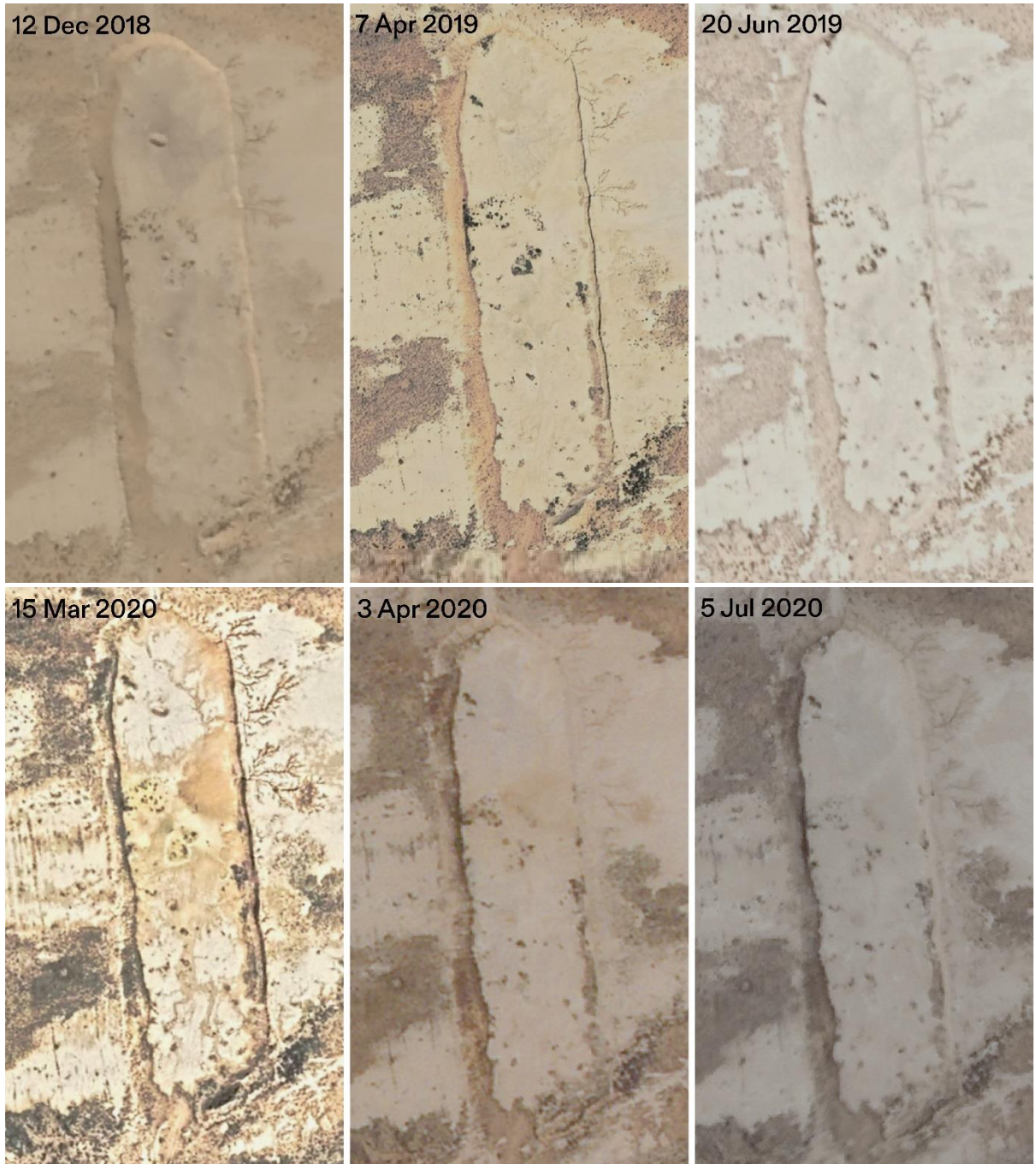
- 77 In the satellite image dated 6 June 2018 (Figure 28), the previous track marks have disappeared. However, a new track mark is visible in between Pit A and B.



Figure 28: 6 Pit B: June 2018. External image source: Google Earth.

- 79 Satellite imagery from 12 December 2018 to 10 November 2021 (Figure 29) does not provide additional resolution to the timeline of activity at the mass grave; no ground disturbances are detected.

80



10 Nov 2021



Figure 29: Pit A: 12 December 2018 to 10 November 2021. External image source: Google Earth and Planet.

- 81 In the satellite image dated 18 July 2023 (Figure 30), new track marks are visible on the eastern side of the pit A, and on the western side of Pit B as well as in Pit B.

18 Jul 2023



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Figure 30: Pit A: 18 July 2023. External image source: Google Earth.

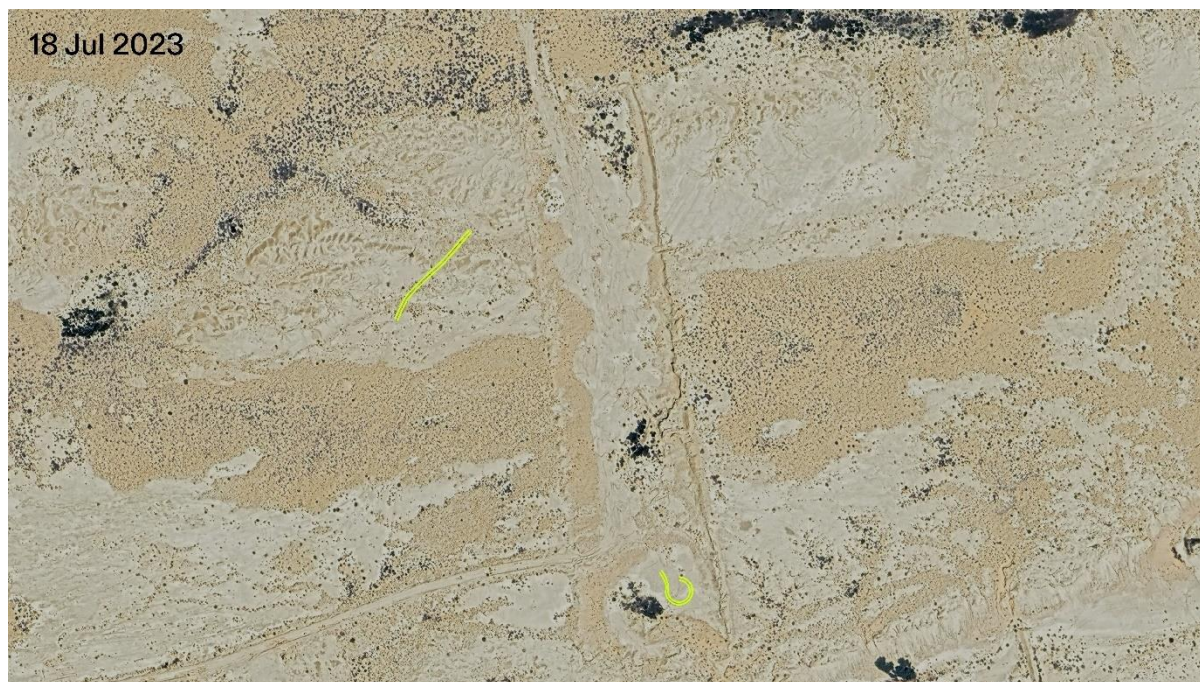


Figure 31: Pit B: 18 July 2023. External image source: Google Earth.

- 84 Between 2010–2023, we documented several periods of ground activity in and around both pits. Prior to 2015, the activity at the site is minimal. The most significant activity, marked by multiple vehicle tracks directly within the pits, took place between January 2015 and June 2017.
- 85 The timing of this activity coincides with the peak of armed clashes in Sinai and a broader escalation of the conflict (2015–2017). Incidents reported by Human Rights Watch¹¹ and Amnesty International¹² fall within this period, illustrating the intensification. Notably, this timeframe aligns with testimonies collected by SFHR regarding extrajudicial killings at this site during this period.¹³
- 86 The military imposed curfews,¹⁴ beginning in October 2014,¹⁵ and lasting in effect until October 2021, which severely restricted civilian movement. This makes it unlikely that the activity observed at the site during this time was carried out by civilians.

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¹¹ Human Rights Watch, 'Egypt: Possible Extrajudicial Killings in Sinai', March 16, 2017, <https://www.hrw.org/news/2017/03/16/egypt-possible-extrajudicial-killings-sinai>.

¹² Amnesty International, 'Egypt: Video of extrajudicial executions offers glimpse of hidden abuses by the military in North Sinai', April 21, 2017, <https://www.amnesty.org/en/latest/news/2017/04/egypt-video-of-extrajudicial-executions-offers-glimpse-of-hidden-abuses-by-the-military-in-north-sinai/>

¹³ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'VI Mass Graves: How the Evidence Emerged' <https://sinaifhr.org/show/625>

¹⁴ Sinai Foundation for Human Rights, 'Presidential Decree 442/2021: Perpetuating the State of Emergency in North Sinai', October 6, 2021, <https://sinaifhr.org/show/103>.

¹⁵ Mada Masr, 'Curfew and state of emergency in North Sinai follows deadly attacks', October 25, 2014, <https://www.madamasr.com/en/2014/10/25/news/u/curfew-and-state-of-emergency-in-north-sinai-follows-deadly-attacks/>.

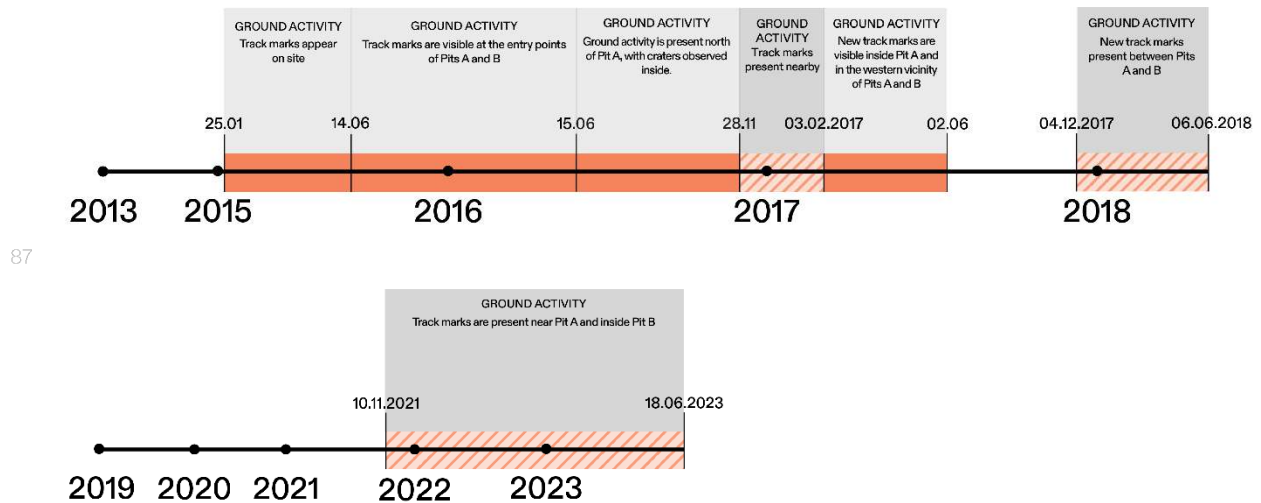


Figure 32: Timeline of ground activity in and around the mass grave site 2013 – 2023

88 It is important to note that while the appearance of track marks suggests activity in the pit, the absence of such marks does not necessarily indicate a lack of activity. Multiple factors, including the resolution of the satellite imagery and environmental conditions at the site (e.g., soil compactness or humidity), may contribute to the absence of visible evidence.

E TIRE/TRACK MARK ANALYSIS

89 To determine the size of the track marks, we measured multiple points across the 14 June 2015 and 4 December 2017 images, including both outer edge-to-outer edge and centre-to-centre distances at various locations. On average, the distance between the central axes of the left and right tires or tracks is approximately 2 meters or less, while the full lateral extent of the tire or track imprints on the ground can reach up to 2.5 meters.

90 It is important to note that there are limitations in measurement precision due to the image resolution.



91

Figure 33: 14 Satellite images from June 2015 and 4 December 2017 showing the presence of track marks. External image source: Google Earth.

- 92 When comparing these track marks to those left by military vehicles in a nearby outpost, we observed that the former are smaller. On average, the centre-to-centre distance between the tracks of large military vehicles visible on the 25 Jan 2015 satellite imagery below (Figure 34) is at least 2.70m while the full extent imprint can reach up to 3.4m.



Figure 34: Satellite image from January 25, 2015 of outpost C (top) and outpost F (bottom), showing track marks likely left by large military vehicles. The track spacing is measured from centre to centre. External image source: Google Earth.

- 94 According to data collected by researchers at SFHR, several types of military vehicles have been deployed during the military operations in Sinai. These include the Humvee, Cougar 6x6 MRAP, Fahd Armored Personnel Carrier, M2A2 ODS Bradley Infantry Fighting Vehicle, Toyota Hilux, Toyota Land Cruiser, and T-62 or T-55 tanks.

95 Using available technical specifications for each of these vehicles (known in shown in blue, estimated in orange), we estimated the tire or track mark width, from centre to centre and from outer edge to outer edge.

96 These estimations are as follows:

Specification	Humvee M1151 M998, M1038, M1043, and M996 (smaller)	Cougar 6x6 MRAP	FAPC 240 IFV	M2A2 ODS (Bradley IFV)	T-62 or T-55 Tanks	Toyota Hilux/	Toyota Land Cruiser
Vehicle type	Wheeled 4x4	Wheeled 6x6	Wheeled 4x4	Tracked IFV	Tracked MBT	Wheeled 4x4 pickup	Wheeled 4x4
Vehicle length	4.93 m	7.52 m	6 m	6.55 m	6.63 m	5.325 m	4.925 m
Vehicle width	2.31 m	2.71 m	2.45 m	3.28 m	3.56 m	1.80 m	1.98 m
Tire width	3.175 m	3.95 m	unknown	unknown	unknown	2.65 m	
Turning Radius	7.62 m	8.08 m min (based on the 4x4)	Unknown	Can perform pivot turn	Can perform pivot turn	6.20 m to 6.4 m	6 to 6.4 m
Tire track width (centre to centre)	1.82 m	2.3 m (back wheels)	Approx 1.9 to 1.95 m	Approx 2.60 m	Approx 2.74m	1.50 m	1,664 - 1,668 m
Tire track width (outer edge to edge)	2.1375 m	2.71 cm (vehicle width)	Approx 2.2 - 2.30 m	Approx 3.1 - 3.2 m	Approx 3.3 - 3.4 m	1.765 m	
Number of wheels/tracks	2 wheels /side	3 wheels /side	2 wheels /side	Continuous track	Continuous track	2 wheels/side	2 wheels/ side

97 According to these estimations, the track marks visible in the 14 June 2015 and 4 December 2017 satellite images, are slightly smaller than those typically produced by tracked vehicles such as the M2A2 ODS or T-62/T-55 tanks. Additionally, although these vehicles are capable of curved movement, they more commonly perform pivot turns, which contrasts with the curved track patterns observed in the imagery.

98 Given the margin of error, the track marks are likely more consistent in size with those produced by a Humvee M1151, Cougar 6x6 MRAP, Toyota Hilux, or Toyota Land Cruiser.

99 In addition, we measured the three smallest turning circles visible in the 14 June satellite image, estimating the smallest radius, from the outer edge tire track marks, to be

approximately 5.8 meters. According to the specifications in the table above, the Toyota Hilux or Toyota Land Cruiser would be capable of executing these turns.



Figure 35: measuring the turning circle radius in the northernmost part of Pit A, 14 June 2015. External image source: Google Earth.

- 101 The 14 June 2015 satellite image, however, also shows marks with wider turning circles in other areas of the site and therefore does not exclude the possible presence of other vehicles.
- 102 This satellite imagery study has several limitations, including constraints in the available technical data, the potential for vehicle modifications, the repeated use of specific paths, and the limited resolution of the satellite imagery, which introduces a margin of error in all spatial measurements.
- 103 Videos gathered and verified by the SFHR team¹⁶, indicate that the military employs car models such as the Toyota Hilux and Land Cruisers, as well as Humvees^{17 18}. For example, a leaked video from 2017, verified by both Human Rights Watch and SFHR, shows

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¹⁶ Sinai Foundation for Human Rights, 'Again... Videos Show Extrajudicial Executions in Sinai by the Military and Its Collaborators', August 20, 2022, <https://sinaifhr.org/show/147>

¹⁷ Union of Sinai Tribes, 'Operation Sinai Dawn: Special Operation Against Extremist Terrorist Elements in Sinai', official website, June 6, 2022, <https://www.sinaitribes.com/videos/%d8%b9%d9%85%d9%84%d9%8a%d8%a9-%d9%81%d8%ac%d8%b1-%d8%b3%d9%8a%d9%86%d8%a7%d8%a1-%d8%a7%d9%84%d9%86%d9%88%d8%b9%d9%8a%d8%a9-%d8%b9%d9%84%d9%89-%d8%a7%d9%84%d8%b9%d9%86%d8%a7%d8%b5%d8%b1-%d8%a7%d9%84/> (accessed September 9, 2025).

¹⁸ Amnesty International, 'Egypt: Video of extrajudicial executions offers glimpse of hidden abuses by the military in North Sinai', April 21, 2017, <https://www.amnesty.org/en/latest/news/2017/04/egypt-video-of-extrajudicial-executions-offers-glimpse-of-hidden-abuses-by-the-military-in-north-sinai/>

Egyptian-affiliated militias using a Humvee at an unidentified site of extrajudicial executions in North Sinai.¹⁹

F SITE RECONSTRUCTION

104 Researchers from SFHR conducted two site visits to the mass grave in December 2023 and January 2024. Due to the proximity of nearby military outposts, accessing the site posed security concerns to researchers, such as the risk of arrest. As a result, the team was only able to examine Pit A, while their examination of Pit B was limited to visual observations from a distance.²⁰

105 In Pit A, the team captured video footage documenting skeletal remains, including skulls, some of which appear to have been blindfolded. Also visible in the footage are clothing and sandals, which appear to be civilian in nature. This evidence corresponds to the contents of leaked videos of extrajudicial killing in the region^{21 22}, which have previously been verified by SFHR.²³ In those videos, detainees commonly appear in civilian clothes, blindfolded, and sometimes with their hands tied behind their backs.

106 In addition to documenting visible remains at the surface, the team conducted shallow excavations in Pit A, through which they uncovered dozens more skeletal remains below the soil surface.

107 In Pit B, from a distance, the team observed skeletal remains and civilian clothing, suggesting additional burials at this location.

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¹⁹ Human Rights Watch, 'Egypt: Videos Show Army Executions in Sinai', April 21, 2017, <https://www.hrw.org/news/2017/04/21/egypt-videos-show-army-executions-sinai>

²⁰ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'Summary of the Sinai Foundation for Human Rights' Observations of the alleged mass grave site East of al-Arish. <https://sinaifhr.org/show/625>

²¹ Amnesty International, 'Egypt: Video of extrajudicial executions offers glimpse of hidden abuses by the military in North Sinai', April 21, 2017, <https://www.amnesty.org/en/latest/press-release/2017/04/egypt-video-of-extrajudicial-executions-offers-glimpse-of-hidden-abuses-by-the-military-in-north-sinai/>.

²² Human Rights Watch, 'Egypt: Videos Show Army Executions in Sinai', April 21, 2017, <https://www.hrw.org/news/2017/04/21/egypt-videos-show-army-executions-sinai>.

²³ Sinai Foundation for Human Rights, 'Again.. Videos show extrajudicial executions in Sinai by the military and its collaborators', August 21, 2022, <https://sinaifhr.org/show/148>.



Figure 36: Site reconstruction of the northernmost crater in the mass grave

- 109 Using images collected during these visits, we reconstructed Pit A in as a 3D digital environment, including a photogrammetry model of the northernmost crater (Figure 36).
- 110 Within the 3D space we cross-referenced various pieces of media evidence to map the locations of remains (Figure 38).

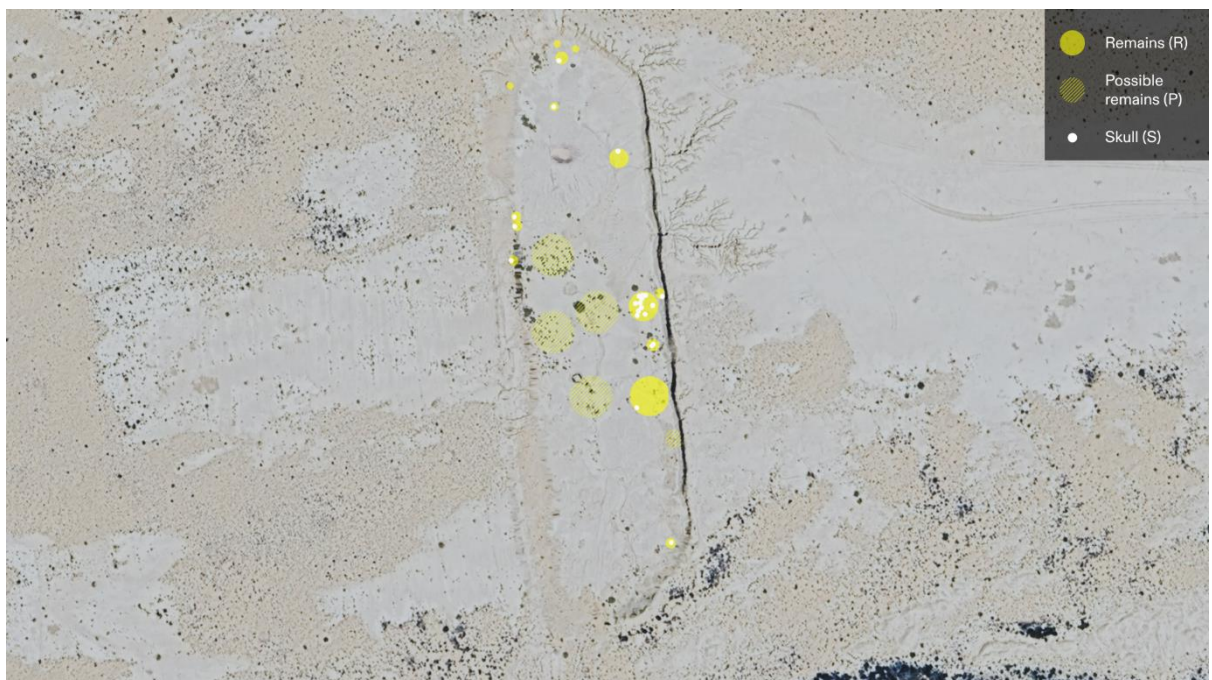


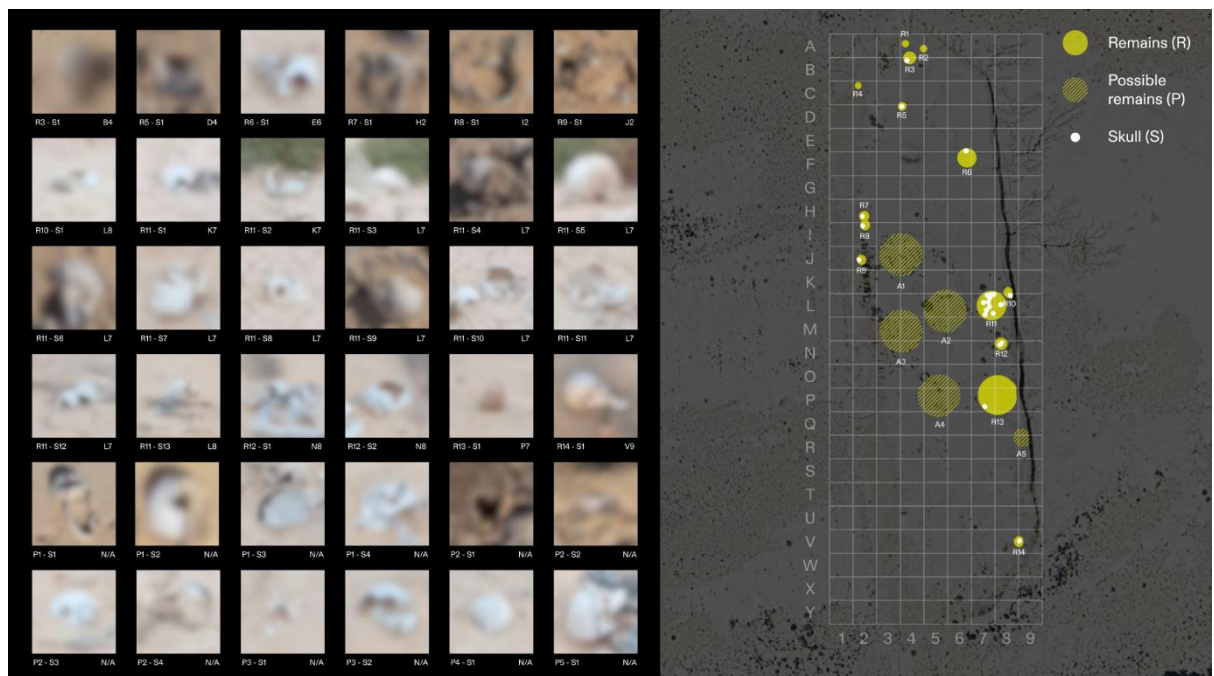
Figure 37: Map showing the location of human remains at the mass grave site at the time of the visit. External image source: Google Earth.



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Figure 38: Using 3D digital reconstruction, we can precisely locate the human remains found at the mass grave site. Skull S1 is visible here in white and remains R2 and R3 in yellow.

- 113 The analysis shows remains buried in shallow earth, widely dispersed across the site (Figure 37). It also revealed the presence of at least 36 skulls (Figure 39) suggesting that at least this number of individuals were buried in Pit A.



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Figure 39: location of skulls found at the mass grave site.

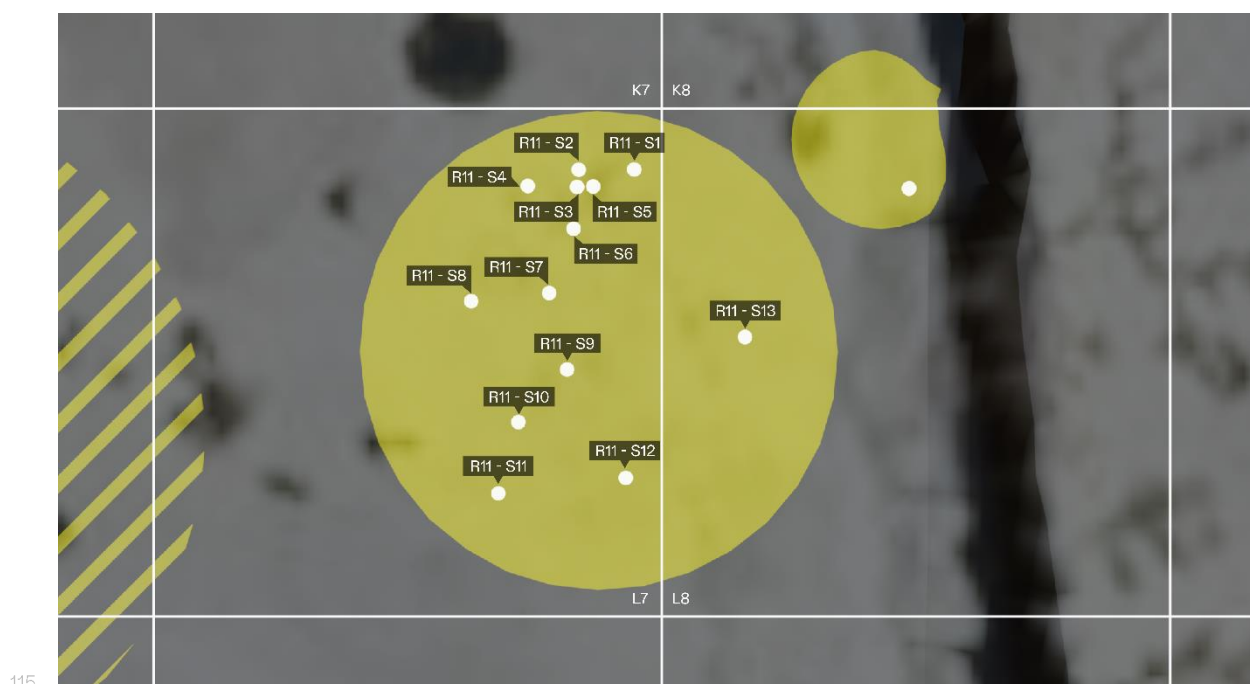


Figure 40: zoomed-in view of Remains 11, showing detailed positions of Skulls 1 to 13.

Media evidence confirmed the presence of 36 skulls in Pit A. However, due to security concerns, documentation at Pit A was hurried, and could not be comprehensive, while Pit B was not documented by media evidence at all, and no sub-surface excavation was possible²⁴. It is therefore very likely that there are more than 36 individuals buried at the site²⁵.

G SUMMARY OF FINDINGS

We observe a general militarisation of the area surrounding the mass grave between 2013 and 2016 (see Section D1.1), marked by the emergence of several military outposts, some in close proximity to the site and connected by sand trenches and other earthworks along the highway. This development is accompanied by the destruction of civilian infrastructure (see section D1.2) and the imposition of strict curfews²⁶ beginning in 2014²⁷, severely restricting movement for civilians. This increased military presence indicates a tight control of the area in and around the mass grave by the Egyptian military.

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²⁴ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'Summary of the Sinai Foundation for Human Rights' Observations of the alleged mass grave site East of al-Arish. <https://sinaifhr.org/show/625>

²⁵ The Sinai Foundation for Human Rights estimates that the total number of human remains in Pits A and B is more than 300 individuals. Sinai Foundation for Human Rights 'Killed in Cold Blood', 'Summary of the Sinai Foundation for Human Rights' Observations of the alleged mass grave site East of al-Arish.- Estimated number of victims <https://sinaifhr.org/show/625>

²⁶ Sinai Foundation for Human Rights, 'Presidential Decree 442/2021: Perpetuating the State of Emergency in North Sinai', October 6, 2021, <https://sinaifhr.org/show/103>.

²⁷ Mada Masr, 'Curfew and state of emergency in North Sinai follows deadly attacks', October 25, 2014, <https://www.madamasr.com/en/2014/10/25/news/u/curfew-and-state-of-emergency-in-north-sinai-follows-deadly-attacks/>.

118 Between 2010–2023, we observe multiple periods of activity at the mass grave, evidenced by the appearance of vehicle track marks and signs of ground disturbance at various points in time (see section D2). Notably prior to 2015, the activity at the site is minimal. The most significant activity took place between January 2015 and June 2017, coinciding with the peak of armed clashes in Sinai and a broader escalation of the conflict.

- i. Track marks are visible in the 14 June 2015 satellite image suggesting a period of activity in the pit between 25 January 2015 and 14 June 2015.
- ii. Possible traces of earth flattening appear in the norther part of Pit A in the 15 June 2016, satellite image, indicating the potential creation of a new access route into the site, sometime between 14 June 2015, and 15 June 2016.
- iii. By 26 August 2016, three craters appear within Pit A.
- iv. Between 3 February 2017 and 2 June 2017, a significant number of new track marks emerge, suggesting another period of intensified activity at the site.
- v. Between 2 June 2017 and 4 December 2017, these track marks remain largely undisturbed indicating that there was likely little to no activity during this 6-month period.
- vi. Between 4 December 2017 and 6 June 2018, we see a track mark appearing in between Pit A and B.
- vii. Between 10 November 2021 and 18 July 2023 a few track marks appear near Pit A as well as in Pit B.

119 Tire tracks analysis indicates that periodic visits to the site are made in and around the site, possibly in military vehicles (see section E).

120 Through 3D reconstruction and mapping of the remains (see section F), we observe that:

- i. At least 36 skulls were identified in Pit A, suggesting a minimum of 36 individuals were buried there. However, reports by SFHR indicate that the actual number of bodies could be significantly higher, with numerous remains unaccounted for in both pits²⁸.
- ii. The visibility of the remains at the surface of the soil suggests that the bodies were buried in shallow graves.

²⁸ Sinai Foundation for Human Rights 'Killed in Cold Blood', 'Summary of the Sinai Foundation for Human Rights' Observations of the alleged mass grave site East of al-Arish.- Estimated number of victims <https://sinaifhr.org/show/625>

- iii. While bone displacement over time is possible due to natural or environmental factors, the widespread distribution of remains across the site suggests that the burials occurred at multiple points in time rather than in a single event.

H CONCLUSION

- 121 The periodic presence of tire tracks, as well as the evident militarisation of the area around the mass grave sites, suggests that repeated visits to the site occurred between 2015–2023, particularly during the peak of the conflict between 2015–2017, likely by military or military-affiliated vehicles.
- 122 The presence of human remains scattered across the site, as well as their shallow burial, may indicate a level of confidence, and control over the area, by those responsible for the burials.
- 123 The emergence of a constellation of military outposts and the clearing of civilian infrastructure beginning in 2013 indicates tight control over the area by the Egyptian military. This control, coupled with the imposition of strict military curfews starting in 2014, makes it unlikely that any non-military actors could have accessed the site regularly, let alone bury bodies, without being observed or challenged.
- 124 Taken together, the above documentation suggests that the Egyptian military is not only aware of the presence of human remains on the site, but is likely responsible for the presence of those remains.