

Up to \$50,000,000

374WATER^o

Common Stock

We have entered into an at-the-market sales agreement, dated December 23, 2025, or the Sales Agreement, with Lake Street Capital Markets, LLC, or Lake Street, relating to shares of our common stock offered by this prospectus. In accordance with the terms of the Sales Agreement, we may offer and sell shares of our common stock, par value \$0.0001 per share, having an aggregate offering price of up to \$50,000,000 from time to time through Lake Street, acting as our sales agent. The Sales Agreement replaces our prior sales agreement, dated June 6, 2025 with Lake Street. As of the date of this prospectus, \$5,789,438 of shares of common stock remained available for sale under the Prior Sales Agreement. No sales will be made pursuant to the Prior Sales Agreement subsequent to the date of this prospectus.

Our common stock is listed on The Nasdaq Capital Market under the symbol "SCWO." The last reported sale price of our common stock on December 10, 2025 was \$0.26 per share.

Sales of our common stock, if any, under this prospectus may be made in sales deemed to be "at the market" equity offerings as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act, including sales made directly on or through The Nasdaq Capital Market, the existing trading market for our common stock, or any other existing trading market for our common stock. Lake Street is not required to sell any specific number or dollar amount of securities, but will act as a sales agent using commercially reasonable efforts consistent with its normal trading and sales practices on mutually agreed terms between Lake Street and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to Lake Street for sales of common stock sold pursuant to the Sales Agreement will be an amount up to 3.0% of the gross proceeds of any shares of common stock sold under the Sales Agreement. In connection with the sale of the common stock on our behalf, Lake Street will be deemed to be an "underwriter" within the meaning of the Securities Act and the compensation paid to Lake Street will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Lake Street with respect to certain liabilities, including liabilities under the Securities Act and the Securities Exchange Act of 1934, as amended, or the Exchange Act. See section titled "Plan of Distribution" on page 13 of this prospectus supplement for additional information regarding the compensation to be paid to Lake Street.

Investing in our securities involves a high degree of risk. You should review carefully the risks and uncertainties described under the section titled "Risk Factors" on page 5 of this prospectus and under similar headings in the other documents that are incorporated by reference into this prospectus.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

Lake Street

December 23, 2025

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ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we have filed with the U.S. Securities and Exchange Commission, or the SEC, utilizing a "shelf" registration process. Under this shelf registration process, we may offer and sell shares of our common stock and preferred stock, various series of debt securities and/or warrants to purchase any of such securities, either individually or in combination with other securities, from time to time in one or more offerings, up to a total aggregate offering amount of \$100,000,000. Under this prospectus, we may offer and sell shares of our common stock from time to time, up to a total aggregate offering amount of \$50,000,000, at prices and on terms to be determined by market conditions at the time of offering. We provide information to you about this offering of shares of our common stock in two separate documents that are bound together: (1) this prospectus, which describes the specific details regarding this offering; and (2) the accompanying base prospectus, which provides general information, some of which may not apply to this offering. Generally, when we refer to this "prospectus," we are referring to both documents combined.

Before buying any of the common stock that we are offering, we urge you to carefully read this prospectus, any accompanying prospectus supplement, together with the information incorporated by reference in this prospectus and accompanying prospectus supplement and any free writing prospectus that we have authorized for use in connection with this offering when making your investment decision. You should also read and consider the information in the documents we have referred you to under the sections titled "Where You Can Find More Information" and "Incorporation of Certain Information by Reference." These documents contain important information that you should consider when making your investment decision.

This prospectus adds to and updates information contained in the documents incorporated by reference into this prospectus. To the extent there is a conflict between the information contained in this prospectus, on the one hand, and the information contained in any document incorporated by reference into this prospectus that was filed with the SEC before the date of this prospectus, on the other hand, you should rely on the information in this prospectus. If any statement in one of these documents is inconsistent with a statement in another document having a later date (for example, a document incorporated by reference into this prospectus) the statement in the document having the later date modifies or supersedes the earlier statement.

We have not, and Lake Street has not, authorized anyone to provide any information other than that contained or incorporated by reference in this prospectus or in any free writing prospectus that we have authorized for use in connection with this offering. We and Lake Street take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are not, and Lake Street is not, making an offer to sell or soliciting an offer to buy these securities in any jurisdiction where an offer, sale or solicitation is not permitted. You should assume that the information appearing in this prospectus, any accompanying prospectus supplement, the documents incorporated by reference herein and therein and any free writing prospectus that we have authorized for use in connection with this offering, is accurate only as of the date of those respective documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

We are offering to sell, and seeking offers to buy, shares of common stock only in jurisdictions where offers and sales are permitted. The distribution of this prospectus and the offering of the common stock in certain jurisdictions may be restricted by law. Persons outside the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the common stock and the distribution of this prospectus outside the United States. This prospectus does not constitute, and may not be used in connection with, an offer to sell, or a solicitation of an offer to buy, any securities offered by this prospectus by any person in any jurisdiction in which it is unlawful for such person to make such an offer or solicitation.

We further note that the representations, warranties and covenants made by us in any agreement that is filed as an exhibit to any document that is incorporated by reference herein were made solely for the benefit of the parties to such agreement, including, in some cases, for the purpose of allocating risk among the parties to such agreements, and should not be deemed to be a representation, warranty or covenant to you. Moreover, such representations, warranties or covenants were accurate only as of the date when made. Accordingly, such representations, warranties and covenants should not be relied on as accurately representing the current state of our affairs.

PROSPECTUS SUMMARY

This summary highlights certain information about us, this offering and selected information contained elsewhere in or incorporated by reference into this prospectus. This summary provides an overview of selected information and does not contain all of the information you should consider before deciding whether to invest in our common stock. Therefore, you should read the entire prospectus, any accompanying prospectus supplement, the information incorporated by reference herein and therein and the information included in any free writing prospectus that we have authorized for use in connection with this offering carefully, including the "Risk Factors" section beginning on page 5 of this prospectus and in the documents incorporated by reference and our consolidated financial statements and the related notes incorporated by reference in this prospectus, before deciding to invest in our common stock. Unless the context otherwise requires, we use the terms "Company," "we," "us" and "our" in this prospectus and any accompanying prospectus supplement or free writing prospectus to refer to 374Water Inc. and, where appropriate, our consolidated subsidiaries.

Company Overview

374Water Inc. is a global industrial technology and services company providing innovative solutions addressing global organic waste destruction/treatment and waste management issues within the Municipal, Federal and Industrial markets. We offer our proprietary AirSCWO system, which is designed to efficiently destroy and mineralize a broad spectrum of non-hazardous and hazardous organic wastes producing safe dischargeable water streams, safe mineral effluent, safe vent gas and recoverable heat energy. Importantly, our AirSCWO system eliminates recalcitrant organic wastes without creating waste byproducts. Our AirSCWO system effectively converts solid and liquid wastes such as sewage sludge, biosolids, food waste, hazardous and non-hazardous waste and forever chemicals (e.g., "per- and polyfluoroalkyl substances" or "PFAS") into recoverable resources including water, minerals and heat energy, by focusing on waste as a valuable resource.

We offer a disruptive technology that transforms all wet wastes such as sewage sludge, biosolids, food waste, hazardous and non-hazardous waste and forever chemicals (e.g., PFAS, PFOS and AFFF) into recoverable resources by focusing on waste as a valuable resource for water, energy and minerals. We are pioneers in a new era of waste management that supports a circular economy and enables organizations to achieve their environment, social and governance goals. Our vision is a world without waste and our mission is to help create and preserve a clean and healthy environment that sustains life.

Corporate Information

374Water Inc. is a Delaware corporation which was formed in September 2005 as PowerVerde, Inc. At that time, the Company was focused on developing, commercializing and marketing a series of unique electric generating power systems designed to produce electrical power with zero emissions or waste byproducts, based on a pressure-driven expander motor and related organic rankine cycle technology. On April 16, 2021, the Company entered into an Agreement and Plan of Merger with 374Water Inc., a privately held company based in Durham, North Carolina, and 374Water Acquisition Corp., a newly-formed wholly-owned subsidiary of PowerVerde.

Our principal executive offices are located at 100 Southcenter Court, Suite 200, Morrisville, North Carolina, 27560, telephone number (440) 601-9677. Our website address is www.374water.com. Information contained in, or accessible through, our website is not a part of this prospectus supplement or the accompanying prospectus and is not incorporated by reference herein or therein, and the inclusion of our website address is only an inactive textual reference.

Implications of Being a Smaller Reporting Company

We are a "smaller reporting company" as defined in the Exchange Act. Smaller reporting companies may take advantage of certain scaled disclosures, including, among other things, providing only two years of audited financial statements in their Annual Report on Form 10-K, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and having reduced disclosure obligations regarding executive compensation. We will be able to take advantage of these reduced disclosures for so long as our voting and non-voting common stock held by non-affiliates is less than \$250.0 million measured on the last business day of our second fiscal quarter, or our annual revenue is less than \$100.0 million during the most recently completed fiscal year and our voting and non-voting common stock held by non-affiliates is less than \$700.0 million measured on the last business day of our second fiscal quarter.

THE OFFERING

Common Stock Offered by Us	Shares of our common stock having an aggregate offering price of up to \$50.0 million.
Common Stock to be Outstanding Following this Offering:	Up to 346,568,823 shares of our common stock, based on 154,261,131 shares of our common stock outstanding as of September 30, 2025, assuming sales of 192,307,692 shares of our common stock in this offering, which is based on an offering price of \$0.26 per share, the last reported sale price of our common stock on The Nasdaq Capital Market on December 10, 2025. The actual number of shares issued will vary depending on the sale prices in this offering.
Manner of Offering	"At the market" offering that may be made from time to time through our sales agent, Lake Street. See "Plan of Distribution" on page 13 of this prospectus.
Use of Proceeds	We currently intend to use the net proceeds, if any, of this offering for general corporate purposes and working capital. See "Use of Proceeds" on page 10 for a more complete description of the intended use of proceeds from this offering.
Risk Factors	Investing in our common stock involves significant risk. See "Risk Factors" beginning on page 5 of this prospectus and other information included and incorporated by reference in this prospectus for a discussion of factors that you should carefully consider before deciding to invest in our common stock.
The Nasdaq Capital Market Symbol	"SCWO"

The number of shares of our common stock to be outstanding after this offering is based on 154,261,131 shares of our common stock outstanding as of September 30, 2025, and excludes:

- 17,449,252 shares of common stock issuable upon the exercise of outstanding options as of September 30, 2025, with a weighted-average exercise price of \$0.82 per share;
- 8,775,244 shares of common stock issuable upon the exercise of outstanding warrants as of September 30, 2025, at an exercise price of \$1.125 per share;
- 14,282,661 shares of common stock issuable upon the vesting and settlement of outstanding restricted stock units as of September 30, 2025;
- 7,543,694 shares of common stock reserved for future issuance under our 2021 Equity Incentive Plan, or Equity Plan, as of September 30, 2025, and any future increase in shares reserved for issuance under such plan; and
- 14,987,668 shares of common stock sold under the Company's current at-the-market equity offering program since September 30, 2025.

Except as otherwise indicated, all information in this prospectus assumes no exercise of outstanding options and no vesting and settlement of the outstanding restricted stock units described above.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should carefully consider the risk factors described below and the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K we file after the date of this prospectus, and all other information contained or incorporated by reference into this prospectus, including our financial statements and the related notes, as updated by our subsequent filings under the Exchange Act, and in any free writing prospectus that we have authorized for use in connection with this offering before acquiring any of our common stock. These risks could have a material and adverse impact on our business, results of operations, financial condition and growth prospects, which may cause the trading price of our common stock to decline and you could lose all or part of your investment. The risks described in these documents are not the only ones we face, but those that we consider to be material. There may be other unknown or unpredictable economic, business, competitive, regulatory or other factors that could have material adverse effects on our business, financial condition, results of operations and prospects. Past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods. If any of these risks actually occurs, our business, financial condition, results of operations or cash flows could be seriously harmed. This could cause the trading price of our securities to decline, resulting in a loss of all or part of your investment. Please also read carefully the section below titled "Special Note Regarding Forward-Looking Statements."

Additional Risks Related to this Offering

Our management will have broad discretion in the use of the net proceeds from this offering and may not apply the proceeds in ways that increase the value of your investment.

Our management will have broad discretion in the application of the net proceeds from this offering, if any, and could spend the net proceeds in ways that do not improve our business, financial condition or results of operations or enhance the value of our common stock. You may not agree with our decisions, and our use of the proceeds may not yield any return on your investment. We intend to use the net proceeds from this offering for working capital and general corporate purposes.

Because of the number and variability of factors that will determine our use of the net proceeds from this offering, their ultimate use may vary substantially from their currently intended use. Our failure to apply the net proceeds of this offering effectively could compromise our ability to pursue our growth strategy and we might not be able to yield a significant return, if any, on our investment of these net proceeds. You will not have the opportunity to influence our decisions on how to use the net proceeds from this offering. The failure by our management to apply these funds effectively could result in financial losses that could harm our business, cause the price of our common stock to decline and delay the development of our product candidates. Pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value.

You may experience immediate and substantial dilution in the net tangible book value per share of the common stock you purchase.

The offering price per share in this offering may exceed the net tangible book value per share of our common stock outstanding prior to this offering. Assuming that an aggregate of 192,307,692 shares of our common stock are sold at a price of \$0.26 per share, the last reported sale price of our common stock on The Nasdaq Capital Market on December 10, 2025, for aggregate gross proceeds of \$50.0 million, and after deducting commissions and estimated offering expenses payable by us, you would experience immediate dilution of \$0.10 per share, representing the difference between our as adjusted net tangible book value per share as of September 30, 2025 after giving effect to this offering and the assumed offering price. The exercise of outstanding stock options and the vesting and settlement of outstanding restricted stock units will result in further dilution of your investment. See the section titled "Dilution" beginning on page 11 below for a more detailed illustration of the dilution you would incur if you participate in this offering.

You may experience future dilution as a result of future equity offerings.

To raise additional capital, we may in the future offer additional shares of our common stock or other securities convertible into or exchangeable for our common stock at prices that may not be the same as the price per share in this offering. We may sell shares or other securities in any other offering at a price per share that is less than the price per share paid by investors in this offering, and investors purchasing shares or other securities in the future could have rights superior to existing stockholders. The price per share at which we sell additional shares of our common stock, or securities convertible or exchangeable into common stock, in future transactions may be higher or lower than the price per share paid by investors in this offering. As a result, our stockholders and other holders of our securities would experience immediate dilution upon the purchase of any shares of our common stock sold at such discount.

We do not anticipate declaring any cash dividends on our common stock which may adversely impact the market price of our stock.

We have never declared or paid cash dividends on our common stock and do not plan to pay any cash dividends in the near future. Our current policy is to retain all funds and any earnings for use in the operation and expansion of our business. If we do not pay dividends, our stock may be less valuable to you because a return on your investment will only occur if our stock price appreciates.

Future sales or issuances of our common stock in the public markets, or the perception of such sales, could depress the trading price of our common stock.

The sale of a substantial number of shares of our common stock or other securities convertible into or exchangeable for our common stock in the public markets, or the perception that such sales could occur, could depress the market price of our common stock and impair our ability to raise capital through the sale of additional equity securities. We may sell large quantities of our common stock at any time pursuant to this prospectus supplement and the accompanying prospectus or in one or more separate offerings. We cannot predict the effect that future sales of common stock or other equity-related securities would have on the market price of our common stock.

The actual number of shares we will issue in this offering and the gross proceeds resulting from those sales, at any one time or in total, is uncertain.

Subject to certain limitations in the Sales Agreement and compliance with applicable law, we have the discretion to deliver a placement notice to Lake Street at any time throughout the term of the Sales Agreement. The number of shares that are sold by Lake Street after delivering a placement notice will fluctuate based on the market price of our common stock during the sales period and limits we set with Lake Street in any instruction to sell shares, and the demand for our common stock during the sales period. Because the price per share of each share sold will fluctuate based on the market price of our common stock during the sales period, it is not possible at this stage to predict the number of shares or the gross proceeds to be raised in connection with those sales, if any, that will be ultimately issued.

The common stock offered hereby will be sold in "at the market offerings," and investors who buy shares at different times will likely pay different prices.

Investors who purchase shares in this offering at different times will likely pay different prices, and so may experience different outcomes in their investment results. We will have discretion, subject to market demand, to vary the timing, prices and numbers of shares sold, and there is no minimum or maximum sales price. Investors may experience a decline in the value of their shares as a result of share sales made at prices lower than the prices they paid.

An active trading market may not be sustained following this offering.

Although our common stock is currently listed on The Nasdaq Capital Market under the symbol "SCWO", an active trading market for our shares may not be sustained. If an active market for our common stock does not continue, it may be difficult for you to sell your shares, including shares you may purchase in this offering, without depressing the market price for the shares or sell your shares at all. Any inactive trading market for our common stock may also impair our ability to raise capital to continue to fund our operations by selling shares and may impair our ability to acquire other companies or technologies by using our shares as consideration.

Furthermore, our business profile and market capitalization may not fit the investment objectives of some of our stockholders and, as a result, these stockholders may sell their shares of our common stock if we are able to list our common stock on The Nasdaq Capital Market. Substantial sales of our common stock may occur, which could cause our stock price to decline. Low trading volume for our stock, which may occur if an active trading market does not develop, among other reasons, would amplify the effect of the above factors on our stock price volatility.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus, any prospectus supplement and the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, contain "forward-looking statements" within the meaning of Section 27A of the Securities Act, Section 21E of the Exchange Act, and the Private Securities Litigation Reform Act of 1995. For all forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995. These statements related to future events or to our future operating or financial performance and involve known or unknown risks, uncertainties, and other factors that may cause our actual results, performance, or achievements to be materially different from any future results, performances or achievements expressed or implied by the forward-looking statements. The forward-looking statements include, but are not limited to, statements about:

- insufficient capital and inability to raise sufficient capital to fund operations, meet our obligations and execute our business plan;
- substantial doubts about our ability to continue as a going concern;
- loss or retirement of key executives;
- uncertainty regarding when we will begin to generate significant revenues, if we are able to do so;
- loss of a key customer or supplier;
- entry of new competitors and intensity of competition;
- changes in federal, state and local government regulation that adversely impact us;
- technical problems with our research and products;
- price increases for supplies and components and other supply chain issues;
- issues related to acquiring and defending our intellectual property rights;
- potential litigation;
- lack of insurance or under-insurance;
- reliance on third parties for manufacturing and to deploy our systems;
- changes in political and economic conditions and in fiscal, monetary, regulatory, and tax policies;
- interest rate fluctuation and fluctuations in equity and fixed income markets;
- competitive pricing pressures within the Company's market;
- technological changes that may make our products less desirable or obsolete; and
- other risks and uncertainties detailed and discussed in our most recent Annual Report on Form 10-K and Quarterly Report on Form 10-Q and subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K that we file after the date of this prospectus supplement, as well as the Company's subsequent filings with the SEC.

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All statements other than statements of historical facts contained in this prospectus, any accompanying prospectus supplement and the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering are forward-looking statements. This prospectus, any accompanying prospectus supplement and the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering also contain estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry.

This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

In some cases, you can identify forward-looking statements by terms such as "may," "will," "should," "expect," "plan," "anticipate," "could," "intend," "target," "project," "contemplate," "believe," "estimate," "predict," "potential" or "continue" or the negative of these terms or other similar expressions. The forward-looking statements in this prospectus, any accompanying prospectus supplement and the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions, including those under the heading "Risk Factors" in this prospectus, any accompanying prospectus supplement and in the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, and elsewhere in this prospectus. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Moreover, we operate in an evolving environment. New risk factors and uncertainties may emerge from time to time, and it is not possible for management to predict all risk factors and uncertainties. Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained in this prospectus, any accompanying prospectus supplement or the documents incorporated by reference herein or therein, and any free writing prospectus that we have authorized for use in connection with this offering whether as a result of any new information, future events, changed circumstances or otherwise.

USE OF PROCEEDS

We may issue and sell shares of our common stock having aggregate gross proceeds of up to \$50,000,000 from time to time. We will pay certain expenses associated with the registration of the shares of common stock covered by this prospectus, as described in the section titled "Plan of Distribution".

The amount of the net proceeds from this offering will depend upon the number of shares of our common stock sold and the market price at which they are sold. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. There can be no assurance that we will sell any shares under or fully utilize the Sales Agreement with Lake Street as a source of financing.

We currently intend to use the net proceeds from this offering, if any, primarily for working capital and general corporate purposes. The amounts and timing of our use of the net proceeds from this offering will depend on a number of factors, such as the timing and progress of any partnering and commercialization efforts, technological advances and the competitive environment for our products. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds to us from the sale of the securities offered by us hereunder. Accordingly, our management will have broad discretion in the timing and application of these proceeds.

Pending the use of our net proceeds from this offering described above, we intend to invest the net proceeds in a variety of capital preservation investments, including short-term, investment-grade, and interest-bearing debt securities.

The amounts and timing of our actual expenditures will depend on numerous factors, including the factors described under "Risk Factors" in this prospectus, any accompanying prospectus supplement and in the documents incorporated by reference herein and therein, and any free writing prospectus that we have authorized for use in connection with this offering, as well as the amount of cash used in our operations. We may find it necessary or advisable to use the net proceeds for other purposes, and we will have broad discretion in the application of the net proceeds.

DILUTION

Dilution is the amount by which the price paid by the purchasers of the shares of common stock sold in the offering exceeds the net tangible book value per share of common stock after the offering. Net tangible book value per share is determined by subtracting our total liabilities from the total book value of our tangible assets and dividing the difference by the number of shares of common stock deemed to be outstanding at that date.

Our historical net tangible book value as of September 30, 2025, was \$5.5 million, or \$0.04 per share.

After giving effect to the issuance and sale of 192,307,692 shares of common stock in this offering based on an assumed public offering price of \$0.26 per share, which is the last reported sale price of our common stock on The Nasdaq Capital Market on December 10, 2025, after deducting offering commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of September 30, 2025 would have been \$54.0 million, or \$0.16 per share. This represents an immediate increase in as adjusted net tangible book value of \$0.12 per share to our existing stockholders and immediate dilution of \$0.10 per share to new investors purchasing common stock in this offering.

The following table illustrates this dilution on a per share basis:

Assumed public offering price per share		\$	0.26
Historical net tangible book value per share as of September 30, 2025	\$	0.04	
Increase per share attributable to new investors		0.12	
As adjusted net tangible book value per share after giving effect to this offering			0.16
Dilution in adjusted net tangible book value per share to new investors			<u>\$ 0.10</u>

The table above assumes for illustrative purposes that an aggregate of 192,307,692 shares of our common stock are sold during the term of the Sales Agreement at a price of \$0.26 per share, the last reported sale price of our common stock on The Nasdaq Capital Market on December 10, 2025, for aggregate gross proceeds of \$50.0 million. The shares subject to the Sales Agreement with Lake Street are being sold from time to time at various prices.

To the extent that warrants are exercised, options are exercised, restricted stock units vest and settle, new options or restricted stock units are issued under our equity incentive plans, or we issue additional shares of common stock in the future, there will be further dilution to investors participating in this offering.

The number of shares of our common stock to be outstanding after this offering is based on 154,261,131 shares of our common stock outstanding as of September 30, 2025, and excludes:

- 17,449,252 shares of common stock issuable upon the exercise of outstanding options as of September 30, 2025, with a weighted-average exercise price of \$0.82 per share;
- 8,775,244 shares of common stock issuable upon the exercise of outstanding warrants as of September 30, 2025, at an exercise price of \$1.125 per share;
- 14,282,661 shares of common stock issuable upon the vesting and settlement of outstanding restricted stock units as of September 30, 2025;
- 7,543,694 shares of common stock reserved for future issuance under our Equity Plan as of September 30, 2025, and any future increase in shares reserved for issuance under such plan; and
- 14,987,668 shares of common stock sold under the Company's current at-the-market equity offering since September 30, 2025.

PLAN OF DISTRIBUTION

We have entered into the Sales Agreement with Lake Street, under which we may offer and sell our shares of common stock from time to time through Lake Street acting as agent. Pursuant to this prospectus, we may offer and sell up to \$50,000,000 of our shares of common stock. Lake Street may sell the common stock by any method that is deemed to be an "at the market offering" as defined in Rule 415(a)(4) under the Securities Act.

Each time we wish to issue and sell shares of common stock under the Sales Agreement, we will notify Lake Street of the number of shares to be issued, the dates on which such sales are anticipated to be made, any limitation on the number of shares to be sold in any one day and any minimum price below which sales may not be made. Once we have so instructed Lake Street, unless Lake Street declines to accept the terms of such notice, Lake Street has agreed to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such shares up to the amount specified on such terms. The obligations of Lake Street under the Sales Agreement to sell our shares of common stock are subject to a number of conditions that we must meet.

The settlement of sales of shares between us and Lake Street is generally anticipated to occur on the first trading day following the date on which the sale was made. Sales of our shares of common stock as contemplated in this prospectus will be settled through the facilities of The Depository Trust Company or by such other means as we and Lake Street may agree upon. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

We will pay Lake Street a commission equal to 3.0% of the aggregate gross proceeds we receive from each sale of our shares of common stock. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and proceeds to us, if any, are not determinable at this time. In addition, we have agreed to reimburse Lake Street for the fees and disbursements of its counsel, payable at the time of filing this prospectus supplement, in an amount not to exceed \$12,500 and up to an additional maximum of \$2,500 each calendar quarter during the term of the Sales Agreement. We estimate that the total expenses of the offering payable by us, excluding commissions payable to Lake Street under the Sales Agreement, will be approximately \$50,000. The remaining sales proceeds, after deducting any expenses payable by us and any transaction fees imposed by any governmental, regulatory or self-regulatory organization in connection with the sales, will equal our net proceeds for the sale of such common stock.

Lake Street will provide written confirmation to us before the open on The Nasdaq Capital Market on the day following each day on which shares of common stock are sold under the Sales Agreement. Each confirmation will include the number of shares sold on that day, the aggregate gross proceeds of such sales and the proceeds to us.

In connection with the sale of the shares of common stock on our behalf, Lake Street may be deemed to be an "underwriter" within the meaning of the Securities Act, and the compensation of Lake Street will be deemed to be underwriting commissions or discounts. We have agreed to indemnify Lake Street against certain civil liabilities, including liabilities under the Securities Act. We have also agreed to contribute to payments Lake Street may be required to make in respect of such liabilities.

The offering of our shares of common stock pursuant to the Sales Agreement will terminate upon the earlier of (i) the sale of all shares of common stock subject to the Sales Agreement and (ii) the termination of the Sales Agreement as permitted therein.

This summary of the material provisions of the Sales Agreement does not purport to be a complete statement of its terms and conditions. A copy of the Sales Agreement is filed as an exhibit to the registration statement of which this prospectus forms a part.

Lake Street and its affiliates may in the future provide various investment banking, commercial banking, financial advisory and other financial services for us and our affiliates, for which services they may in the future receive customary fees. In the course of its business, Lake Street may actively trade our securities for its own account or for the accounts of customers, and, accordingly, Lake Street may at any time hold long or short positions in such securities.

A prospectus and the accompanying prospectus in electronic format may be made available on a website maintained by Lake Street, and Lake Street may distribute the prospectus and the accompanying prospectus electronically.

Lake Street and its affiliates may in the future provide various investment banking, commercial banking and other financial services for us and our affiliates, for which services they may in the future receive customary fees.

We previously entered into a sales agreement, or the Prior Sales Agreement, under which we could issue and sell from time to time an aggregate of up to \$15,100,000 of shares of our common stock through Lake Street, as our sales agent. As of the date of this prospectus, \$5,789,438 of shares of common stock remained available for sale under the Prior Sales Agreement. The Sales Agreement as described herein replaces the Prior Sales Agreement, and no sales will be made pursuant to the Prior Sales Agreement subsequent to the date of this prospectus.

This prospectus supplement and the accompanying base prospectus in electronic format may be made available on a website maintained by Lake Street and Lake Street may distribute this prospectus supplement and the accompanying base prospectus electronically.

To the extent required by Regulation M, Lake Street will not engage in any market making activities involving our common stock while the offering is ongoing under this prospectus supplement.

LEGAL MATTERS

The validity of the common stock to be sold in the offering described in this prospectus supplement will be passed upon for us by Cleary Gottlieb Steen & Hamilton LLP, San Francisco, California. Sullivan & Worcester LLP, New York, New York, is serving as counsel to Lake Street.

EXPERTS

The consolidated financial statements of 374Water Inc. as of December 31, 2024 and for the two years then ended, incorporated in this prospectus supplement by reference from the Annual Report on Form 10-K for the year ended December 31, 2024, have been audited by Cherry Bekaert LLP, an independent registered public accounting firm, as stated in their report thereon, included therein, and incorporated by reference in the prospectus and registration statement in reliance upon such report and upon the authority of such firm as experts in accounting and auditing.

WHERE YOU CAN FIND MORE INFORMATION

This prospectus is part of the registration statement on Form S-3 we filed with the SEC under the Securities Act and does not contain all the information set forth or incorporated by reference in the registration statement. Whenever a reference is made in this prospectus to any of our contracts, agreements or other documents, the reference may not be complete and you should refer to the exhibits that are a part of the registration statement or the exhibits to the reports or other documents incorporated by reference into this prospectus for a copy of such contract, agreement or other document.

Because we are subject to the information and reporting requirements of the Exchange Act, we file annual, quarterly and other reports, proxy statements and other information with the SEC. Our SEC filings are available to the public over the Internet at the SEC's website at <http://www.sec.gov>. The SEC website referenced above also contains reports, proxy statements and other information about issuers, like us, that file electronically with the SEC.

Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K, including any amendments to those reports, and other information that we file with or furnish to the SEC pursuant to Section 13(a) or 15(d) of the Exchange Act can also be accessed free of charge on the Investor section of our website, which is located at ir.374water.com. These filings will be available as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The information contained in, or that can be accessed through, our website is not a part of this prospectus and is not incorporated by reference herein, and the inclusion of our website address in this prospectus is an inactive textual reference only.

INCORPORATION OF CERTAIN INFORMATION BY REFERENCE

The SEC allows us to "incorporate by reference" information from other documents that we file with it, which means that we can disclose important information to you by referring you to those documents. The information incorporated by reference is considered to be part of this prospectus. Information in this prospectus supersedes information incorporated by reference that we filed with the SEC prior to the date of this prospectus, while information that we file later with the SEC will automatically update and supersede the information in this prospectus.

We incorporate by reference into this prospectus the documents listed below and any future filings made by us with the SEC (other than Current Reports or portions thereof furnished under Item 2.02 or Item 7.01 on Form 8-K and exhibits filed on such form that are related to such items and other portions of documents that are furnished, but not filed, pursuant to applicable rules promulgated by the SEC) that are filed by us with the SEC pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act, including those made after the date of the initial filing of the registration statement of which this prospectus is a part but prior to the effectiveness of such registration statement, until we file a post-effective amendment that indicates the termination of all offerings of securities covered by this prospectus:

- our Annual Report on Form 10-K for the fiscal year ended December 31, 2024, filed with the SEC on [March 28, 2025](#), or the 2024 Annual Report;
- the information specifically incorporated by reference into our 2024 Annual Report from our definitive proxy statement on Schedule 14A, filed with the SEC on [April 28, 2025](#);
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2025, June 30, 2025 and September 30, 2025, filed with the SEC on [May 15, 2025](#), [August 12, 2025](#) and [November 12, 2025](#), respectively;
- our current reports on Form 8-K (other than information furnished rather than filed), filed with the SEC on [January 22, 2025](#), [March 19, 2025](#), [April 17, 2025](#), [June 6, 2025](#), [June 17, 2025](#), [June 25, 2025](#), [July 16, 2025](#), [October 14, 2025](#), [October 24, 2025](#), [December 15, 2025](#), and [December 15, 2025](#); and
- the description of our common stock in our registration statement on Form 8-A filed with the SEC on [June 13, 2022](#), including any amendments or reports filed for the purpose of updating such description, including [Exhibit 4.1](#) to the 2024 Annual Report.

We will provide to each person, including any beneficial owner, to whom a prospectus is delivered, upon written or oral request, without charge to the requester, a copy of any or all of the documents that are incorporated by reference into this prospectus but not delivered with the prospectus, including exhibits which are specifically incorporated by reference into such documents. You should direct any requests for documents by writing us at 100 Southcenter Court, Suite 200, Morrisville, North Carolina, 27560, Attn: Secretary, or by telephoning us at (440) 601-9677.

Any statement contained herein or in a document incorporated or deemed to be incorporated by reference into this document will be deemed to be modified or superseded for purposes of the document to the extent that a statement contained in this document or any other subsequently filed document that is deemed to be incorporated by reference into this document modifies or supersedes the statement.

Up to \$50,000,000

374WATER^o

Common Stock

PROSPECTUS

Lake Street

December 23, 2025