



Russian Operational Art for Attrition in Ukraine

Ukrayna'da Yıpratma Amaçlı Rus Operatif Sanatı

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Abstract

Originally intended as a swift regime-change operation by the Russian leadership, the Russo-Ukrainian War has evolved into a prolonged war of attrition. Although there is much research on Russia's socio-political and military-technical configurations during the Russo-Ukrainian War, a long-term analysis of how the two have been linked through operational art is missing. In that sense, this paper reassesses the transformation of the Russian operational art during the war through a focus on the battles of Severodonetsk-Lysychansk, Kharkiv, Kherson, Bakhmut, Avdiivka, and the Ukrainian Summer Offensive. Accordingly, the theoretical underpinnings of Russian strategy, particularly the enduring influence of Soviet-era legacy, are highlighted in the first part. In the second part, this research offers insights into the Russian military praxis during the war by drawing on various sources, including Telegram channels. It is shown that the Russian army has focused on the combined employment of a new reconnaissance-fire system (ROS), reconnaissance-strike system (RUS), infantry assaults, and umbrella of integrated air defence and electronic warfare systems for force protection and attrition during costly offensives like Bakhmut and Avdiivka. Consequently, this paper asserts that the Russian war machine effectively responded to the necessities of attrition warfare by updating its operational art, drawing on the Soviet legacy.

Key Words: *Operational art, attrition warfare, Russo-Ukrainian War, Bakhmut, Avdiivka.*

Özet

Başlangıçta Rus liderliği tarafından hızlı bir rejim değişikliği operasyonu olarak tasarlanan Rusya-Ukrayna Savaşı, uzun süreli bir yıpratma savaşına dönüşmüştür. Rusya-Ukrayna Savaşı sırasında Rusya'nın sosyo-politik ve askeri-teknik konfigürasyonları üzerine çok sayıda araştırma olmasına rağmen, bu ikisinin operatif sanat aracılığıyla nasıl ilişkilendirildiğine dair uzun vadeli bir analiz eksiktir. Bu anlamda, bu makale Severodonetsk-Lysychansk, Kharkiv, Kherson, Bakhmut, Avdiivka ve Ukrayna Yaz Taarruzu muharebelerine odaklanarak Rus operatif sanatının savaş sırasındaki dönüşümünü yeniden değerlendirmektedir. Bu doğrultuda, ilk bölümde Rus stratejisinin teorik temelleri, özellikle de Sovyet dönemi mirasının kalıcı etkisi vurgulanmaktadır. İkinci bölümde ise bu araştırma, Telegram kanalları da dahil olmak üzere çeşitli kaynaklardan yararlanarak savaş sırasında Rus askeri pratiğine dair içgörüler sunmaktadır. Rus ordusunun, Bakhmut ve Avdiivka gibi maliyetli taarruzlar sırasında kuvvet koruma ve yıpratma amacıyla yeni bir keşif-ateş sistemi (ROS), keşif-vuruş sistemi (RUS), piyade taarruzları ve entegre hava savunma ve elektronik harp sistemleri şemsiyesinin birlikte kullanımına odaklandığı gösterilmektedir. Sonuç olarak bu makale, Rus savaş makinesinin Sovyet mirasından yararlanarak operatif sanatını güncellemek suretiyle yıpratma savaşının gerekliliklerine etkin bir şekilde yanıt verdiğini ileri sürmektedir.

Anahtar Kelimeler: *Operatif sanat, yıpratma savaşı, Rusya-Ukrayna Savaşı, Bakhmut, Avdiivka*

INTRODUCTION

Although it was planned as a quick regime-change operation by the Russian leadership, the *Special Military Operation (SVO)* evolved into a full-scale war. Russia's war in Ukraine has been going on for two years as of the writing of this article. The tragedy of friction at all levels of warfare took a toll on both warring parties. While Ukrainian society and economy have endured terrifying consequences of the transformation of conflict into high-intensity conventional warfare, Russians have also borne the brunt of miscalculations as massive military casualties in terms of both men and material. Moreover, the Russian leadership faced the challenge of strategic reorientation to sustain the war of attrition against a galvanised Ukrainian society, which had a promising base for war efforts backed foremostly by Western allies, especially the US. The resultant grand strategic conjuncture required the transformation of Russian society and economy to conduct a war of attrition while not upsetting public opinion. Hence, escalation management became foundational for understanding Russian strategic and operational configuration.

Ukrainians and their allies knew the critical situation that Russian leadership faced. Therefore, Ukrainian strategy relied upon strategic and operational endurance in the short to medium term to build military capacity and deal decisive blows to invaders. Initially, Russians did not address the sustainability problem at home and the front. They tried to conduct decisive offensives with a series of manoeuvres in the short term. However, offensives at Donbas, which culminated with the operational victories at the Battles of Severodonetsk and Lysychans'k, and commitment to the defence of the captured territories at the right bank of Dnieper in Kherson Oblast further attrited the Russian forces which endured the onslaught of Ukrainian counterattacks during the initial stage of the invasion. Ukrainians used this period of Russian military degradation to prepare and conduct Kherson and Kharkiv offensives. Afterward, Russian decision-makers accepted the character of war in Ukraine as a local war rather than SVO, i.e., a special military operation. Ensuing mobilisation, strategic bombing of Ukrainian energy infrastructure, and further reliance upon unconventional elements, especially the Wagner PMC, moulded into the convenient scheme for sustainable high-intensity attrition warfare in the 21st century.

In the abovementioned context of the high-intensity conventional war of attrition, Russian political and military leadership implemented and experimented according to their theoretical framework for warfare and awakening experience of the failures in the Ukrainian theatre of war. Theories and concepts about warfare have been actively discussed and reevaluated in both military and civilian circles. Especially the intelligence, discussion, and news communities in Russian Telegram have engaged in a fruitful series of investigations and debates with each other. As a result, not only the propaganda function but also the critical attitude of theirs in the face of neglect and failure shaped the information space. Moreover, the Soviet and Russian legacy has been frequently revisited by them to formulate a suitable way of warfare that can deal with the new realities in Ukraine. Both active discussions and experimentation at the battlefield attest to the claim of theoretical reconfiguration of the Russian way of warfare.

To address the challenge of redefining the latest version of Russian *modus operandi*, a new look at how Russian theoretical evolution toward understanding conventional warfare evolved in a larger context is essential. For this reason, the theoretical evolution of the Russian way of warfare, with its contextual connotations, was reconstructed in the first part. Particular focus has been on

the peculiar genealogy of Russian operational art since there had been a massive gap between strategic goals and the operations executed at the start of the Russian invasion of Ukraine. Therefore, understanding the underpinnings of operational art is obligatory for evaluating the change in efficiency during wartime. Secondly, the Russian war experience in Ukraine was analysed at strategic, operational, and tactical levels to understand the further evolution since the start of the war. A series of pivotal operations, representing the performance of the Russian army, was reevaluated to assess the effectiveness of the new Russian framework for a war of attrition. Hence, this paper aims to present a brief reconstruction of the Russian framework for attrition warfare with the re-examination of the legacy and explain its transformation via the reevaluation of Russian contemporary conduct during its ongoing invasion of Ukraine with the help of sources from Telegram.

THEORY

Soviet and later Russian understanding of warfare has always been *holistic* and *grand strategy oriented*.¹ This duality has sprung from two theoretical sources:

- National strategic thought
- Marxian worldview

Despite having an arguable nature, the author of this paper insists on the explanatory utility of the concept of *national* in terms of defining characteristics of *the Russian way of warfare*.² In this context, national refers to a tradition of strategic thought that upholds *deception* on a pedestal of strategy.³ Deception as a defining feature of Russian strategic thought has been visible through theorization and implementation of the infamous *maskirovka* (маскировка, the literal meaning of it is masking or disguise, i.e., deception in a military context) at all levels of conflict.⁴ Especially in grand-strategic and strategic levels, deception requires a holistic evaluation of the task at hand. Hence, it needs an integrated study of many aspects of a phenomenon. Therefore, Russian efforts and experience in employing more sophisticated deceptive measures need a holistic understanding of conflicts as a preliminary requirement.

¹ Dima Adamsky, *The Culture of Military Innovation: The Impact of Cultural Factors on the Revolution in Military Affairs in Russia, the US, and Israel* (Stanford, CA: Stanford University Press, 2010), 24–47. Also, for inspiration and comparison see, Derek M. C. Yuen, *Deciphering Sun Tzu: How to Read the Art of War* (New York, NY: Oxford University Press, 2014).

² For further reading on the Russian way of warfare, see Bibliography.

³ The same is true for different cultures of strategy, which more than probably influenced and shaped Russian strategic thought. For the general overview of essential texts and respective contexts of Chinese, Indian, and Japanese strategic thoughts, see Glenn K. Cunningham, “Eastern Strategic Traditions: Un-American Ways of War,” in *US Army War College Guide to National Security Issues, Volume 1: Theory of War and Strategy*, ed. J. Boone Bartholomees, (Carlisle, PA: SSI, 2012). Although Cunningham's oversimplified general overview of the roots of “Un-American” or “Non-Western” strategic thought may be a warranted and useful approach, it, unfortunately, deals with the issue on a surface level and through distortive lenses.

⁴ There is a vast literature on *maskirovka* at all levels of warfare. For the introduction to definition and employment of the concept, see Charles L. Smith, “Soviet Maskirovka,” *Airpower Journal* 2, no. 1 (Spring 1988): 28–39; Jon Latimer, “Maskirovka,” in *Deception in War* (London: Thistle Publishing, 2015); Robert W. Pringle, *Historical Dictionary of Russian and Soviet Intelligence*, (Lanham, MD: Scarecrow Press, 2006), 153–55, 327–28. For further reading, see Bibliography.

Although deception at all levels of war, hence the holistic approach, as the defining dynamic of Russian strategic thought existed in general before the foundation of the Soviet Union, the Bolshevik Revolution was a decisive factor that paved the way for solidification and unprecedented expansion of such theoretical framework for understanding strategy.⁵ Because the Marxian worldview evaluates the world as an integrated whole and “tries to change” it in a way that accommodates revolutionary aspirations.⁶ Foremost, Frunze’s *unified military doctrine* perfectly captures the aforementioned tendency towards holistic and grand strategy-oriented modus operandi of the Russian way of warfare. Integration of socio-political and military-technical aspects of the strategy into a holistic frame for revolutionary war and subsequent defence of the newborn socialist state proved decisive to the later evolution and elaboration of Soviet doctrines and concepts. Moreover, it constructed a frame for the theoretical development of alternative means and ways of strategizing to direct military confrontation.⁷

While the integrated socio-political with military-technical in unified military doctrine represents the principle of holism at the grand strategic and strategic levels, the simultaneous and subsequent construction of the theoretical foundation for *operational art* in the Soviet Union corresponded accordingly. To bridge a gap between strategy and tactics, the Soviet utilisation of operational art relied upon the scheme of *deep battle* as a framework. The theory of deep battle envisaged *successive operations* in the depth of the front's area of responsibility in a *theatre*. In this scheme, constituent units of fronts execute simultaneous and synchronous tasks in the horizontal, land domain, and vertical axes via long-range strikes and airborne operations. Therefore, ISAR capabilities that direct these operations are crucial since spatially and temporally coordinated actions are necessary for force multiplication. More importantly, the Soviet and later Russian armies are built for fire-centric operations. Hence, these capabilities are essential to coordinate fires in varying degrees of depth. In this sense, the Soviets differentiated tactical-operational (*reconnaissance-fire*) fires from operational-strategic strikes (*reconnaissance-strike*). Later, Russians worked on this legacy by combining the *reconnaissance-fire system (ROS)* and *reconnaissance-strike system (RUS)*, emphasising the integration of advanced ISAR capabilities thanks to the digitalization and network-centric approach.⁸

⁵ Sigmund Neumann and Mark von Hagen, “Engels and Marx on Revolution, War, and the Army in Society” and John Shy and Thomas W. Collier “Revolutionary War” in *Makers of Modern Strategy: From Machiavelli to the Nuclear Age*, ed. Peter Paret (Princeton, NJ: Princeton University Press, 1986), 262-64, 817-22.

⁶ Neumann and von Hagen, “Engels and Marx on Revolution, War, and the Army in Society,” in Paret, *Makers of Modern Strategy*, 262; Karl Marx, “Theses on Feuerbach,” trans. Cyril Smith and Don Cuckson, Marxists Internet Archive, 2002, <https://www.marxists.org/archive/marx/works/1845/theses/>.

⁷ Adamsky, *The Culture of Military Innovation*, 24–57; Kevin Brisson, “Ten Principles of Soviet Operational Art: Red Army Operations in Theory and Practice, 1936-1942” (master’s thesis, University Of Calgary, 2014), 17–67, <https://prism.ucalgary.ca/handle/11023/1872>; David M. Glantz, “The Emergence of Soviet Military Strategy (1921-1935),” in *The Military Strategy of the Soviet Union: A History* (London, England Portland, OR: Frank Cass, 1992); David M. Glantz, “The Genesis of Airborne Concepts” in *A History of Soviet Airborne Forces*, (London: Routledge, 1994); Walter Darnell Jacobs, *Frunze: The Soviet Clausewitz 1885–1925* (Dordrecht: Springer Netherlands, 1969), 24–34; Glantz, *Soviet Military Operational Art*, 1–15, 50–98.

⁸ Wilson C. Blythe Jr, “A History of Operational Art,” *Military Review* 98, no. 6 (December 2018): 37–49; Lester W. Grau and Charles K. Bartles, *The Russian Way of War: Force Structure, Tactics, and Modernization of the Russian Ground Forces* (Fort Leavenworth, KS: Foreign Military Studies Office, 2016), 47–50, 361; David Glantz, *Soviet Military Operational Art: In Pursuit of Deep Battle* (Abingdon; New York, NY: Frank Cass, 1991), 16–38, 224–37; David M. Glantz, *The Soviet Conduct of Tactical Maneuver: Spearhead of the Offensive* (London; Portland, OR: Frank Cass, 1991),

The goal of destroying the combined military capabilities of NATO forces in Europe through strategic ground offensives and tactical nuclear weapons and the subsequent denying of fortress Europe to further US reinforcements defined the characteristic of Soviet strategic and operational considerations in the post-Stalinist period. However, this changed with the further deterioration of Soviet economic and political power in the 1980s. The resultant structural change had been in the socio-political side of the Soviet doctrines from the mid-1980s forward, intensifying since Gorbachev attained power. The new policy revolved around the self-sustainment of a reformed economic structure and self-preservation of security by versatile means in a dynamic manner. The reflection of this approach in the doctrine was the embracement of *active defence* as the framework of reformed political and social aspirations. The Soviet Union did not possess many resources to spare for the recently intensified enmity through hybrid warfare with NATO, namely the United States, in the 1980s, refocusing on deterrence.

The primacy of precision-guided conventional weapons to deal unacceptable damage to the aggressor and the manoeuvre to attrit the opposing forces in a dynamic environment defined the operational art of active defence. Firepower, as a traditional mainstay of the Soviet operational art, however, was not neglected. Contrarily, it was construed as the main attrition inflictor before and during manoeuvres to blunt the possible strategic offensives against the Soviet Union and later the Russian Federation, i.e., *manoeuvre by fire*. Therefore, the Russian approach to warfare since the late 1980s has been one of manoeuvre defence, although there was a brief and temporary return to an over-reliance on the deterrent power of strategic and tactical nuclear weapons during the dire times of the regime through the 1990s and early 2000s. Guided and unguided fires and strikes were leveraged to have the potential to inflict deterrent damage to the aggressor's operational force and enforce the stalemate by attrition upon them.⁹

Experiences of the US in Vietnam, the Soviet Union in Afghanistan, the Russian Federation in Chechnya, and hybrid operations as perceived through Russian lenses during the demise of the Soviet Union have also contributed to the further evolution and understanding of certain concepts. All required unconventional warfare in the framework of security operations. Since these conflicts consisted of highly mobile, elusive, and hard-to-counter ways of warfare, frontlines became murky enough to define the depth in a scale of large countries and to include unconventional elements such as guerrillas (mujahideen in Afghanistan, Chechen irregulars, and Viet Cong) and sympathisers (anti-Soviet elements, to put it with the Soviet political vocabulary, i.e., groups who are politically and socially problematic for the sustainability of the regime). Hence, the expansion of the conventional understanding of fronts to include vast spaces and unconventional qualitative aspects

xxi–xxii, 238–39, 53–60; Glantz, “The Genesis of Airborne Concepts,” “Reconnaissance and Diversionary Operations,” and “Conclusions” in *A History of Soviet Airborne Forces*; Glantz, “The Third Postwar Period (1971–1985)” in *The Military Strategy of the Soviet Union*; Kofman et al., *Russian Military Strategy: Core Tenets and Operational Concepts* (Arlington, VA: CNA, 2021), 78–80; Roger N. McDermott, “The Technological Transformation of Russian Conventional Fires,” *The Journal of Slavic Military Studies* 36, no.3 (December 2023): 241–270.

⁹ Kofman et al., *Russian Military Strategy: Core Tenets and Operational Concepts*, 5–36; Grau and Bartles, *The Russian Way of War*, 47–50, 361; Lester W. Grau and Charles K. Bartles, “The Russian Army and Maneuver Defense,” *Armor* 86, no. 2 (Spring 2021): 47–54; Michael Carver, “Conventional Warfare in the Nuclear Age” in Paret, *Makers of Modern Strategy*, 811–13; Glantz, “Future Soviet Military Strategy and Its Implications” in *The Military Strategy of the Soviet Union*; Jacob W. Kipp, “The Evolution of Soviet Operational Art: The Significance of “Strategic Defense” and “Premeditated Defence” in the Conduct of Theatre-strategic Operations,” *The Journal of Soviet Military Studies* 4, no. 4 (December 1991): 621–48.

of such conflicts culminated in the endorsement of *inverted fronts* as a concept, i.e., although primarily concerned with fragmentation and subsequent dynamic exploitation of the relatively static linear battlefields by various means, also includes a wide variety of socio-political and military-technical novelties associated with the irregular warfare. Conflicts of such are required to devise a strategy for sustained action to secure conventionally acquired gains.¹⁰

Observations on such conflicts peaked in relative value when they coupled with field tests of *revolution in military affairs (RMA)* in real-time, i.e., the First Gulf War. In this sense, *sixth-generation warfare* crystallised the combined understanding of sensors-led, precision-guided weapons in informatized and computerised battlespace with the long, arduous, and unconventional forms of irregular warfare. This conceptualization further emphasised non-military means and paved the way for further refinement of Russian strategy in the 21st century. Later, *new-generation warfare* became a framework to explain the character of war through Russian lenses. The primacy of grand strategy in this framework, hence a holistic understanding of warfare, was solidified thanks to a clear intent on *non-contact warfare* as the prioritised strategic tool to avoid the risks of conventional escalation and consequential attrition in terms of economic and military capacities.¹¹

The priority of non-military means in the strict understanding of it as an emphasis on the unconventional methods does not confer that the Russians do not expect nor have not prepared for scenarios that include conventional warfare. As mentioned, both sixth-generation and new-generation warfare theories expect, explain, and evaluate the challenges of conventional warfare. In the context of the Russian way of warfare, foremostly new generation warfare, non-contact warfare harnesses both non-military means and standoff fire and strike capabilities to enforce attrition to opposing aggressor forces. Achievement of this end is configured through the manipulation of the enemy strategic and operational calculus by *reflexive control* in the scheme of *unified strategic operation*, i.e., merger between general-purpose forces operation (GPFO) and the strategic deterrence forces operation (SDFO). The consequent alteration of the enemy course of action at strategic and operational levels results in scenarios in which their offensive operations culminate short of their operational goals, favouring the Russian strategic interests. Setting up of caldrons or fire bags via the employment of manoeuvre warfare with active defence schemes which focus on manoeuvre by fires as its modus operandi would attrit the opposing forces at the operational level. Such operational configuration includes the amalgamation of positional and manoeuvre defence to bring desired results. Hence, understanding the non-linearity of warfare in terms of fronts' areas of responsibility is of utmost importance for the Russian way of warfare.

¹⁰ Kofman et al., *Russian Military Strategy: Core Tenets and Operational Concepts*, 14–15; Grau and Bartles, *The Russian Way of War*, 25, 199–200, 204–7; Ofer Fridman, “Hybrid Warfare or Gibridnaya Voyna? Similar, But Different,” *The RUSI Journal* 162, no. 1 (January 2017): 42–49.

¹¹ Jānis Bērziņš, “The Theory and Practice of New Generation Warfare: The Case of Ukraine and Syria,” *The Journal of Slavic Military Studies* 33, no. 3 (December 2020): 355–380; Adamsky, *The Culture of Military Innovation*, 24–57; John Merriam, “One Move Ahead - Diagnosing and Countering Russian Reflexive Control,” *The Journal of Slavic Military Studies* 36, no. 1 (January 2023): 1–27. In the Russian context, non-contact warfare corresponds to employment of standoff weapons through the means of both short-to-medium range tactical fires and medium-to-long range operational strikes. However, Western understanding of the term envisions the usage of non-military methods such as information warfare. New generation warfare includes and combines both. See, Kofman et al., *Russian Military Strategy: Core Tenets and Operational Concepts*, 16–17, 83.

Therefore, the long line of elaboration and experiences that perfected the implementation of deep battle is more than helpful in this context.¹²

PRAXIS¹³

The abovementioned conceptual framework has been at play before and during the Russian invasion of Ukraine. Before the invasion, the Russian leadership had tried to influence and coerce Ukraine through the utilisation of new-generation warfare. Firstly, (a) with non-military means before the civil war, and later, (b) a mix of military and non-military means after the Maidan Uprising and subsequent Revolution of Dignity. Then, the reintensification of hostilities and the conflict's transformation towards high-intensity conventional war marked 2022. Relying upon the updated deep battle under the scheme of *strategic operation in a theatre of military operations (SOTMO)*,¹⁴ Russians tried to conduct strategic ground offensives during the initial period of war, beginning from the 23rd of February to the 19th of April, when Russians announced the operation to capture Donbas. The Russian leadership unsuccessfully tried to inflict Crimea 2.0 upon Ukraine and paralyse the collective West when they utilised the ostensibly highly ready Russian armed forces in a series of manoeuvres-cum-strategic bombings under the scheme for regime-change operation:

- Decapitation of political-military leadership of Ukraine
- Neutralisation of Ukrainian armed forces

To achieve both ends, Russians tried to

- assassinate important political-military figures,
- employ electronic warfare and information operations to cloud (Western) or if possible, neutralise (Ukrainian) the command, control, communications, and computers (C4) of adversaries,
- move into occupy the nerve centres in Kyiv with the help of elite mobile troops of VDV,

¹² Elongated genealogies and encyclopaedic descriptions of these concepts are out of the scope of this article. For detailed understanding of mentioned concepts, see, Bērziņš, “The Theory and Practice of New Generation Warfare”; Merriam, “One Move Ahead - Diagnosing and Countering Russian Reflexive Control”; Clint Reach et al., *Russia's Evolution Toward a Unified Strategic Operation: The Influence of Geography and Conventional Capacity* (Santa Monica, CA: RAND, 2023); Boston and Massicot, *The Russian Way of Warfare*; Grau and Bartles, *The Russian Way of War*.

¹³ The main sources for the second part of this paper, Praxis, are various Telegram channels that constantly publish materials on first-hand experiences, commentaries, debates, and reevaluations about political and military issues. For the sake of convenience, the channels and brief explanations about them are given as a whole in the Bibliography section Only the additional resources like publications of research institutes and commentaries are provided on the footnotes.

¹⁴ For the more detailed discussion of SOTMO, see Kofman et al., *Russian Military Strategy: Core Tenets and Operational Concepts*, 44-46. Although it was based upon legacy of Soviet approaches to the operational art, lately it transformed into a concept which favoured a nimbler conduct of deep battle in limited defensive scheme. In this sense, the fronts and strategic ground offensives which highly concerns the Soviet understanding of operations were not deemed useful in the time period nearing the launch of SVO. This was to change, however, with the turning of the conflict into a war of attrition as it is explained later in the paper.

- destroy the equipment (especially related to air defence and munition stocks),
- manoeuvre behind ground line of communications (GLOCS) and supply lines of the main bulk of Ukrainian armed force in the east of Dnieper,
- establish land connection with Crimea,
- cross the Dnieper from the closest node (Antonovsky Bridge) to circumvent north of Odessa to cut the strategic city from the mainland.

Except for a land connection with Crimea, none of the above-stated operations that centred on pre-planned manoeuvres worked according to the invaders' wishful thinking. Since it was considered a regime-change operation, peculiarities of deep battle were not practised at their best. Rather, operations were designed to exploit the inverted character of the battlefield to bring cheap (in terms of both long-term economics and men and material committed for this strategic operation in the short-to-medium term) and quick (presumably a couple of weeks at best, including the entailing security operations) victories. On the contrary, successive operations require large reserve forces, equipment, and incessant force employment to eradicate the opposing forces and subsequent resistance. Because the enemy can exploit the lost initiative for regrouping and reinforcing in turn. Therefore, it is necessary to coordinate and perform these operations in a manner that desirably paralyzes the enemy command, control, communications, and computers (C4). Initial Russian operations had been far from this framework. Rather, they were of a regime-change operation with the expectancy of quick, easy, and cheap victory. However, Ukrainian preparation for the invasion (both the equipment procurement and training), the political resilience of Ukrainian leadership, political motivation and militarization of the population, and low-level preparedness (both morally and logistics-wise) by Russians for extreme resistance proved deadly for Russian expectations for quick and easy win. Moreover, thanks to the US and combined NATO efforts, details about when and how the Russians would execute a strategic operation directed at regime change in Ukraine were revealed for the timely reconsideration of Ukrainians to establish an adaptable defence posture before the incoming turmoil.¹⁵

Russian offensive at Donbas, Ukrainians strike back at Kharkiv and Kherson

After the abysmal consequences of their initial assault on Ukraine, especially in the Northern and North-eastern sectors, the Russians disengaged and returned to regroup and refurbish for their next attempt. The Russian leadership resorted to another manoeuvre to untangle the stalemate while they were approaching the capture (hence freeing up troops and equipment) of Mariupol on the 19th of April: Russian forces began to retry to encircle the bulk of the Ukrainian army in the East, but this time attempting only from the northern direction, from the Izyum axis towards Pokrovsk. Despite their downsizing of the operational goals and re-focusing on Donbas, they still needed to reconsider their manoeuvres in the context of harsh resistance by the Ukrainian army, which led to further minimization of the plans to smaller encirclement. At last, long-awaited and desired by Russian political leadership, operational victories came with the successful execution of

¹⁵ Jack Watling, Nick Reynolds, *Operation Z: The Death Throes of an Imperial Delusion* (London: RUSI, 2022); Mykhaylo Zabrodskyi, Jack Watling, Oleksandr V Danylyuk and Nick Reynolds, *Preliminary Lessons in Conventional Warfighting from Russia's Invasion of Ukraine: February–July 2022* (London: RUSI, 2022).

decisive battles (at operational levels) near Severodonetsk and Lysychans'k after Wagnerites and Russian mechanised infantry broke through the Ukrainian defence lines at Toshkivka (rural landscape) and Popasna (urban landscape) at a high cost after punishing attrition in early July 2022, resulting in the capture of Luhansk Oblast by the Russian military.

The Ukrainians used this valuable period (April to July) and beyond (July to October) to reorganise, resupply, and mobilise with the help of Western equipment and training. The results were effective: offensives into Kherson and Kharkiv led to the recapture of most of these oblasts with another round of punishing levels of attrition inflicted on the Russian armed forces. Since the Ukrainian Armed Forces' centre of gravity has been sustainable thanks to the Western financial and military aid and the Russian armed forces could not get overwhelming military superiority at the front, the problem was at the strategic level. At the end of summer, Russians understood that they should have been in for a long and bloody fight to win a war of this scale. Change in the leadership (especially appointment of Surovikin as overall commander of operational forces in Ukraine), intensified usage and expansion of unconventional forces (DNR, LNR, Wagner, Chechens as part of Rosgvardia), costlier campaigns at both strategic (strategic bombing campaign against Ukrainian energy grid) and operational levels (Battle of Bakhmut) resulted in the expansion and transformation of the war into a modern high-intensity one that is defined by attrition.

*Bakhmut meatgrinder*¹⁶

At that time (after the Ukrainian offensive operations in Kharkiv and Kherson), proper fronts emerged as units of operations to deal with Ukrainian offensives. The fragmented character of the battlefield has affected the employment of these fronts. Platoon and company-level active defence defined the conduct. The onslaught of attrition had been primarily borne by the Wagner PMC and later Storm-Z units, i.e., convicts and volunteers. Manoeuvre by fire became the modus operandi of tactical conduct. ISTAR capabilities and constant mobility have been essential for avoiding and inflicting attrition. Perseverance on the offensive coupled with the force preservation to sustain infantry-based assaults with the help of fires and strikes. Fire bag or caldron was established with its centre as the Bakhmut proper, hence resulting in sustained and heavy casualty infliction on the Ukrainian side. Firstly, Wagnerian infantry assaults focused on the south of Bakhmut, in and around Klishchiivka, to cut the one (T0504 highway to Chasiv Yar) of the two main GLOCs to the defenders in the city, subsequently forcing them to retreat along the other line (M03 highway to Slovyansk). The result of the Battle of Klishchiivka marked the Wagnerites' operational effectiveness as a formidable assault force. Small-sized (company-level and below) infantry units incessantly tried to infiltrate the fortified positions from many directions in coordination with the sensors-led (especially the volunteered commercial UAV operators had been of utmost importance) mobile and positional fires to attrit and overwhelm the defenders and disrupt their OODA cycle, to further exploit hard-earned tactical gains before Ukrainians regroup and counterattack.

¹⁶ For the maps of the Battle of Bakhmut (including the battles of Soledar and Klishchiivka), see Appendix A.

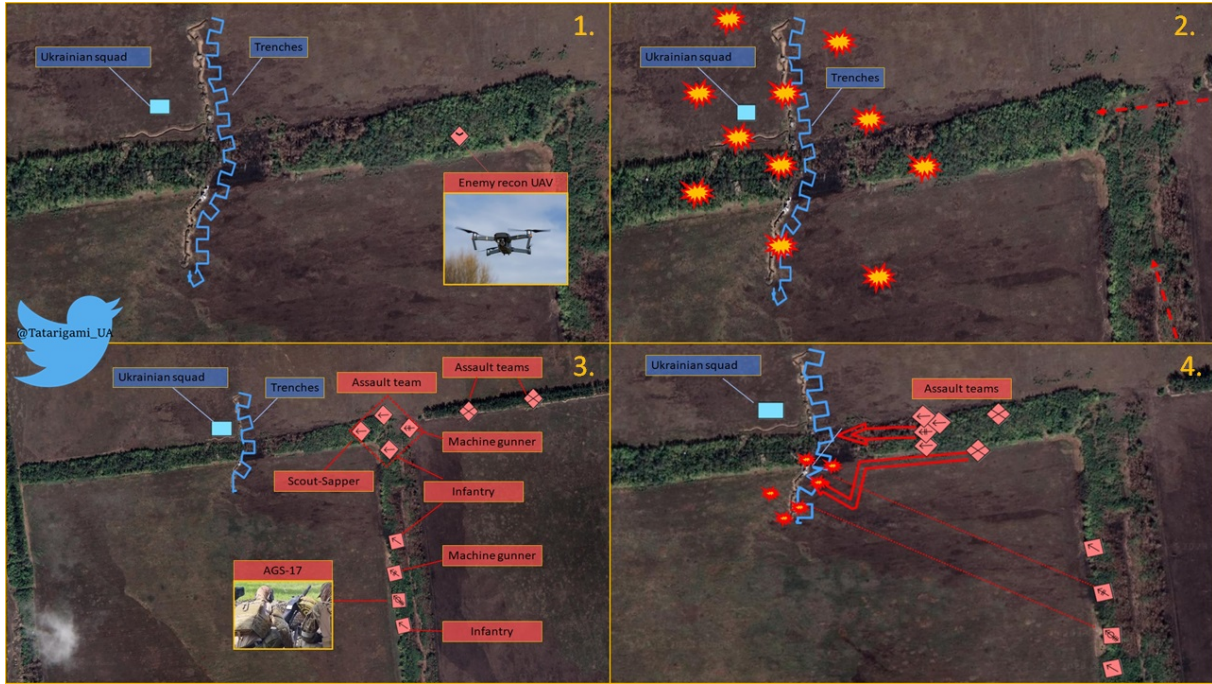


Figure 1 Wagnerian infantry assault tactics¹⁷

None other than the Battle of Soledar, however, proved the most valuable test for the operational effectiveness of the new Russian *modus operandi* and Wagner's force employment. After the fire control of the T0504 highway to Chasiv Yar was established to a great extent, Wagner forces tried to complete the fire bag by attempting to carve a northern pincer from the direction of Soledar to Krasna Hora and Paraskoviivka. With the help of other Russian elements (especially the VDV and artillery forces), they absorbed the attrition by quickly forming two little pincers around Soledar after the capture of Yakovlivka on the T301 highway to Lysychans'k. Infantry

¹⁷ Figure is from Tatarigami_UA (@tatarigami_ua), "You don't hear as much about the advancement of regular russian brigades, but you see reports about Wagner advancing in certain areas," Twitter (flood), February 22, 2023, https://twitter.com/Tatarigami_UA/status/1628289157461078018. A hypothetical scenario in which the Wagnerian assault procedure to a fixed position is shown above by a former Ukrainian reserve officer:

"Let's imagine a situation where a Ukrainian squad, possibly 9 people, is tasked with securing a tree line in trenches - a quite common occurrence in this war. Before the attack, the enemy dispatches a quadcopter to gather intelligence about defenders - the number of people, their armament, trench, and dugout disposition. Based on this information, wagnerites would adjust the number of assault teams, to have a numerical advantage. Once targets are determined, the enemy artillery or mortars shell trenches, sometimes for a few days, suppressing the ability of defenders to fight or observe. Covered by this fire, the assault teams start moving closer to the trenches without any significant resistance. Wagnerites usually break down into small assault teams consisting of 3-4 people. The first team is usually led by a "scout" who is tasked to observe and locate mined areas ahead. He is followed by two regular riflemen and a machine gunner. At the same time, they are usually also covered by the "support" team, armed either with mortar, or automatic grenade launchers such as AGS-17 or AGS-30. Given that not every assault group has one, they can be replaced with a few soldiers armed with RPG-7s instead. Once the artillery fire ends, before defenders can take any measures, the support team armed with AGS or RPGs and a machine gun, opens suppressive fire, allowing assault teams to move even closer to trenches. They usually try to engage and outflank the defenders. Once close enough to the trenches, the enemy uses hand grenades to cause damage and then assaults the trenches. I would like to emphasise that this is a generalisation, because situations may vary, so treat this just as a general summary."

infiltrations and assaults that were supported by a manoeuvre by fire defined the conduct of warfare. Also, there had been claims of unlawful deception on the part of Wagner by trying to disguise themselves as Ukrainians on the battlefield, which further complicated the Ukrainian efforts at regrouping and counterattacking quickly in the end. Ukrainian casualties mounted after the breakthrough at Soledar and the formation of the northern pincer. Later, quick but costly urban assaults, which Wagnerites had plenty of experience thanks to the Battle of Popasna, decided the final stage of Bakhmut.¹⁸ With the help of ISTAR-led manoeuvre by fire and small-sized, mobile, and experienced dismounted infantry assaults, Bakhmut proper was captured by Russians on the 20th of May 2023; just near-two months of fierce urban warfare intensified in the early days of April 2023. Ultimately, the operationally and tactically autonomous and adaptable assault infantry detachments of Wagner served as a vacuum for the limited Ukrainian time and material.¹⁹

During and after the Battle of Bakhmut, the Russian force employment improved. This transformation reflected at all levels of warfare: strategic (from craving for decisive and short battles as in the example of Ugedar to attrition warfare), operational (from inverted fronts to the fronts of conventional deep battle), and tactical levels (from understaffed BTGs with limited dismounted infantry to detachments, i.e., dismounted infantry assaults with ISTAR-led fires and strikes). In this process, Bakhmut became the focal point of Russian reflexive control. The Ukrainians lost precious time and material to reserve for their planned offensive in the south. Consequently, the Russians managed to attrit the Ukrainian forces to the extent that the Ukrainian Armed Forces failed to achieve their goals (mainly the cutting off the land connection between Crimea and Russia) in their famously foretold summer offensive.

¹⁸ Mediazona Data Department, "Russia Suffers 75,000 Military Deaths in Ukraine War by End of 2023. Investigation by Mediazona and Meduza," Mediazona, February 24, 2024, <https://en.zona.media/article/2024/02/24/75k>.

¹⁹ Tatarigami_UA (@tatarigami_ua), "You don't hear as much about the advancement of regular russian brigades, but you see reports about Wagner advancing in certain areas," Twitter (flood), February 22, 2023, https://twitter.com/Tatarigami_UA/status/1628289157461078018.

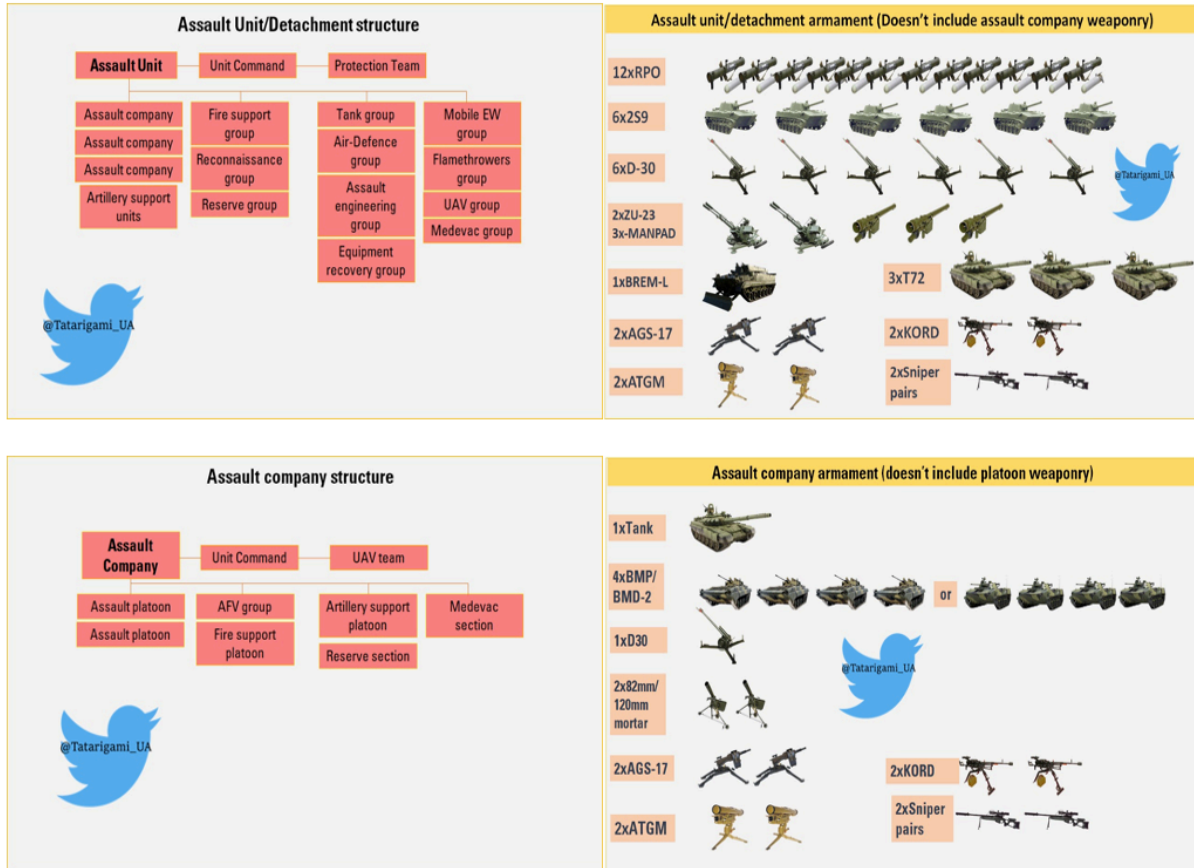


Figure 2-1 The structure, equipment, and attack formation of the Russian assault detachments according to the captured Russian field manual²⁰

²⁰ Figures are from Tatarigami_UA (@tatarigami_ua), “You don't hear as much about the advancement of regular Russian brigades, but you see reports about Wagner advancing in certain areas,” Twitter (flood), February 22, 2023, https://twitter.com/Tatarigami_UA/status/1628289157461078018. He is a former Ukrainian reserve officer and founder of the Frontelligence Insight. He claims the Storm-Z units as “permanent formations” have been more effective for given tasks, namely the assault operations, relative to “temporary formations,” which are ad-hoc units. The Russian Ministry of Defence and General Chief of Staff adapted to the war of attrition by forming assault detachments during Russia's winter campaign at the end of 2022. Also, the PMC Wagner's effective force employment during the Battle of Bakhmut probably inspired such a switch. See Tatarigami_UA (@tatarigami_ua), “In my previous analysis, I explored the armament and role of assault units. However, their actual effectiveness and structure often differs from what is written in manuals,” Twitter (flood), March 12, 2023, https://twitter.com/Tatarigami_UA/status/1634799680126058502?cxt=HHwWjICwzbjp_K8tAAAA.

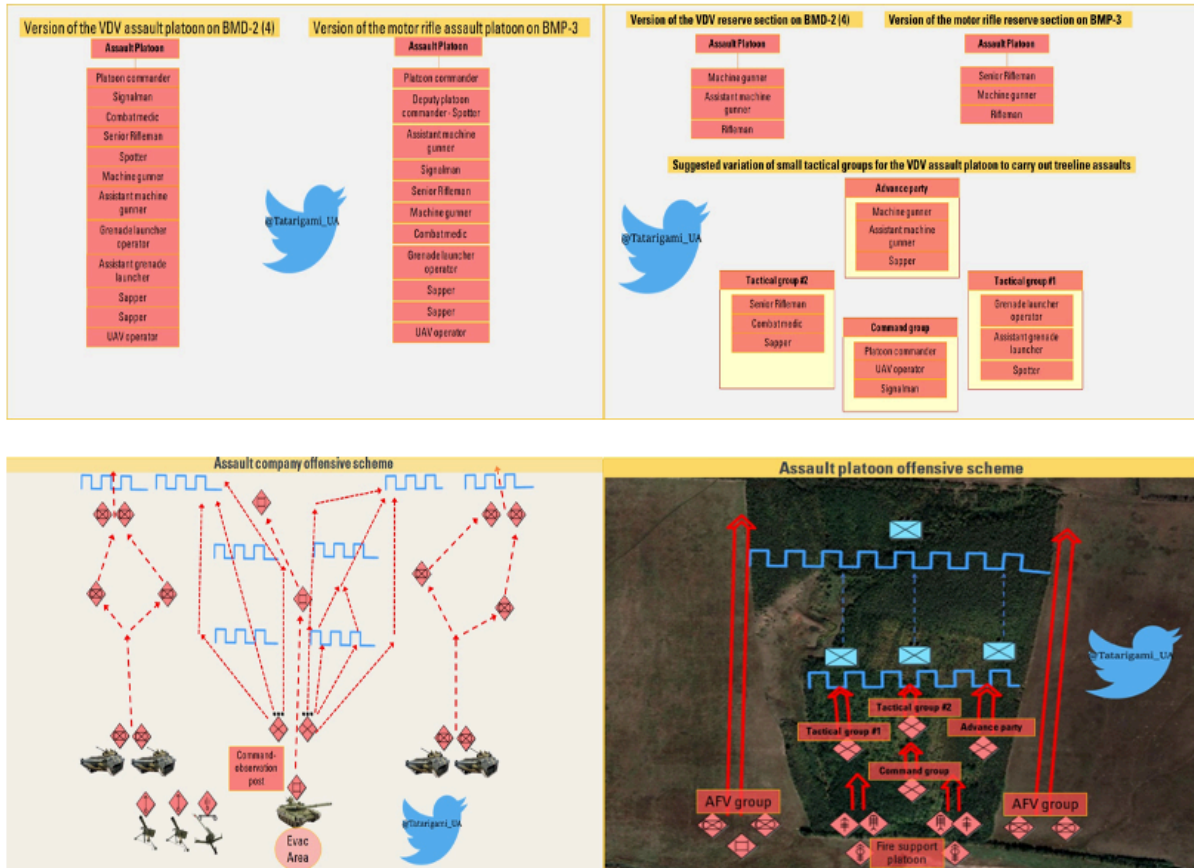


Figure 2-2 The structure, equipment, and attack formation of the Russian assault detachments according to the captured Russian field manual

The ultimate trial: Ukrainian summer offensive

The Ukrainian Summer Offensive became the ultimate field test for the Russian way of warfare in Ukraine. Although Wagner led a successful offensive operation in and around Bakhmut, the main body of the Russian army in Ukraine was still in a questionable situation. After the Russians licked its wounds due to the immense amounts of casualties suffered by its professional core during the initial stage of the invasion and the Donbas Offensive of the Russo-Ukrainian War in 2022, the Ukrainians launched two successful offensives at Kharkiv and Kherson hence, contributing to the further degradation of the Russian forces. Shortening of the front and the operational withdrawal of the elite formations (namely the VDV) from the Kherson Oblast partially alleviated Russian disadvantage in numbers. Nevertheless, the phenomenon of Ukraine fighting a total war while Russian leadership pursues its goals within the framework of Special Military Operation (SVO) for the sake of not undermining political and economic stability in the home front (SVO, i.e., mixed measures to deal with threats at the level of armed conflict) persisted. Primarily, Russians addressed this by partial mobilisation. Around three hundred thousand men had been mustered and trained from the military reserve according to needed typologies of personnel to plug the gaps at the front and take necessary measures to create reserves that are urgent for rotations and rear work like building military infrastructure. While the Battle of Bakhmut was draining the limited Ukrainian resources and time for the successive operations after the Kherson and Kharkiv Offensives,

Russians were constructing multilayered defence in the south, training new troops, rotating the exhausted ones, and reequipping their battered forces.²¹

On the 4th of June 2023, Ukrainian Armed Forces struck with both NATO-trained and other troops. The main axes of attack consisted of two sectors in the south (Orekhov and Velyka Novosilka), which aspired to cut the land bridge between Russia and Crimea in Melitopol' and Mariupol. While the main blow was at the south, an auxiliary offensive was ongoing against the northern and southern pincers around the Bakhmut. The northern one was the target of three separate attacks (from southwest to Berkhivka, from the M03 highway to Bakhmut, and from Sivers'k to Soledar). At the same time, the southern attack commenced towards the fortifications in the heights north and south of Klishchiivka. In the Zaporizhzhia front, Russians employed active defence in the combined form of manoeuvre by fire and positional defence to attrit the Ukrainian brigades in a battle of attrition at the northern approaches of Robotyne and Verbove. Ukrainians captured the Robotyne and breached the first main line of defence of the so-called Surovikin Line at the expense of enormous psychological and material costs. The importance of ISTAR capabilities countering them with various means, especially the EW, at operational, tactical, and strategic levels surfaced again in active defence settings. Russians effectively employed these capabilities in all levels of warfare in combination with fires and strikes. Strategic and operational level strikes by cruise and ballistic missiles, Shahed-131 and Shahed-136s, MLRSs, and tactical-to-operational level fires by tube artillery, commercial first person-view drones (FPVs), Lancets, and various other weaponry such as FAB bombs with UMPC guidance kits attrited the Ukrainian forces by direct and indirect attacks. Increased employment in the aerospace domain in the framework of unified strategic operation to degrade Ukrainian military capabilities worked around the clock for months in the summer and beyond.²²

²¹ Brady Africk, "Russian Field Fortifications in Ukraine," Brady Africk's Newsletter, March 3, 2024, <https://read.bradyafrick.com/p/russian-field-fortifications-in-ukraine>.

²² Michael Kofman and Rob Lee, "Perseverance and Adaptation: Ukraine's Counteroffensive at Three Months," War on the Rocks, September 4, 2023, <https://warontherocks.com/2023/09/perseverance-and-adaptation-ukraines-counteroffensive-at-three-months/>; Nick Reynolds, *Heavy Armoured Forces in Future Combined Arms Warfare* (London: RUSI, 2022); Andrew Perpetua, "The reason Ukraine needs more Patriot batteries and the latest, modern F-16. These are the airstrikes," Twitter (flood), October 4, 2023, <https://twitter.com/AndrewPerpetua/status/1709652902854246561>.

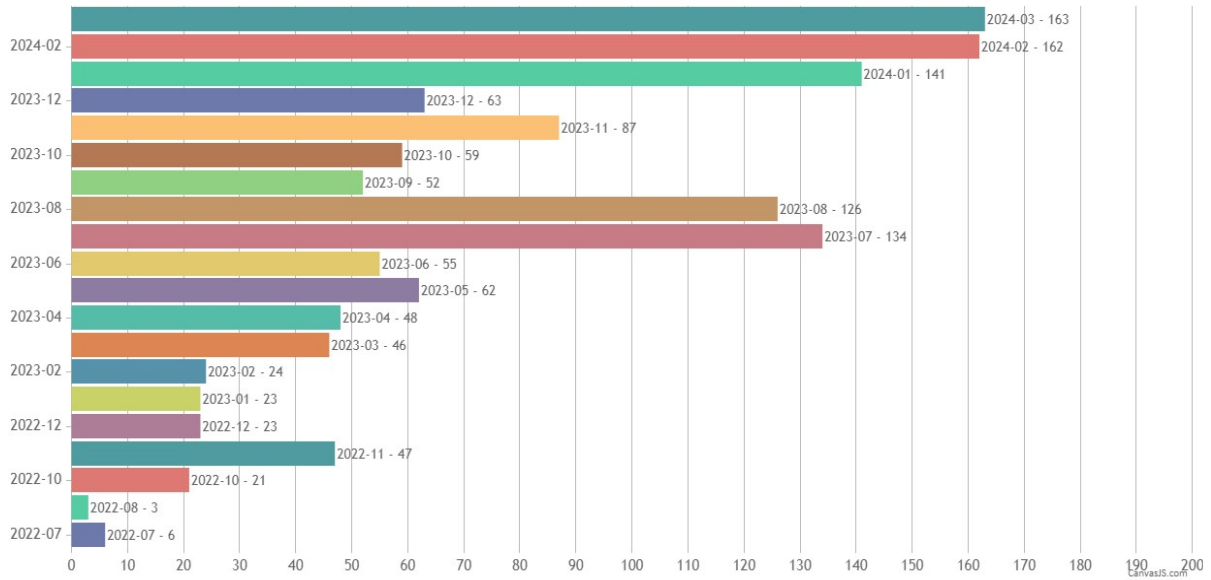


Figure 3-1 The volume of Russian Lancet strikes during the Russian invasion of Ukraine. Note the intensification in the summer of 2023 while the Ukrainian Armed Forces were conducting their summer offensive.²³

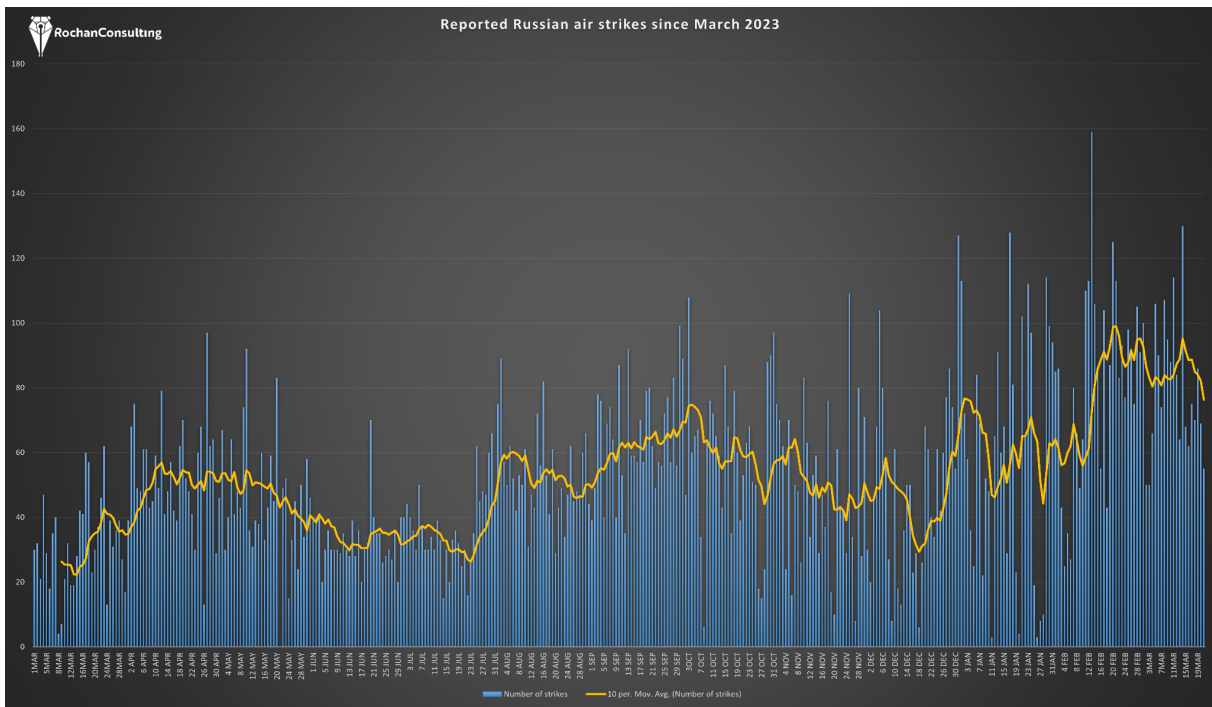


Figure 3-2 The volume of Russian airstrikes²⁴

²³ “Применение Барражирующих Боеприпасов ‘Ланцет’ в Зоне СВО,” Lostarmour, accessed April 8, 2024, <https://lostarmour.info/tags/lancet>.

²⁴ Konrad Muzyka, “16 March – 22 March 2024,” Ukraine Conflict Monitor, March 22, 2024, <https://rochanconsulting.substack.com/p/ukraine-conflict-monitor-16-march>.

*Bakhmut 2.0: The Battle of Avdiivka*²⁵

Moreover, Russians executed another round of attritional operations targeting the Avdiivka as their geographical and operational centre of gravity. Avdiivka and its surroundings were subjected to intensified barrages from tube and rocket artillery, airdropped guided bombs, and kamikaze UAVs. Expansion of the coordinated fire missions on the 10th of October compounded with the pincer manoeuvres from both northern and southern axes of the Russian offensive aiming at getting rid of the painful thorn for the Russian forces, named after the small city of Avdiivka near Donetsk, the capital of the so-called Donetsk People's Republic. Manoeuvres of Russian Ground Forces consisted of an armoured rush from Krasnogorivka with heavy fire support in the northern sector. For the sake of operating towards cutting the supply lines and ground lines of communications of Avdiivka from the north, armoured columns poured into the northeastern suburbs of the villages of Stepove and Berdychi. Although the element of surprise and superior firepower has acted as force multipliers on the Russian side, fortified approaches in the complex defence network involving Avdiivka as the operational centre of gravity combined with the accurate and timely results from the network of advanced ISTAR capabilities led artillery and anti-tank fires defeated the spearhead of the Russian forces in the north, coming very short of their operational objectives.

Afterwards, Russians consolidated and regrouped both in the north and south and launched a series of gnawing tactical dismounted infantry attacks with the help of versatile and intense firepower capabilities. Thanks to their superior firepower capabilities in terms of versatility, quantity, and employment, reserves of readily available and assembled manpower and general equipment, foreseen and calculated risks and friction involved in such daring operations in a taxing attrition war (including local counterattacks and the commencement of theaterwide enemy offensive operations as in cat-and-mouse game for operational and strategic reserves), psychological tolerance towards heavy casualties as natural element of offensive operations in attrition wars, Russian army did not lose the initiative. On the contrary, continuing with intensified pressure, they captured the tactical waste heap in the north towards the Avdiivka Coke Plant, which has the potential for further infantry-based incursions and deep reconnaissance group infiltrations. Moreover, they consolidated and slowly began to cross the no man's land between Krasnogorivka and Stepove, spanning along the railroad with forest covers on both sides. In the south, Russian forces also captured a tactically important area of interest, which is named "quarry," and bypassed and intensified the siege of another significant stronghold, abandoned military base A-1428 hence, creeping slowly but steadily towards Khimik micro-district.

Later in January and February, the Russian army breached the heavily fortified and stubbornly defended frontline from the south by utilising a tunnel under the contact line. The combination of military engineers, military intelligence, and storm troops put massive pressure on the Ukrainian operational situation by nullifying a crucial force multiplier of the defence network. Then, the main attack targeted the area between the central (city centre) and northern operational zones (Avdiivka Coke Plant), leading to a total collapse of the defence of Avdiivka.

²⁵ For the maps of the Battle of Avdiivka, see Appendix B.

Months of attrition inflicted on the Ukrainian forces played an important part during the Battle of Avdiivka. Moreover, the effective tactical deception during the Russian infantry's surprise attack through the 170-meter tunnel in the south enabled the operational diversion of Ukrainian reserves. Hence, when the main blow was struck at the north with heavy firepower advantage mainly from FAB bombs with UMPC guidance kits, Ukrainian lines were already stretched. As a result, sustained action, readiness for friction (adaptability), material advantage, and effective manoeuvre by fire in and around Avdiivka led it to become the Bakhmut 2.0, which pulled the Ukrainian units with Western equipment from other directions.

CONCLUSION

Although Russians conceived and executed the invasion of Ukraine in 2022 as a regime-change operation within the framework of a unified strategic operation, it turned into the bloodiest conventional conflict of the 21st century. The war in Ukraine became a war of attrition, namely after the successful Ukrainian Kharkiv and Kherson offensives. Fronts as the proper organisational units of force employment at the operational level emerged during a dynamic stalemate that became the norm afterward. Costly infantry attacks in the context of a highly networked battlefield, which has transparency as a constant characteristic, led to the appreciation and experimentation of war efforts at maximising organisational efficiency in terms of wartime economics. The Russo-Ukrainian War transformed into a *materialschlacht* of the 21st century.²⁶ Budget flexibility, military industry, mobilisation, wages, and labour have become the main themes during the war.²⁷ Characteristics of such a conflict required the ultimate emphasis and elaboration on sustainability at all levels of warfare. The Russians have utilised the vast and versatile legacy of their strategic thought and operational art and experimented. Hence, the Russian way of warfare has evolved to offer an elaborate and valuable theoretical framework for understanding the conduct of high-intensity attrition warfare in the 21st century.

New generation warfare framework, which Russians understand the conduct of war through, evolved to accommodate the conventional and conventionalized conflicts with the experiences of the Chechen Wars, Russo-Georgian War, and Syrian Civil War. The Russian theoretical evolution on understanding warfare, thanks to these experiences, resulted in envisaged and aspired victory through non-military methods as the primary choice of modus operandi in potential future conflicts. However, Russian prioritisation of non-military methods did not mean negligence of the theorization about and preparation for high-intensity contingencies. Conversely,

²⁶ Mary Ilyushina and Dalton Bennett, "Inside the Russian Effort to Build 6,000 Attack Drones with Iran's Help," The Washington Post, August 17, 2023, <https://www.washingtonpost.com/investigations/2023/08/17/russia-iran-drone-shahed-alabuga/>; Boyko Nikolov, "Iskander-M Missile Production Soars in Russian Military Push," Bulgarianmilitary, April 10, 2024, <https://bulgarianmilitary.com/amp/2024/04/10/iskander-m-missile-production-soars-in-russian-military-push/>; 1. Boyko Nikolov, "Russian Army Received 1,900 Tanks, and Another 200 Are Expected," Bulgarianmilitary, November 9, 2023, <https://bulgarianmilitary.com/amp/2023/11/09/russian-army-received-1900-tanks-and-another-200-are-expected/>; Boyko Nikolov, "T-90m Tank Production Takes Lead over T-72B3 Overhauls in Russia," Bulgarianmilitary, April 10, 2024, <https://bulgarianmilitary.com/amp/2024/04/10/t-90m-tank-production-takes-lead-over-t-72b3-overhauls-in-russia/>.

²⁷ Rostislav I. Kapeliushnikov, "The Russian Labor Market: Long-Term Trends and Short-Term Fluctuations," *Russian Journal of Economics* 9, no. 3 (October 3, 2023): 245–70; Isobel Koshiw, "Russia Changes Tack on Targeting Ukraine's Energy Plants," Financial Times, April 8, 2024, <https://www.ft.com/content/18882abd-6277-4aae-bc43-f3e5fa786445>.

Russians addressed the issue of the conventional gap between them and their Western rivals, mainly the US, by addressing the theoretical investigation of the escalation ladder in the context of local, regional, and large-scale wars. The answer to the asymmetry problem in conventional capacity has been sustainable operations in limited conflicts during recent decades. Resultant victories in Chechnya, Georgia, and Syria inspired the Russian decision-makers to opt for a more conservative and secure but also more destructive strategy of attrition with active defence as its method. Russo-Ukrainian conflict's reconfiguration into a war of attrition laid bare the necessity for reevaluating conventional warfare at the levels of operations and tactics. Hence, the concern of this paper is to show the evolution of the Russian way of warfare in Ukraine by demonstrating and reevaluating the Russian praxis. The consequences of this endeavour clearly show that the Russian war machine became more efficient at adapting as the conflict prolonged. Further evolution and experience are on the way since the war is to continue, and Russians are conducting a series of offensives in Donbas in the west of Avdiivka and Chasov Yar as operational centres of gravity, while the Ukrainians are preparing to blunt the Russian onslaught and use the time being to boost their warfighting capacity and go to offensive later.

Further research into how this scheme works would require the incorporation of first-person experiences of Russian personnel at all ranks, a detailed examination of the ongoing war, and a close reading of both military and civilian publications about the war in the Russian language. First-hand accounts can enhance the understanding of effectiveness in standards of employed concepts. Also, it would be beneficial for discerning what is not disclosed or argued through textual means. Thus, constant examination of the general Russian war effort and conduct is necessary for definitive research on the Russian way of warfare since the war is a realm of chaos and a chaotic producer of information, and it is hard to grasp. Finally, Russian publications through formal and informal channels are of paramount importance for critical research. Most of the time, informal publications and Russian social media have been the most useful in reconstructing battlefield events. But, of course, this must involve cross-examining accounts with the neutral and Ukrainian sources to develop the most accurate narrative. In this paper, namely in the praxis section, there is a brief attempt at such a reconstruction, which relies upon various informal sources from English, Russian, and Ukrainian social media, mainly Telegram.

Appendix A²⁸

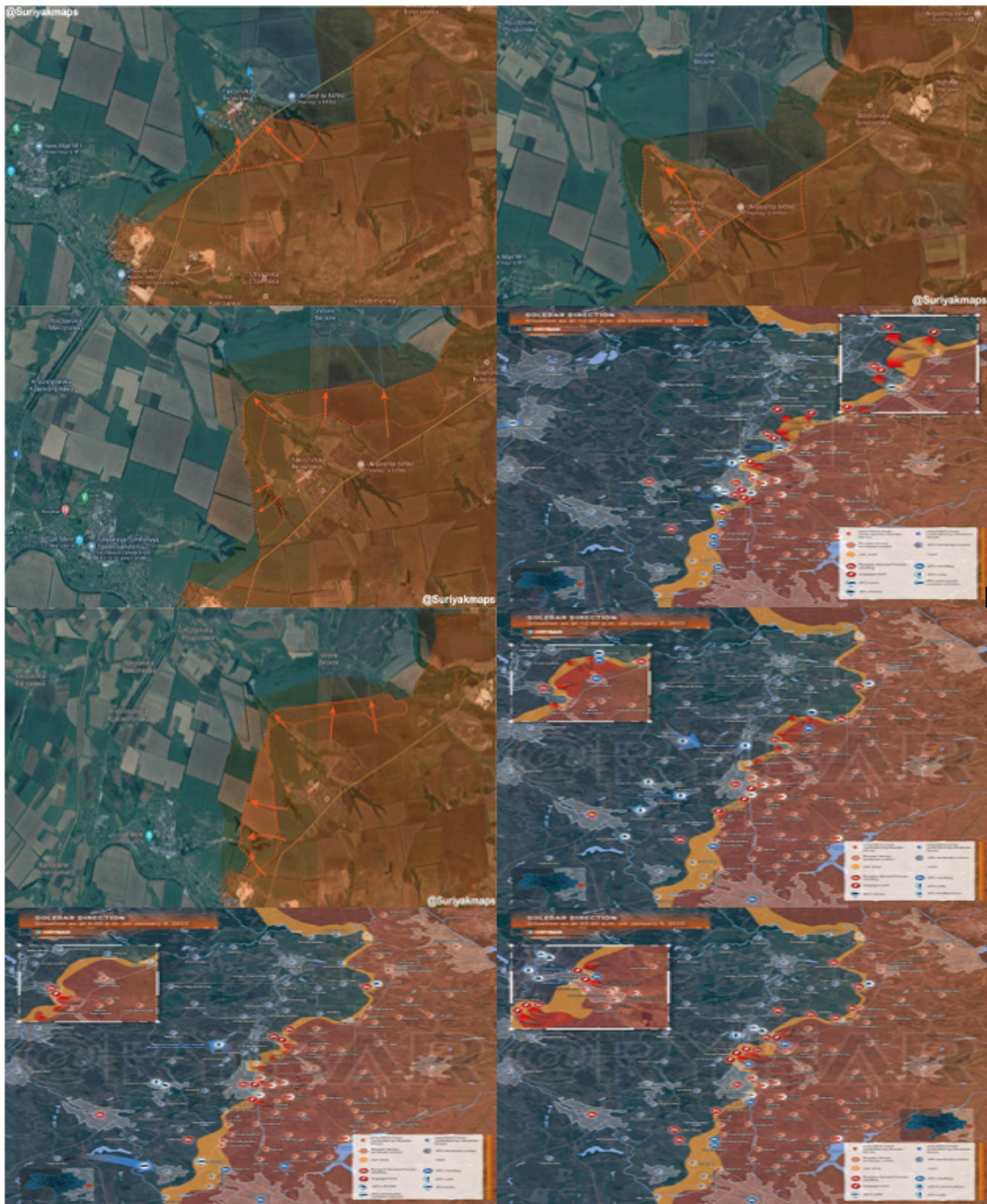


Figure 4-1 The Battle of Soledar and its prelude at Yakovlioka, through which the northern pincer around the city of Bakhmut was formed. This battle was the moment to shine for Wagnerian tactics during the Battle of Bakhmut since it included a series of swift, short, and decisive infantry manoeuvres that resulted in the encirclement of Ukrainian troops and the following

²⁸ For the main sources, see Рыбарь, “Вылавливаем интересную нам тему в море сырой информации,” Telegram (channel), <https://t.me/rybar>; Suriyakmaps, “Syria-Irak-Yemen-Libya-Ukraine maps,” https://t.me/suriyak_maps.

collapse of the northern sector of the frontline. The main breakthrough was during the period of January 2-11 (from left to right December 7, December 8, December 23, December 28, January 2, January 2, January 4, January 9, January 10, January 11, January 13).

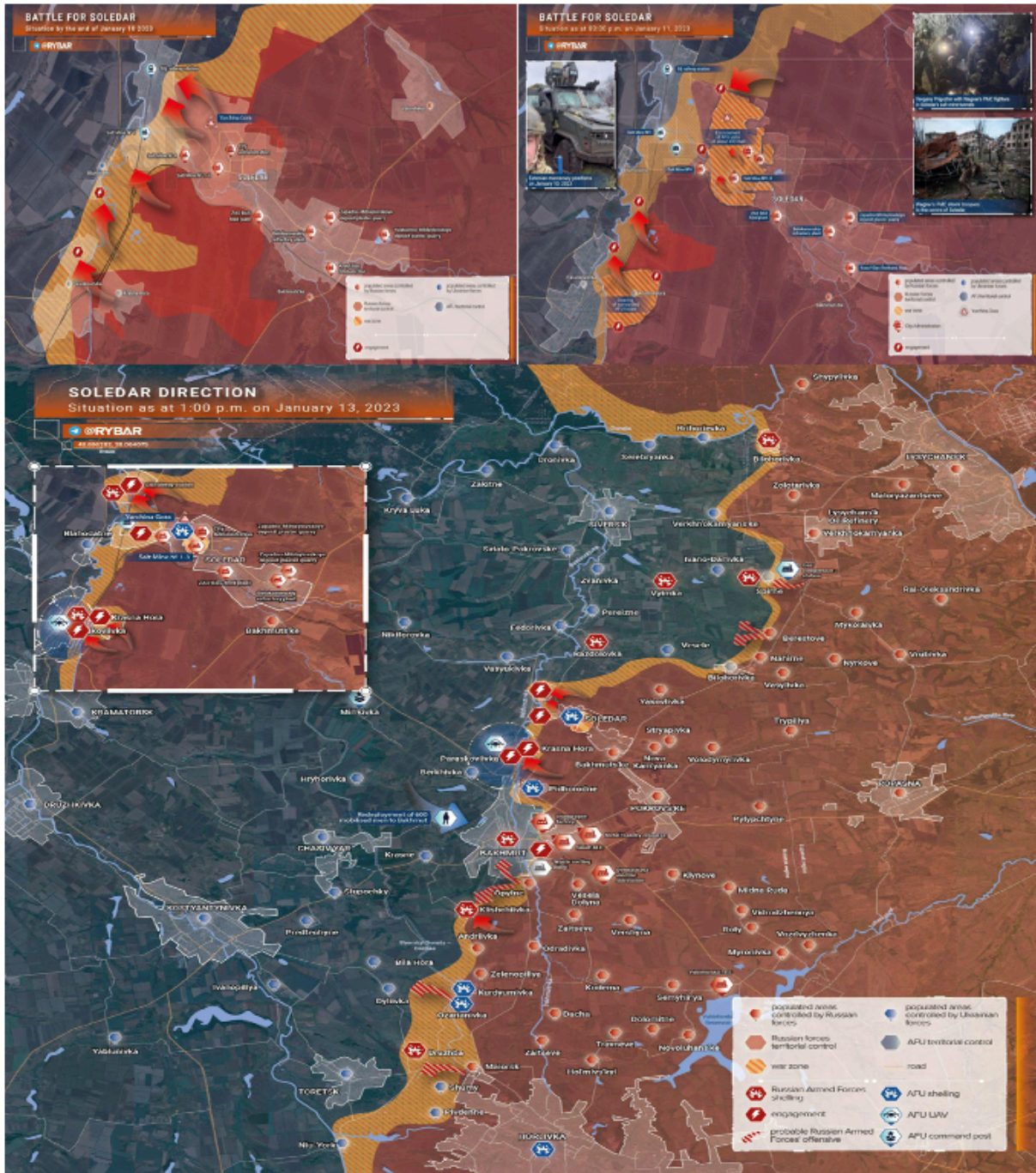


Figure 4-2 The Battle of Soledar

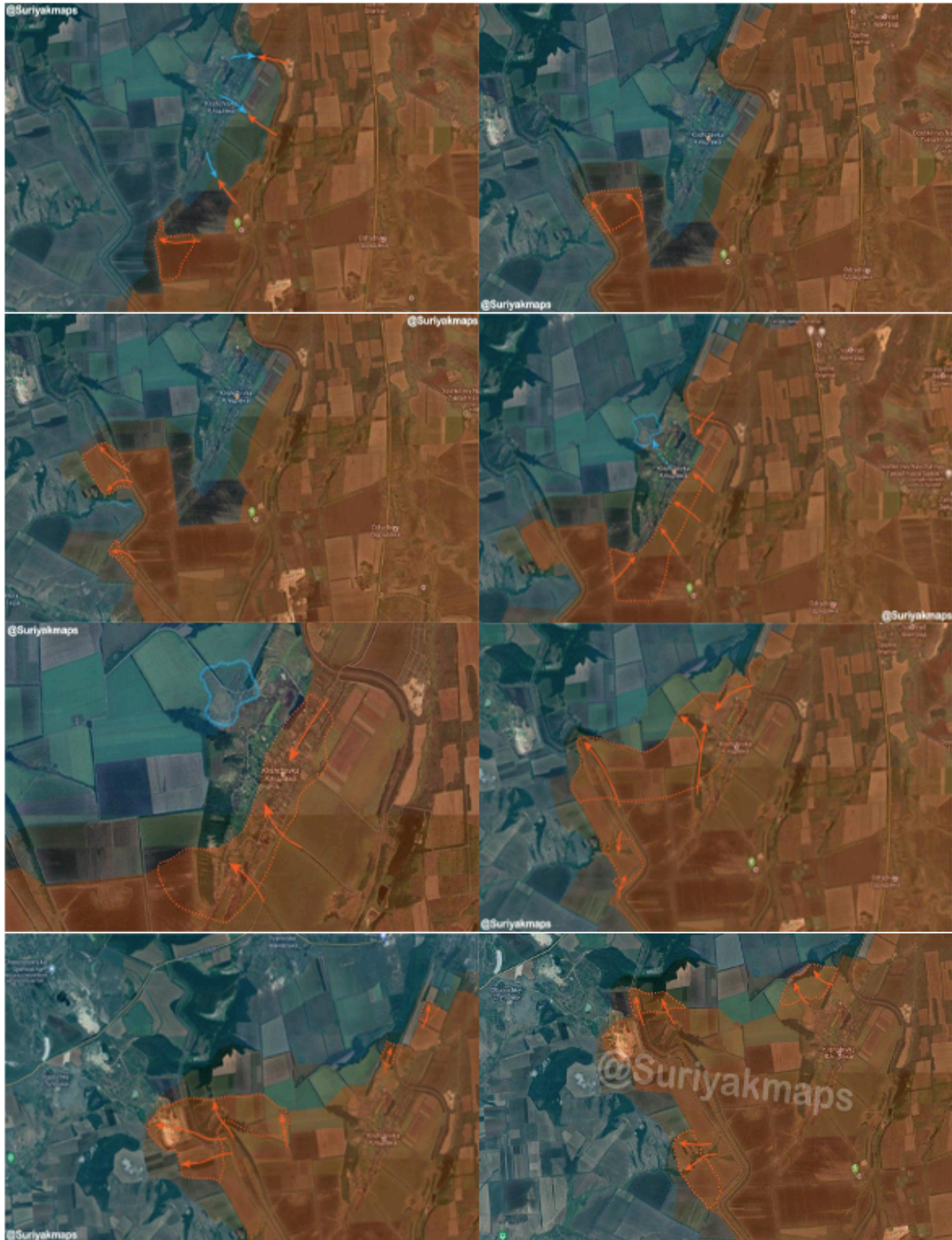


Figure 5-1 The Battle of Klishchiivka. The terrain in and around the Klishchiivka consisted of various challenging obstacles for attacking Wagnerites. North and northwestern outskirts of the town were overseen by the fortifications on commanding heights to which approaches are only possible through open fields. Moreover, the Donbas Canal and accompanying fortifications to the west further complicated the offensive. Wagnerites tried to cut or establish fire control over the southern supply route to Bakhmut, and they succeeded for a period. The refocus of PMC to the city proper made both of the pincers around it vulnerable to counterattacks, however (from left to right (January 2, January 14, January 15, January 17, January 19, January 21, January 23, January 27, February 10).



Figure 5-2 The Battle of Klishchiivka

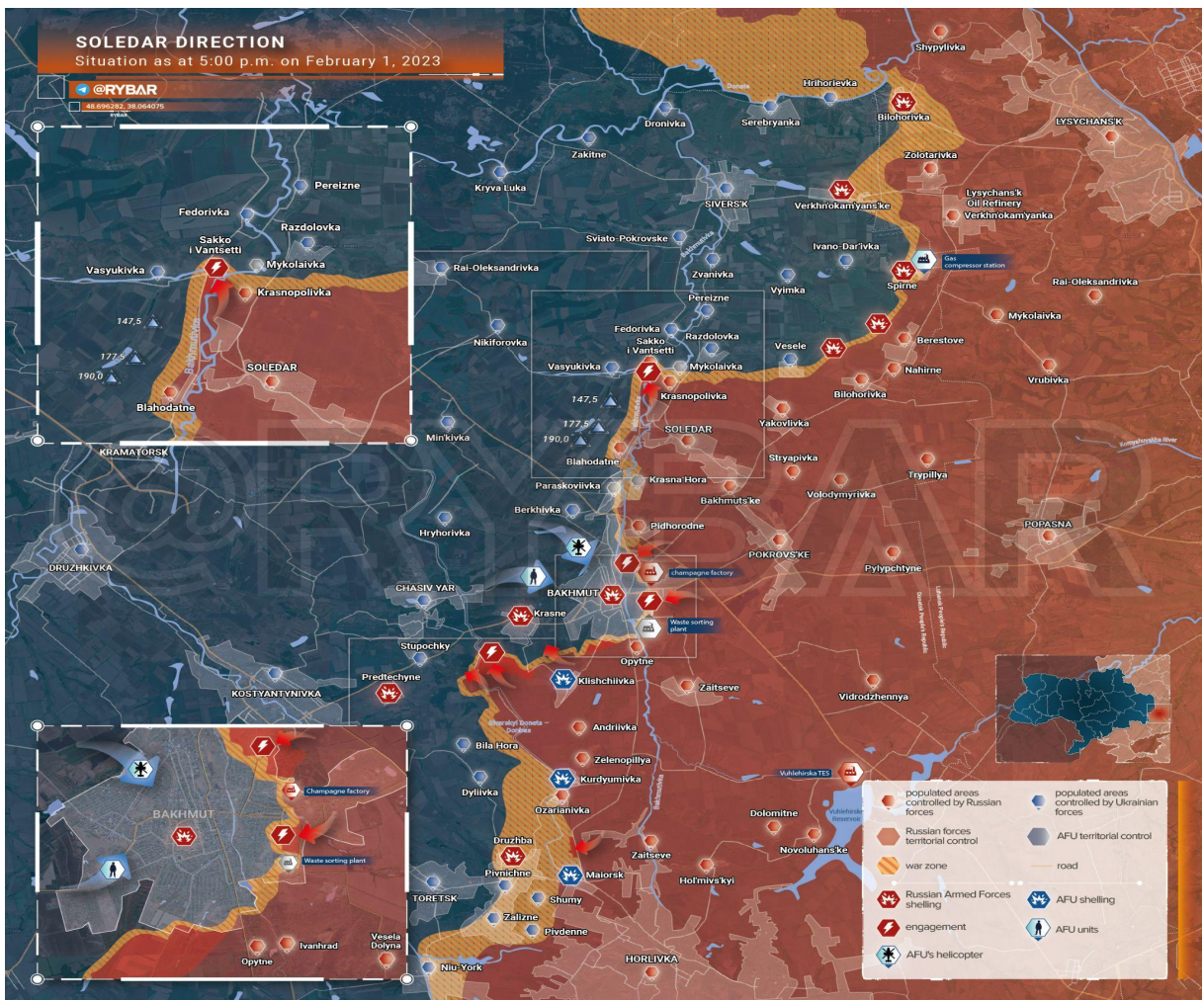


Figure 6 Battle of Bakhmut after the Russian victory at Battle of Soledar (February 1, 2023). Soledar was a key fortified town for the establishment of the northern Russian pincer around the city of Bakhmut.

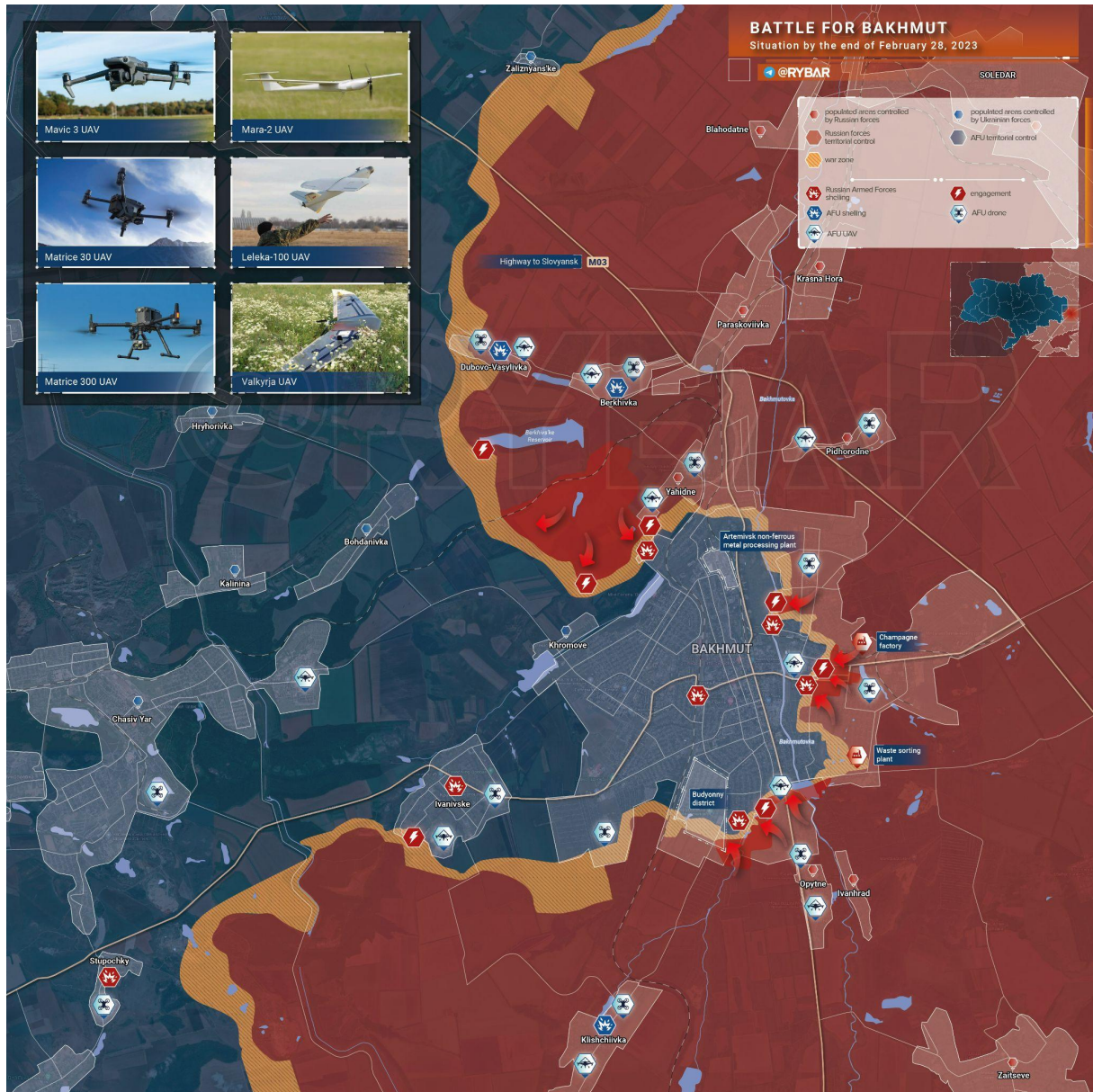


Figure 7 Battle of Bakhmut after the establishment of the northern pincer (February 28, 2023).

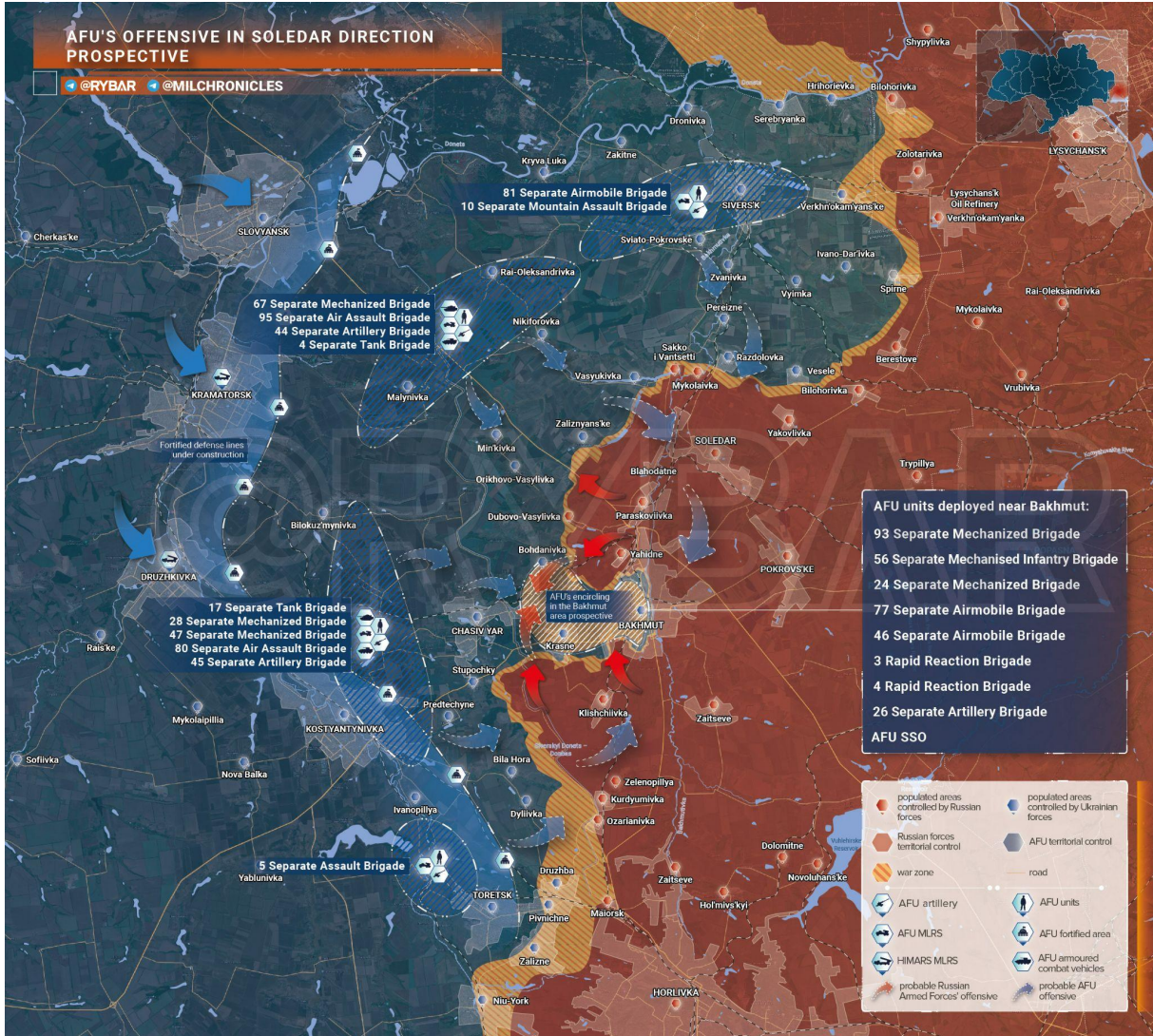


Figure 8 Hypothetical scenario for Ukrainian counteroffensive during the Battle of Bakhmut (March 8, 2023).

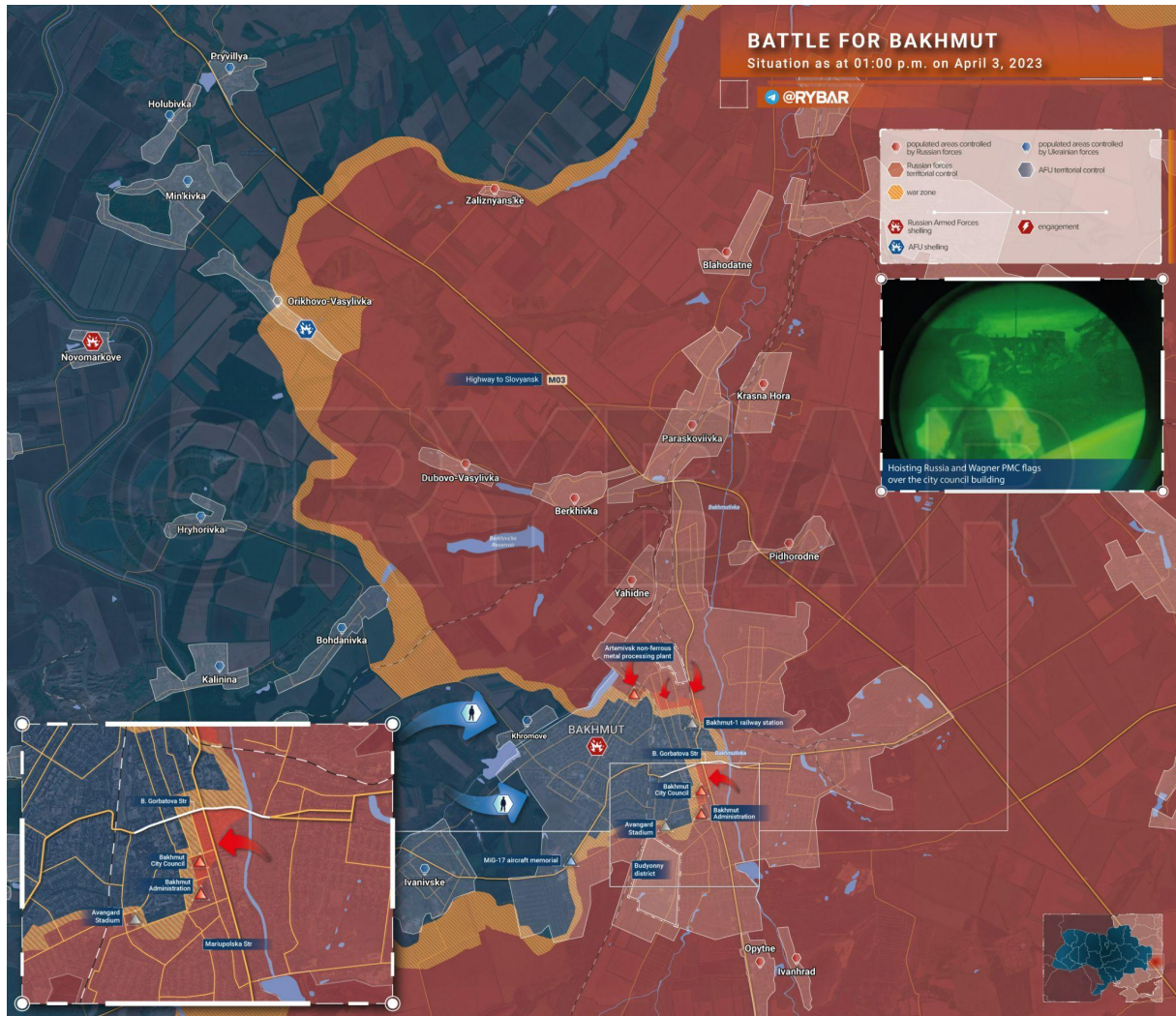


Figure 9 Battle of Bakhmut during the rapid urban assault of the Wagnerites after the flanks were secured in winter (April 3, 2023). Note that the western half of the city, including the fortified AZOT factory complex in the northwest, fell just under two months

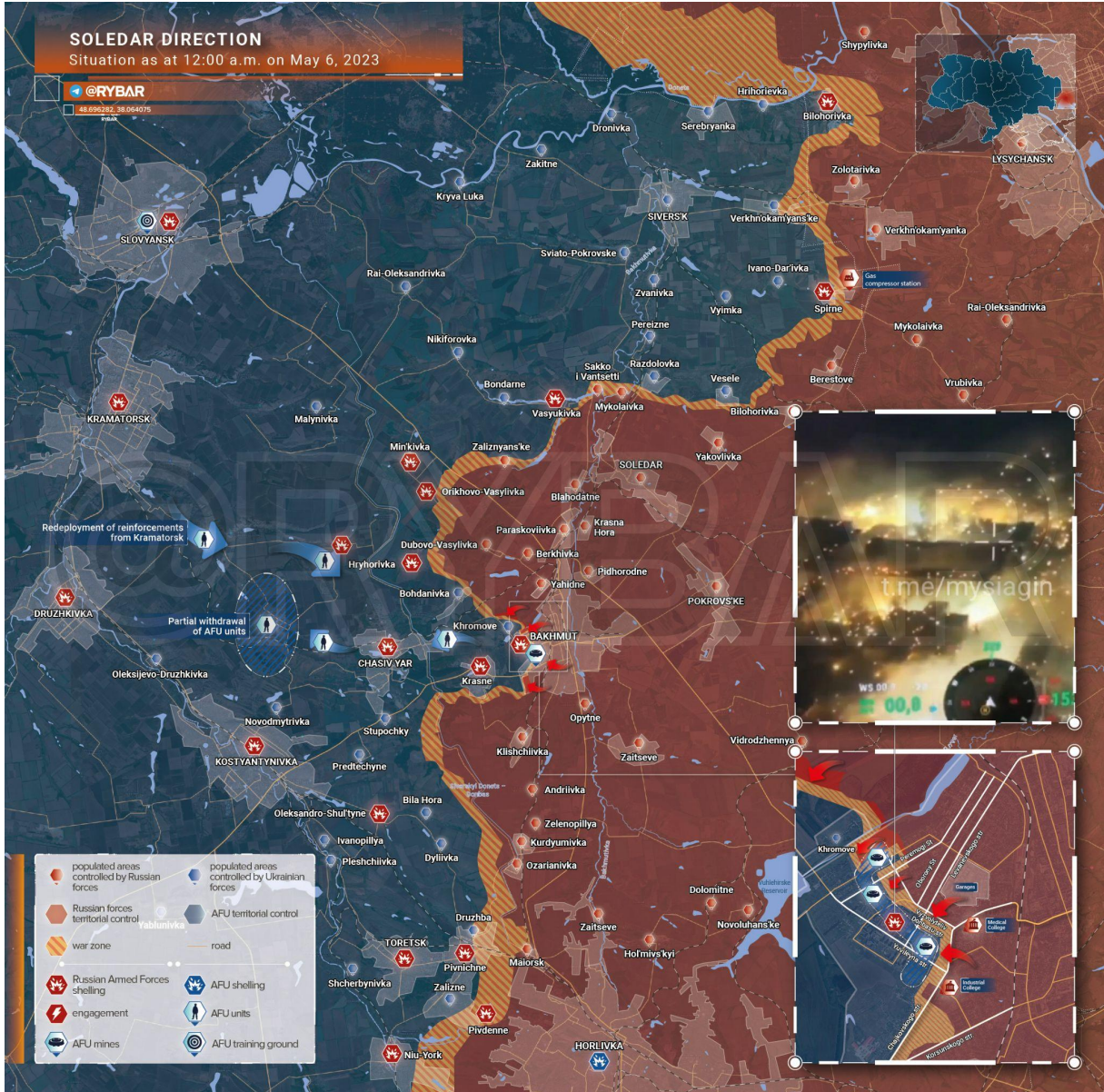


Figure 10 General situation at Bakhmut sector during the last phase of the Battle of Bakhmut (May 6, 2023).

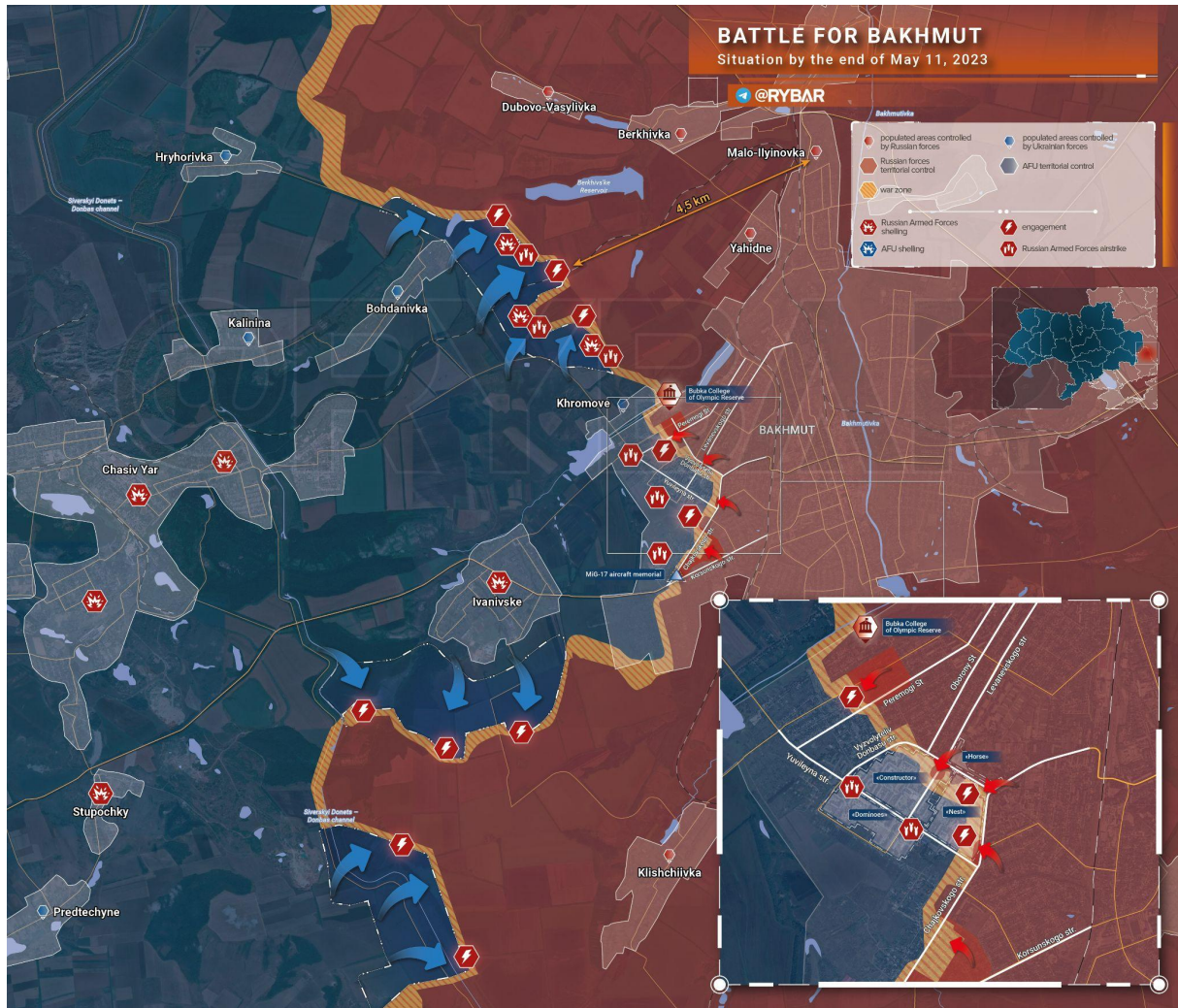


Figure 11 Ukrainian counterattacks to relieve the defenders and accelerate the regroup during the last phase of the Battle of Bakhmut (May 11, 2023). Note the last and arguably the most fortified area, zoomed at the lower left. This area consisted of high-rise buildings from USSR times and functioned as a fortress during the battle.

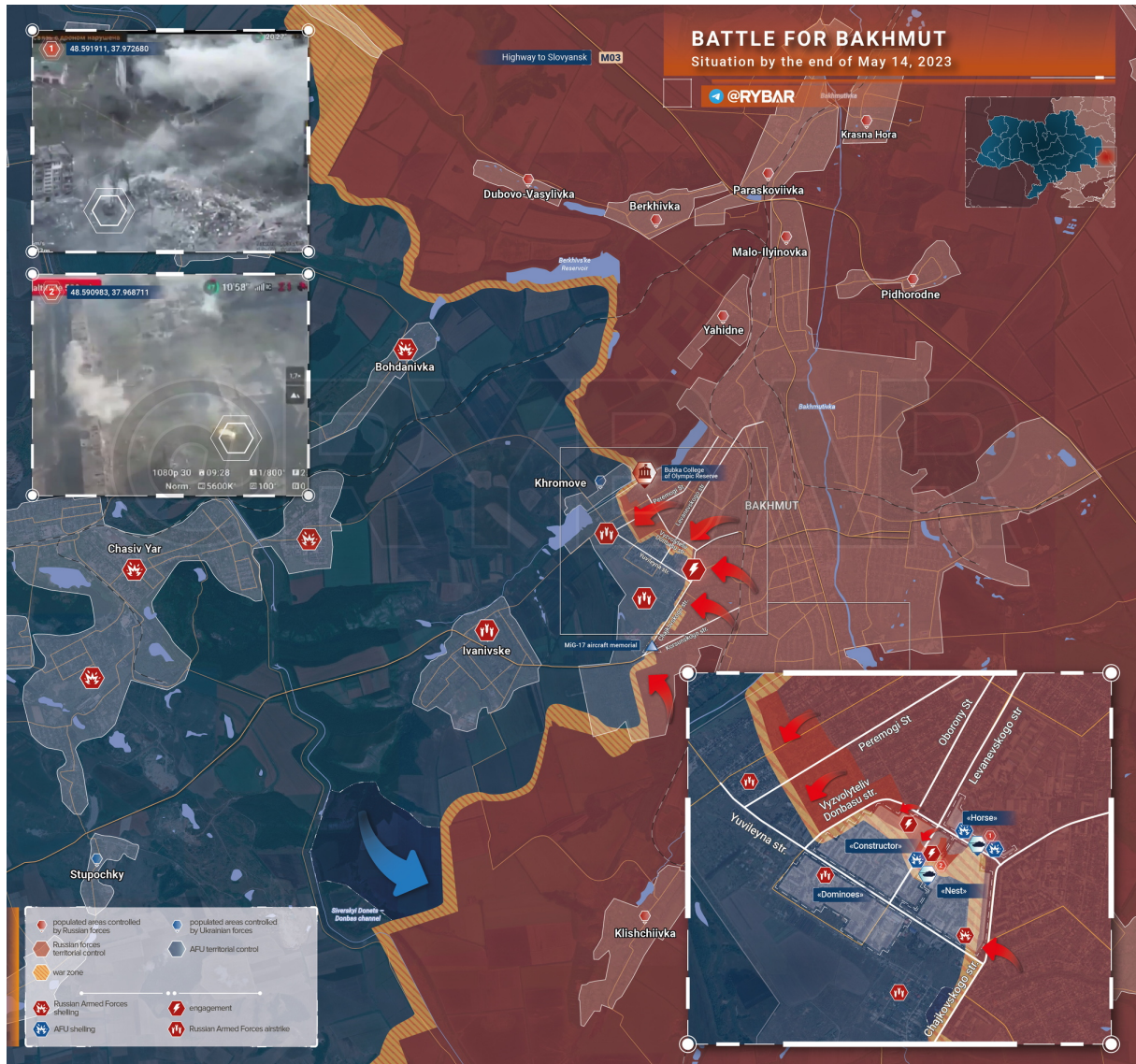


Figure 12 Battle of Bakhmut during its last phase (May 14, 2023).

Appendix B²⁹

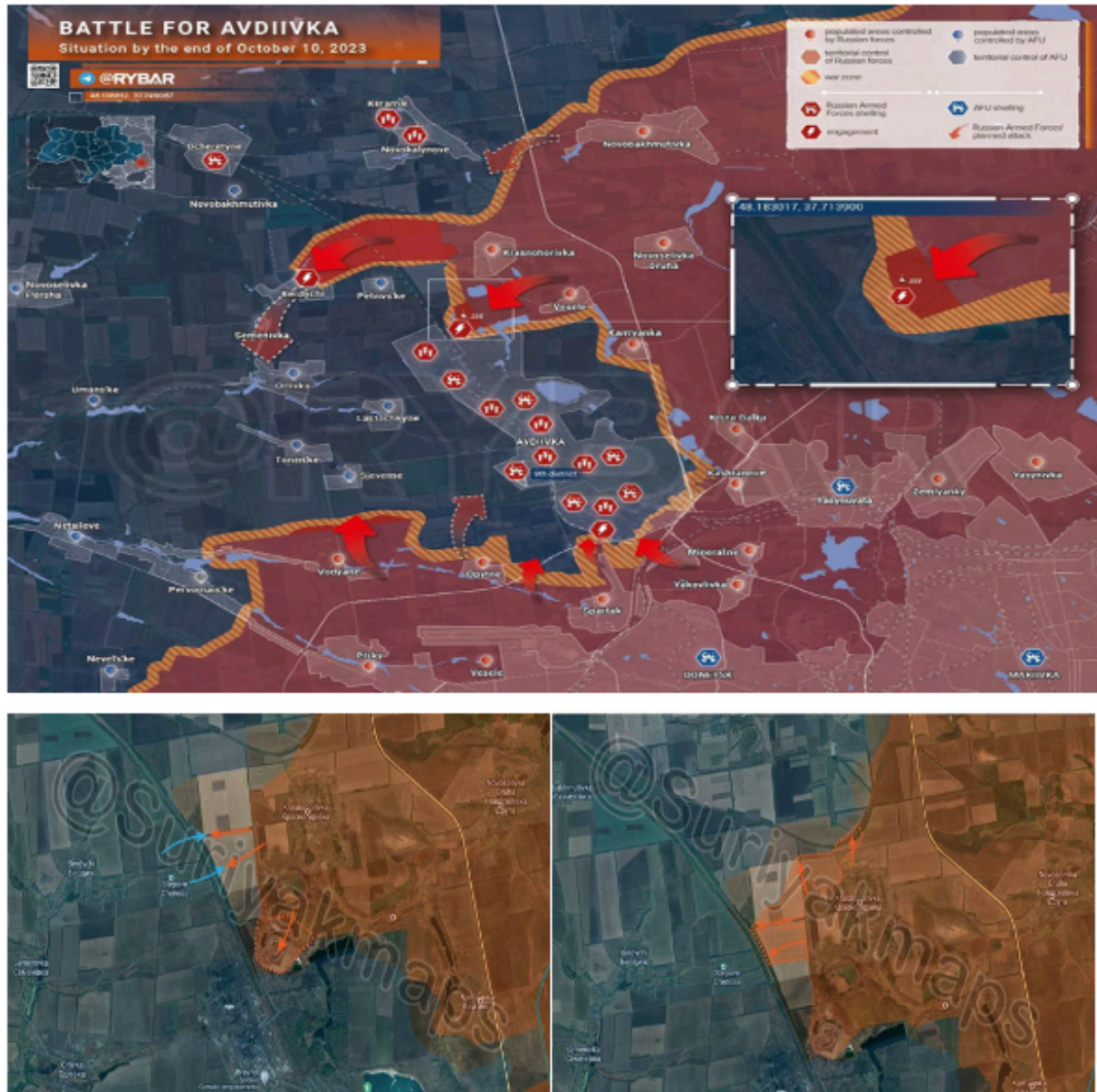


Figure 14-1 The Battle of Avdiivka (from left to right October 10, October 21, October 24, October 26, January 20, February 2, February 2, February 5, February 6, February 7, February 8, February 10, February 14, February 15, February 16, February 17). It was a long and costly operation. However, it worked in the scheme of Russia’s war of attrition to further degrade Ukrainian forces amid the dwindling Western help and deterioration of Ukrainian warfighting capacity.

²⁹ See footnote 25.

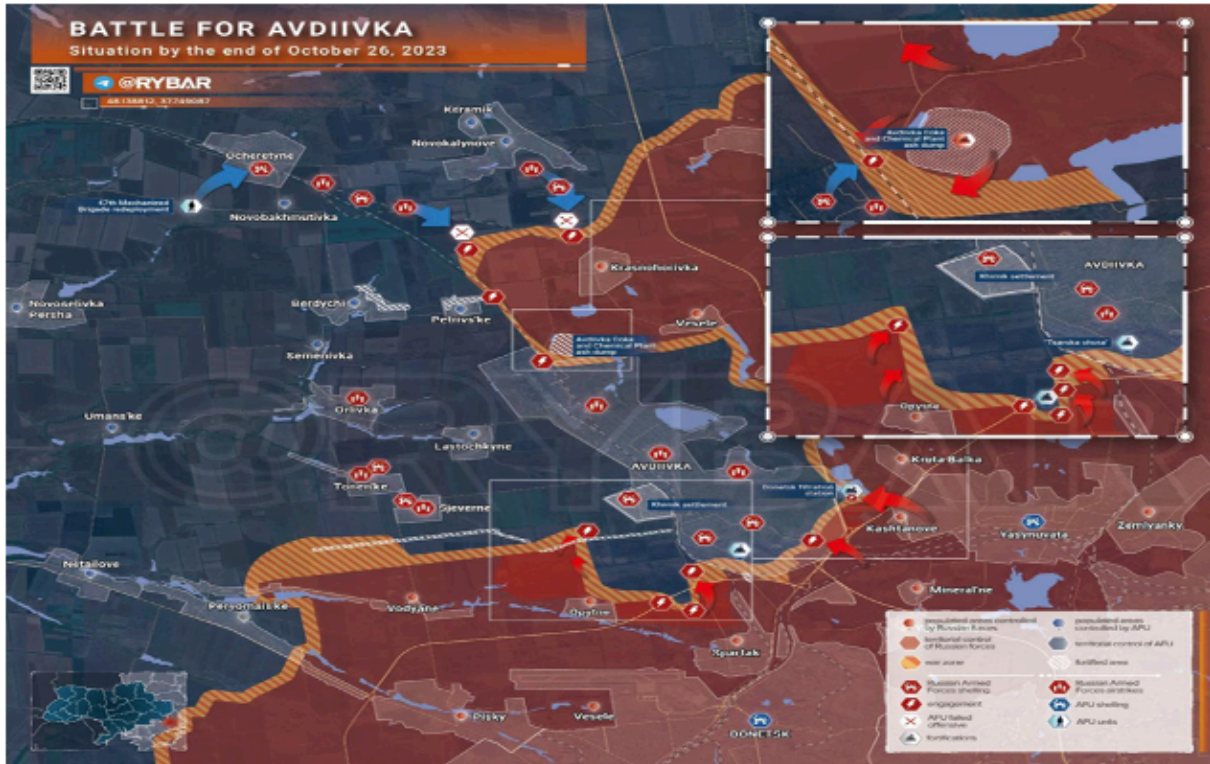


Figure 14-2 The Battle of Avdiivka



Figure 14-3 The Battle of Avdiivka

Appendix C

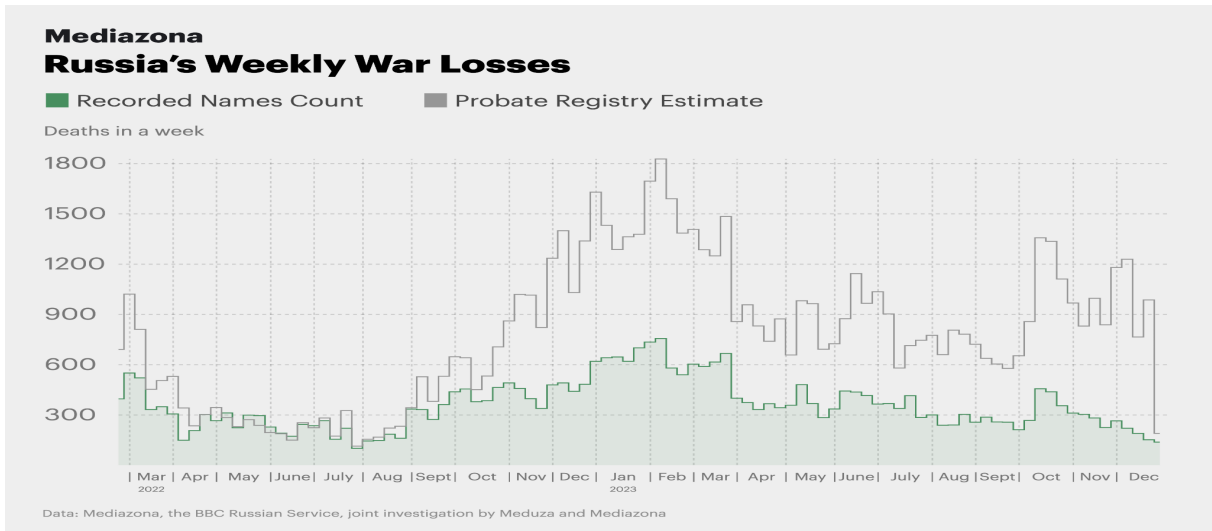


Figure 15 Russian KIA's in Ukraine according to a joint investigation by Mediazona and BBC. 49.281 KIA's (and a total of 85k with probate estimates) recorded as of April 2024. Notice the peak during the Battle of Bakhmut (winter, 2022-2023) and later increase during the Battle of Avdiivka (October 2023). Relatively lower attrition sustained during the Ukrainian Summer Offensive is also noticeable.³⁰



Figure 16 Ukrainian formations which participated in the Summer Offensive as the offensive was nearing its end (September 2023). The report in question is the one that was leaked by a member of the US National Guard in the Spring of 2023.³¹

³⁰ Mediazona Data Department, "Russia Suffers 75,000 Military Deaths in Ukraine War by End of 2023. Investigation by Mediazona and Meduza," Mediazona Data Department, "Russian Casualties in Ukraine. Mediazona Count, Updated.," Mediazona, March 29, 2024, https://en.zona.media/article/2022/05/11/casualties_eng.

³¹ Z комитет + карта СВО, "В наступление ушли последние резервы - дружно отправились усиливать атаку на Работино," Telegram, September 6, 2023, https://t.me/z_arhiv/24456.

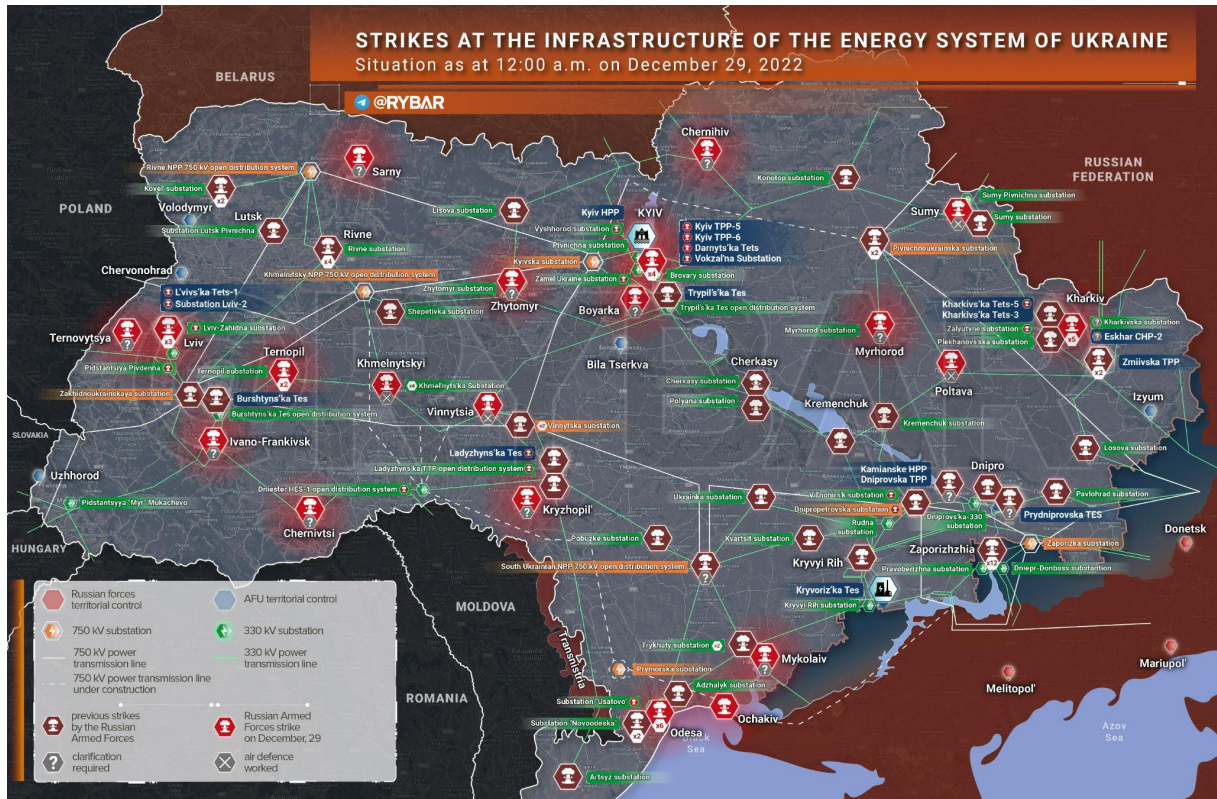


Figure 17 Surovikin’s strategic bombardment campaign against the Ukrainian energy infrastructure during its peak (December 29, 2022).³² Strategic bombardment against energy infrastructure recommenced with intensity on March 22, 2024. Russian strategic strike capabilities targeted the military infrastructure during the time between.

³² Рыбарь, “Массированный ракетный удар ВС РФ по инфраструктурным объектам на территории Украины 29 декабря — что известно к 12.00,” Telegram, December 29, 2022, <https://t.me/rybar/42352>.

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Telegram channels

The majority of are Russian channels that focus on following and commenting on the Russo-Ukrainian War. There are also Ukrainian and neutral channels. All of them get their material from both first-hand and second-hand sources. Some also prepare maps, statistics, and figures. Hence, they function as both commentators and pools of information.

- <https://t.me/RVvoenkor>
https://t.me/rezident_ua
https://t.me/rusich_army
https://t.me/creamy_caprice
https://t.me/fighter_bomber
https://t.me/Suriyak_maps
<https://t.me/intelslava>
https://t.me/z_arhiv
<https://t.me/museumofvsu>
<https://t.me/weebunionwar>
https://t.me/CIG_telegram
<https://t.me/defensepoliticsasia>
<https://t.me/blackponed>
<https://t.me/militarysummary>

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