UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

SCHEDULE 14A

(RULE 14a-101)
INFORMATION REQUIRED IN PROXY STATEMENT
SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

| Filed by the Registrant ⊠ | | | | | |
|--|--|--|--|--|--|
| Filed b | Filed by a Party other than the Registrant \Box | | | | |
| Check | Check the appropriate box: | | | | |
| | Preliminary Proxy Statement | | | | |
| | Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2)) | | | | |
| \boxtimes | Definitive Proxy Statement | | | | |
| | Definitive Additional Materials | | | | |
| | Soliciting Material Pursuant to §240.14a-12 | | | | |
| BIGBEAR.AI HOLDINGS, INC. (Name of Registrant as Specified In Its Charter) | | | | | |
| | (Name of Person(s) Filing Proxy Statement, if Other than Registrant) | | | | |
| Payment of Filing Fee (check all boxes that apply): | | | | | |
| \boxtimes | No fee required | | | | |
| | Fee paid previously with preliminary materials. | | | | |
| | Fee computed on table in exhibit required by Item 25(b) per Exchange Act Rules 14a-6(i)(1) and 0-11. | | | | |



BIGBEAR.AI HOLDINGS, INC. 7950 Jones Branch Drive, McLean, Virginia 22102

Notice of Special Meeting of Stockholders to be Held on December 1, 2025

Dear BigBear.ai Stockholders:

You are cordially invited to attend a Special Meeting of Stockholders (the "Special Meeting") of BigBear.ai Holdings, Inc. (the "Company," BigBear.ai," "us," "we" or, when used in the possessive form, "our") to be held on December 1, 2025, at 8:00 a.m., Eastern Time. The Special Meeting will be a completely virtual meeting conducted via live webcast. You will be able to attend the Special Meeting online, vote your shares electronically and submit your questions during the Special Meeting by visiting https://www.cstproxy.com/bigbearai/sms2025. Be sure to have your 12-digit control number included on your Notice of Internet Availability of Proxy Materials, proxy card or the instructions that accompanied your proxy materials in order to join the Special Meeting.

At the Special Meeting, stockholders will be asked to consider and act upon the following matters:

- 1. to approve an amendment to the Company's Second Amended and Restated Certificate of Incorporation ("Certificate of Incorporation") to increase the number of authorized shares of common stock of the Company from 500,000,000 to 1,000,000,000;
- 2. to approve an adjournment of the Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Special Meeting to approve Proposal 1.

Stockholders of record at the close of business on October 14, 2025 will be entitled to notice of and to vote at the Special Meeting or any continuation, postponement or adjournment thereof. A complete list of such stockholders will be open to the examination of any stockholder at our principal executive offices at 7950 Jones Branch Drive, McLean, Virginia 22102, for a period of ten days prior to the Special Meeting and will be available on the virtual meeting site for those stockholders who have joined the meeting using their 12-digit control number. The Special Meeting may be continued or adjourned from time to time without notice other than by announcement at the Special Meeting.

Whether or not you expect to attend the Special Meeting, we urge you to vote. You may submit your proxy online or, if you receive a paper copy of the proxy card, by completing, signing, dating and returning the proxy card in the envelope provided. If you decide to attend the Special Meeting, you will be able to vote electronically, even if you have previously submitted your proxy.

By Order of the Board of Directors,

Carolyn Blankenship General Counsel and Secretary

October 17, 2025

This Notice of Special Meeting and Proxy Statement are first being distributed or made available, as the case may be, on or about October 17, 2025.

Important Notice Regarding the Availability of Proxy Materials for the Special Meeting of Stockholders
This Proxy Statement is available at https://www.cstproxy.com/bigbearai/sms2025

TABLE OF CONTENTS

| INFORMATION ABOUT THIS PROXY STATEMENT | 1 |
|--|----|
| INFORMATION ABOUT THE SPECIAL MEETING AND VOTING | 1 |
| PROPOSAL 1 – APPROVAL OF AN AMENDMENT TO THE COMPANY'S CERTIFICATE OF INCORPORATION TO AUTHORIZE ADDITIONAL SHARES OF COMMON STOCK | 6 |
| PROPOSAL 2 – APPROVAL OF AN ADJOURNMENT OF THE SPECIAL MEETING | 9 |
| STOCK OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT | 10 |
| OTHER MATTERS | 11 |
| COST OF PROXY SOLICITATION | 11 |
| WHERE TO FIND ADDITIONAL INFORMATION | 11 |
| HOUSEHOLDING | 11 |

i

BIGBEAR.AI HOLDINGS, INC. 7950 Jones Branch Drive, McLean, Virginia 22102

PROXY STATEMENT For the Special Meeting of Stockholders to be Held on December 1, 2025

This Proxy Statement is furnished in connection with the solicitation of proxies by the Board of Directors (the "Board") of BigBear.ai Holdings, Inc. (the "Company," "BigBear.ai," "we," "us" or, when used in the possessive form, "our") for use at the Special Meeting of Stockholders ("Special Meeting") to be held on December 1, 2025, beginning at 8:00 a.m., Eastern Time, and at any continuation, postponement or adjournment of the Special Meeting.

The Special Meeting will be a completely virtual meeting, conducted via live webcast. You will be able to attend the Special Meeting online and submit your questions during the meeting by visiting https://www.cstproxy.com/bigbearai/sms2025 and entering your 12-digit control number included on your Notice of Internet Availability of Proxy Materials, on your proxy card or on the instructions that accompanied your proxy materials.

The Board has fixed the close of business on October 14, 2025 as the record date (the "Record Date") for determining stockholders entitled to notice of and to vote at the Special Meeting and any adjournment thereof. This Proxy Statement and the enclosed proxy are being issued by the Company and are intended to be mailed on or about October 17, 2025, to all holders of common stock as of the Record Date.

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE STOCKHOLDER MEETING TO BE HELD ON DECEMBER 1, 2025

THIS PROXY STATEMENT IS ALSO AVAILABLE ONLINE AT WWW.PROXYVOTE.COM.

Q: Why did I receive these proxy materials?

You have received these proxy materials because the Company's Board is soliciting your proxy to vote your shares at the Special Meeting. This Proxy Statement includes information that we are required to provide to you under the rules of the Securities and Exchange Commission ("SEC") and that is designed to assist you in voting your shares.

Q: Why did I receive a notice in the mail regarding the Internet availability of proxy materials instead of a paper copy of proxy materials?

The rules of the SEC permit us to furnish proxy materials, including this Proxy Statement, to our stockholders by providing access to such documents on the Internet instead of mailing printed copies. Stockholders will not receive paper copies of the proxy materials unless they request them. Instead, the Notice of Internet Availability of Proxy Materials (the "Notice and Access Card") provides instructions on how to access and review on the Internet all of the proxy materials. The Notice and Access Card also instructs you as to how to authorize, via the Internet or your proxy, to vote your shares according to your voting instructions. If you would like to receive a paper or email copy of our proxy materials, you should follow the instructions for requesting such materials described in the Notice and Access Card.

Q. What does it mean if I receive more than one Notice and Access Card or more than one set of proxy materials?

It means that your shares are held in more than one account at the transfer agent and/or with banks or brokers. Please vote all of your shares. To ensure that all of your shares are voted, for each Notice and Access

Card or set of proxy materials, please submit your proxy by phone, via the Internet, or, if you received printed copies of the proxy materials, by signing, dating and returning the proxy card in the envelope provided.

Q. Can I vote my shares by filling out and returning the Notice and Access Card?

No. The Notice and Access Card identifies the items to be voted on at the Special Meeting, but you cannot vote by marking the Notice and Access Card and returning it. If you would like a paper proxy card, you should follow the instructions in the Notice and Access Card. The paper proxy card you receive will also provide instructions as to how to authorize via the Internet your proxy to vote your shares according to your voting instructions. Alternatively, you can mark the paper proxy card with how you would like your shares voted, sign the proxy card and return it in the envelope provided.

Q: What is the purpose of the Special Meeting?

At our Special Meeting, stockholders will act upon the matters outlined in the accompanying notice of meeting, including:

- 1. the approval of an amendment to the Company's Second Amended and Restated Certificate of Incorporation ("Certificate of Incorporation") to increase the number of authorized shares of common stock of the Company from 500,000,000 to 1,000,000,000 ("Proposal 1"); and
- 2. the approval of the adjournment of the Special Meeting, if necessary, to solicit additional proxies if there are not sufficient votes at the time of the Special Meeting to approve Proposal 1.

Q: Who is entitled to vote?

You are entitled to vote at the Special Meeting, or any continuation, postponement or adjournment of the Special Meeting, only if you were a stockholder of record at the close of business on the Record Date, or if you hold a valid proxy for the Special Meeting. Holders of shares of our common stock are entitled to one vote per share.

Q: Who can attend the Special Meeting?

We have decided to hold the Special Meeting entirely online. You may attend the Special Meeting online only if you are a stockholder who is entitled to vote at the Special Meeting, or if you hold a valid proxy for the Special Meeting. You may attend and participate in the Special Meeting by visiting the following website: https://www.cstproxy.com/bigbearai/sms2025. To attend and participate in the Special Meeting, you will need the 12-digit control number included on your Notice and Access Card, on your proxy card or on the instructions that accompanied your proxy materials. If your shares are held in "street name," as described below, you should contact your broker or other nominee to obtain your 12-digit control number or otherwise vote through the broker or other nominee. You will need to obtain your own Internet access if you choose to attend the Special Meeting online and/or vote over the Internet. If you lose your 12-digit control number, you may join the Special Meeting as a "Guest," but you will not be able to vote, ask questions or access the list of stockholders as of the Record Date. The meeting webcast will begin promptly at 8:00 a.m., Eastern Time. We encourage you to access the meeting prior to the start time. Online check-in will begin 15 minutes before the meeting time, and you should allow ample time for check-in procedures.

Q: What constitutes a quorum?

Holders of record of one-third (33.33%) of the voting power of the issued and outstanding shares of our capital stock entitled to vote at the Special Meeting, present in person or represented by proxy, constitute a quorum. Further, for purposes of establishing a quorum, shares of our common stock that a stockholder holds and that are represented by their proxy even if the stockholder does not vote on one or more of the matters to be voted upon at the Special Meeting are counted as present. Each holder of our common stock is entitled to one vote for

each share held as of the Record Date. As of the Record Date, 436,518,932 shares of our common stock were outstanding and entitled to vote.

O: How do I vote?

Beneficial Stockholders. If your shares are held in "street name" through a broker, bank or other nominee, you are a beneficial stockholder. In order to vote your shares, please refer to the materials forwarded to you by your broker, bank or other nominee for instructions on how to vote the shares you hold as a beneficial stockholder.

Registered Stockholders. If you hold shares in your own name, you are a registered stockholder and may vote during the virtual Special Meeting at https://www.cstproxy.com/bigbearai/sms2025. You will need to log in by entering your unique 12-digit control number included on your Notice and Access Card or the proxy card if you requested a paper copy of the proxy materials. Only one person will be able to log in with that unique control number at any time. You can also vote by proxy before the Special Meeting in the following ways:

- 1. By Internet: You can vote over the Internet at www.cstproxyvote.com by following the instructions on the Notice and Access Card or the proxy card and the website; or
- 2. By Mail: You can vote by mail by signing, dating and mailing the proxy card, which you may have received by mail.

Proxies submitted via the Internet must be received by 11:59 p.m., Eastern Time, on November 30, 2025. Proxy cards submitted by mail must be received by November 30, 2025.

Any adjournment of the meeting will be announced along with the new meeting date. If the meeting is adjourned, you will be able to give your voting instructions via the Internet, or by mail or by voting at the adjourned meeting in the same manner as set forth above. Proxies submitted by Internet will need to be received by 11:59 p.m., Eastern Time, on the day preceding the adjourned meeting date, and proxy cards submitted by mail must be received the day proceeding the adjourned meeting date.

Q: Can I change or revoke my proxy after I have submitted my proxy?

Beneficial Owners. If your shares are held in "street name" through a broker, bank or other nominee, please follow the instructions provided by your broker, bank or other nominee as to how you may change your vote or cast your vote electronically at the Special Meeting.

Stockholders of Record. Prior to the Special Meeting, you may change your vote by submitting a later dated proxy in one of the manners authorized and described in this Proxy Statement. You may also give a written notice of revocation to our General Counsel and Secretary, as long as it is delivered to our General Counsel and Secretary at our headquarters at 7950 Jones Branch Drive, McLean, Virginia 22102, on or before November 30, 2025. You also may revoke any proxy given pursuant to this solicitation by attending the Special Meeting and voting electronically. However, the mere attendance of a stockholder at the Special Meeting will not revoke a proxy previously given unless you follow one of the revocation procedures referenced above.

Q: Will my shares be voted if I don't return my proxy or specify how my shares are to be voted?

If your shares are registered directly in your name, your shares will not be voted if you do not return your proxy or vote by virtual ballot at the Special Meeting. If your shares are held in "street name" by a broker, bank or other nominee, that person, as the record holder of your shares, is required to vote your shares according to your instructions. Your broker, bank or other nominee will send you directions on how to vote those shares. Under applicable stock exchange rules, brokers or other nominees have discretionary voting power with respect to proposals that are considered "routine" but not with respect to "non-routine" proposals. Proposal 1 and Proposal 2 are considered "routine." Therefore, if you do not provide voting instructions to your broker, bank or

other nominee as to Proposal 1 or Proposal 2, they may exercise their discretion to vote uninstructed shares on these proposals. We encourage you to provide voting instructions. This ensures your shares will be voted at the Special Meeting in the manner you desire.

Q: What is the vote required to approve each matter?

Proposal 1: Approval of an Amendment to the Certificate of Incorporation to Increase the Number of Authorized Shares. The affirmative vote of the holders of a majority of the outstanding shares of our stock entitled to vote thereon is required for approval of Proposal 1. Abstentions will have the same effect as a vote "against" Proposal 1. Brokers are permitted to exercise their discretion to vote uninstructed shares on this proposal. We do not expect to have broker non-votes on Proposal 1. The Board recommends that you vote "FOR" Proposal 1.

Proposal 2: Approval of the Adjournment of the Special Meeting. The affirmative vote of a majority of the voting power of the shares of our stock present in person or represented by proxy and entitled to vote on the proposal is required for approval of Proposal 2. Abstentions will have the same effect as a vote "against" Proposal 2. Brokers are permitted to exercise their discretion to vote uninstructed shares on this proposal. We do not expect to have broker non-votes on Proposal 2. The Board recommends that you vote "FOR" Proposal 2.

Q: How are votes counted?

Votes will be counted by the inspector of election appointed for the Special Meeting by the Board. The inspector of election will separately count "FOR" and "AGAINST," and "ABSTAIN" votes and broker non-votes. The Board has appointed the General Counsel to serve as the inspector of election at the Special Meeting.

Q: Are there other matters to be voted on at the Special Meeting?

No. The only matters to be voted on at the Special Meeting are Proposals 1 and 2. Under Section 2.03(B) of our Amended and Restated Bylaws, only the matters indicated in the notice of meeting accompanying this Proxy Statement may be transacted at the Special Meeting.

Q: Why hold a virtual meeting?

We believe that hosting a virtual meeting is in the best interest of the Company and its stockholders. A virtual meeting enables increased stockholder attendance and participation because stockholders can participate from any location around the world. You will be able to attend the Special Meeting online by visiting https://www.cstproxy.com/bigbearai/sms2025. You also will be able to vote your shares electronically at the Special Meeting by following the instructions above.

Q: What if during the check-in time or during the Special Meeting I have technical difficulties or trouble accessing the virtual meeting website?

We will have technicians ready to assist you with any technical difficulties you may have accessing the virtual meeting website, and the information for assistance will be located on https://www.cstproxy.com/bigbearai/sms2025.

Q: Will there be a question and answer session during the Special Meeting?

As part of the Special Meeting, we will hold a live Q&A session, during which we intend to answer appropriate questions submitted by stockholders during the meeting that are pertinent to the meeting matters, for 15 minutes after the completion of the Special Meeting. Only stockholders that have accessed the Special

Meeting as a stockholder (rather than a "Guest") by following the procedures outlined above in "Who can attend the meeting?" will be permitted to submit questions during the Special Meeting. Each stockholder is limited to no more than two questions. Questions should be succinct and must relate to the meeting matters. We will not address questions that are, among other things:

- irrelevant to the business of the Special Meeting;
- related to material non-public information of the Company;
- related to any pending, threatened or ongoing litigation;
- related to personal grievances;
- derogatory references to individuals or that are otherwise in bad taste;
- substantially repetitious of questions already made by another stockholder;
- in excess of the two-question limit;
- · in furtherance of the stockholder's personal or business interests; or
- out of order or not otherwise suitable for the conduct of the Special Meeting as determined by the Chair, General Counsel or Secretary in their reasonable judgment.

Additional information regarding the Q&A session will be available in the "Rules of Conduct" available on the Special Meeting webpage for stockholders that have accessed the Special Meeting as a stockholder (rather than a "Guest") by following the procedures outlined above in "Who can attend the meeting?".

Q: What is the deadline for submitting a stockholder proposal or director nomination for the 2026 Annual Meeting of Stockholders?

Stockholder proposals pursuant to SEC Rule 14a-8 for inclusion in the Company's proxy statement and form of proxy for the Company's Annual Meeting of Stockholders to be held in 2026, must have been received by the Company's Secretary at our principal executive offices at 7950 Jones Branch Drive, McLean, Virginia 22102, no later than December 29, 2025. Stockholders wishing to make a director nomination or bring a proposal before the 2026 Annual Meeting of Stockholders (other than pursuant to Rule 14a-8) must provide written notice of such proposal to the Secretary at the Company's principal executive offices at the address set forth above no later than the close of business on March 4, 2026 and not earlier than the close of business on February 2, 2026, assuming the Company does not change the date of the 2026 Annual Meeting of Stockholders by more than 30 days before or more than 70 days after the anniversary of the 2025 Annual Meeting. If so, the Company will release an updated time frame for stockholder proposals. Any stockholder proposal or director nomination must comply with the other provisions of the Company's Bylaws ("Bylaws") and be submitted in writing to the Secretary at the Company's principal executive offices at the address set forth above.

In addition to satisfying the foregoing requirements under our Bylaws, to comply with the requirements set forth in Rule 14a-19 of the Exchange Act (the universal proxy rules), stockholders who intend to solicit proxies in support of director nominees, other than the Board's nominees, must also provide written notice to the Secretary that sets forth the information required by Rule 14a-19(b) of the Exchange Act. Such notice must be postmarked or transmitted electronically to the Company at its principal executive offices, no later than April 3, 2026.

Our Board encourages stockholders to attend the Special Meeting. Whether or not you plan to attend, you are urged to submit your proxy. Prompt response will greatly facilitate arrangements for the meeting and your cooperation will be appreciated. Stockholders who attend the Special Meeting by logging in with their 12-digit control number may vote their stock electronically at the meeting even though they may have sent in their proxies.

PROPOSAL 1

APPROVAL OF AN AMENDMENT TO THE COMPANY'S CERTIFICATE OF INCORPORATION TO AUTHORIZE ADDITIONAL SHARES OF COMMON STOCK

General

Our Certificate of Incorporation currently authorizes the issuance of 500,000,000 shares of common stock, par value \$0.0001 per share. On October 1, 2025, our Board adopted a resolution to amend our Certificate of Incorporation, subject to stockholder approval, by increasing the number of authorized shares of our common stock to 1,000,000,000 shares (the "Share Increase Amendment"). The additional 500,000,000 shares of common stock authorized for issuance pursuant to the proposed Share Increase Amendment would be part of the existing class of common stock and, if and when issued, would have the same rights and privileges as the shares of common stock presently issued and outstanding. The holders of common stock are not entitled to preemptive rights or cumulative voting.

The Share Increase Amendment will not affect the number of authorized shares of preferred stock of the Company, par value \$0.0001 per share, which is 1,000,000 shares. Currently, there are no shares of preferred stock issued and outstanding.

If our stockholders approve this proposal, then the first sentence of Article IV of our Certificate of Incorporation will be deleted and replaced in its entirety to read as follows:

"The total number of shares of all classes of stock that the Corporation shall have authority to issue is 1,001,000,000, which shall be divided into two classes as follows:

- (i) 1,000,000,000 shares of common stock, par value \$0.0001 per share ("Common Stock"); and
- (ii) 1,000,000 shares of preferred stock, par value \$0.0001 per share ("Preferred Stock")."

Purpose of Share Increase Amendment

As of September 30, 2025, we had 500,000,000 authorized shares of common stock, of which 435,777,718 shares were issued and outstanding. We have also reserved for issuance shares underlying our outstanding equity awards, warrants and convertible notes and have reserved shares for future grant under our long-term incentive plan and for purchase under our employee stock purchase plan ("ESPP").

Our Board believes it is in the best interests of the Company and our stockholders to increase our authorized shares of common stock in order to have additional shares available for use as our Board deems appropriate or necessary. As such, the primary purpose of the Share Increase Amendment is to provide the Company with greater flexibility with respect to managing its common stock in connection with such corporate purposes as may, from time to time, be considered advisable by our Board. These corporate purposes could include, without limitation, financing activities, public or private offerings, stock dividends or splits, conversions of convertible securities, issuance of options and other equity awards pursuant to our stockholder-approved incentive plans, establishing a strategic relationship with a corporate partner and acquisition transactions. Having an increased number of authorized but unissued shares of common stock would allow us to take prompt action with respect to corporate opportunities that develop, without the delay and expense of convening a special meeting of stockholders for the purpose of approving an increase in our capitalization. Our Board would determine whether, when and on what terms the issuance of shares of common stock may be warranted in connection with any of the foregoing purposes.

We rely significantly on our authorized common stock for compensatory and workforce retention efforts, as well as in connection with financing and other transactions where we have issued rights to acquire our common stock. Investors in prior transactions have purchased our common stock and derivative securities entitling them to shares of our common stock and for which we have had to reserve shares of our authorized

common stock. Furthermore, our senior secured convertible notes due 2029 permit us to elect, subject to certain conditions, to pay interest in kind with shares of our common stock.

Effect of Approval of Proposed Amendment

The Share Increase Amendment will not have any immediate effect on the rights of existing stockholders. However, our Board will have the authority to issue authorized common stock without requiring future stockholder approval of such issuances, except as may be required by applicable law or rules of the New York Stock Exchange. Future issuances of common stock or securities convertible into or exchangeable for common stock could have a dilutive effect on our earnings per share, book value per share and the voting power and interest of current stockholders.

If our stockholders approve the Share Increase Amendment, our Board has authorized our officers to file a Certificate of Amendment to our Certificate of Incorporation with the Delaware Secretary of State, which we anticipate doing as soon as practicable following stockholder approval of the Share Increase Amendment at the Special Meeting, and the Certificate of Amendment would become effective upon acceptance by the Delaware Secretary of State.

If our stockholders do not approve the Share Increase Amendment, the Company's current authorized common stock will remain in place, and the Certificate of Amendment will not be filed with the Delaware Secretary of State. However, even if our stockholders approve the Share Increase Amendment, our Board retains discretion under Delaware law to determine when to file the Certificate of Amendment with the Delaware Secretary of State and to abandon the Share Increase Amendment notwithstanding prior stockholder approval of the Share Increase Amendment.

Risks of Not Approving This Proposal

If stockholders do not approve this proposal, we will continue to have 500,000,000 authorized shares of common stock. This could adversely impact our ability to raise capital, to operate and continue business and to pursue opportunities in which shares of our common stock could be issued that our Board may determine would be in the best interest of the Company and its stockholders, including financing and strategic transaction opportunities and employee recruitment and retention, as described above under the header, "— Purpose of Share Increase Amendment."

Interests of Directors and Executive Officers

Because our directors and executive officers have outstanding equity awards under our long-term incentive plan and under our ESPP and may be granted additional equity awards under and participate in these plans, they may be deemed to have an indirect interest in the Share Increase Amendment because, absent the amendment, the Company may not have sufficient authorized shares to make future awards and deliver shares under the ESPP.

Potential Anti-Takeover Effect

Our Board has not proposed the Share Increase Amendment with the intention of discouraging tender offers or takeover attempts of the Company. However, the availability of additional authorized shares for issuance could, under certain circumstances, discourage or make more difficult efforts to obtain control of our company. This proposal is not being presented with the intent that it be used to prevent or discourage any acquisition attempt, but nothing would prevent our Board from taking any appropriate actions not inconsistent with its fiduciary duties.

Dissenters' Rights of Appraisal

Under Delaware law, stockholders are not entitled to appraisal rights with respect to the Share Increase Amendment, and we will not independently provide our stockholders with any such right.

Recommendation

THE BOARD OF DIRECTORS RECOMMENDS THAT YOU VOTE "FOR" PROPOSAL 1.

PROPOSAL 2

APPROVAL OF AN ADJOURNMENT OF THE SPECIAL MEETING

The Board believes that, if the Special Meeting is convened and a quorum is present, but there are insufficient votes at that time to approve Proposal 1, it is in the best interests of the stockholders to enable the Company to continue to seek to obtain a sufficient number of additional votes to approve Proposal 1.

In this Proposal 2, we are asking stockholders to authorize the holder of any proxy solicited by the Board to vote in favor of adjourning the Special Meeting or any adjournment or postponement thereof. If our stockholders approve this proposal, we could adjourn the Special Meeting, and any adjourned session of the Special Meeting, to use the additional time to solicit additional proxies in favor of Proposal 1.

THE BOARD OF DIRECTORS RECOMMENDS THAT YOU VOTE "FOR" PROPOSAL 2.

STOCK OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table shows information about the beneficial ownership of our common stock, as of September 30, 2025 for:

- each person who is known to the Company to be the beneficial owner of more than 5% of the outstanding shares of our common stock;
- each of our directors and named executive officers; and
- all of our directors and executive officers as a group.

Beneficial ownership is determined according to the rules of the SEC, which generally provide that a person has beneficial ownership of a security if he, she or it possesses sole or shared voting or investment power over that security, including options and warrants that are currently exercisable or exercisable within 60 days. Shares of common stock issuable pursuant to options or warrants are deemed to be outstanding for purposes of computing the beneficial ownership percentage of the person or group holding such options or warrants but are not deemed to be outstanding for purposes of computing the beneficial ownership percentage of any other person. The beneficial ownership of our common stock is based on 435,777,718 shares of common stock issued and outstanding as of September 30, 2025. Unless otherwise indicated below, the business address for each beneficial owner listed is c/o 7950 Jones Branch Drive, McLean, Virginia 22102.

| | Amount and Nature of Beneficial | Percent of Common Stock |
|---|---------------------------------|-------------------------|
| Name and Address of Beneficial Owner | Ownership | Outstanding |
| Holders of More than 5%, Directors and Named Executive Officers | | |
| Sean Battle | 137,838 | * |
| Pamela Braden | 555,776 | * |
| Peter Cannito | 410,187 | * |
| Paul Fulchino | 353,199 | * |
| Tony Evangelista | · • | * |
| Dorothy D. Hayes | 225,239 | * |
| Kirk Konert | · • | * |
| Amanda Long | <u>-</u> | * |
| Kevin McAleenan | 136,670 | * |
| Ted Tanner | 76,121 | * |
| All directors and executive officers as a group (10 individuals)(1) | 2,363,574 | * |
| | | |

- Less than one percent.
- (1) Includes for all current directors and executive officers 91,598 shares of common stock underlying stock options currently exercisable or exercisable within 60 days of September 30, 2025.

OTHER MATTERS

As of the date of this Proxy Statement, our Board is not aware of any matter to be presented for action at the Special Meeting other than the matters referred to above and does not intend to bring any other matters before the Special Meeting. However, if other matters should come before the Special Meeting, it is intended that holders of the proxies named on the Company's proxy card will vote thereon in their discretion.

COST OF PROXY SOLICITATION

The Company is paying the expenses of this proxy solicitation. The Company will also make arrangements with brokerage houses and other custodians, nominees and fiduciaries to forward proxy materials to beneficial owners of stock held as of the Record Date by such persons, and the Company will reimburse such persons for their reasonable out-of-pocket expenses in forwarding such proxy materials. In addition to solicitation by mail, directors, officers and other employees of the Company may solicit proxies in person or by telephone, facsimile, email or other similar means. We may also engage the services of a proxy solicitor to assist in the solicitation of proxies and provide related advice and informational support for a services fee and the reimbursement of customary disbursements that are not expected to exceed \$50,000 in the aggregate.

WHERE TO FIND ADDITIONAL INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), and in accordance therewith, we file annual, quarterly and current reports and other information with the SEC. Such information may be accessed electronically by means of the SEC's home page on the Internet at www.sec.gov. We are an electronic filer, and the SEC maintains an Internet site at www.sec.gov that contains the reports and other information we file electronically. These filings are also available under the SEC Filing headings on the Investor Relations page of our website at https://ir.bigbear.ai/. Please note that our website address is provided as an inactive textual reference only. We make available free of charge, through our website, our annual report on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the SEC. The information provided on or accessible through our website is not part of this Proxy Statement.

HOUSEHOLDING

SEC rules permit companies and intermediaries such as brokers to satisfy delivery requirements for proxy statements and notices with respect to two or more stockholders sharing the same address by delivering a single proxy statement or a single notice addressed to those stockholders. This process, which is commonly referred to as "householding," provides cost savings for companies and helps the environment by conserving natural resources. Some brokers household proxy materials, delivering a single proxy statement or notice to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that they will be householding materials to your address, householding will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in householding and would prefer to receive a separate proxy statement or notice, or if your household is receiving multiple copies of these documents and you wish to request that future deliveries be limited to a single copy, please notify your broker. You can also request prompt delivery of a copy of this Proxy Statement by contacting the Company by mail to BigBear.ai Holdings, Inc., 7950 Jones Branch Drive, McLean, Virginia 22102, Attn: General Counsel and Secretary.

WHETHER OR NOT YOU PLAN TO ATTEND THE SPECIAL MEETING ELECTRONICALLY, WE URGE YOU TO SUBMIT A PROXY FOR YOUR SHARES OVER THE INTERNET OR, IF YOU RECEIVED A PROXY CARD, BY SIGNING, DATING AND MAILING THE PROXY CARD IN THE ENVELOPE PROVIDED.

By Order of the Board of Directors,

/s/ Carolyn Blankenship Carolyn Blankenship General Counsel and Secretary October 17, 2025

YOUR VOTE IS IMPORTANT. PLEASE VOTE TODAY.

Vote by Internet - QUICK ★★★ EASY
IMMEDIATE – 24 Hours a Day, 7 Days a Week or by Mail

BIGBEAR.AI HOLDINGS, INC.

Your Internet vote authorizes the named proxies to vote your shares in the same manner as if you marked, signed and returned your proxy card. Votes submitted electronically over the Internet must be received by 11:59 p.m., Eastern Time, on November 30, 2025.

☐ INTERNET -

www.cstproxyvote.com

Use the Internet to vote your proxy. Have your proxy card available when you access the above website. Follow the prompts to vote your shares.

Vote at the Meeting –

If you plan to attend the virtual online special meeting, you will need your 12 digit control number to vote electronically at the special meeting. To attend the special meeting, visit:

https://www.cstproxy.com/bigbearai/sms2025

MAIL – Mark, sign and date your proxy card and return it in the postage-paid envelope provided.

PLEASE DO NOT RETURN THE PROXY CARD IF YOU ARE VOTING ELECTRONICALLY.

p FOLD HERE • DO NOT SEPARATE • INSERT IN ENVELOPE PROVIDED p

PROXY THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" PROPOSALS 1 AND 2.

| 1.To approve an amendment to the Company's Second Amended and Restated Certificate of Incorporation to increase the number of authorized shares of common stock of the Company from 500,000,000 to 1,000,000,000. | | AGAINST | |
|--|-----|---------|--------|
| 2.Approval of an adjournment of the special meeting. | FOR | AGAINST | ABSTAI |

NOTE: To transact other business as may properly come before the meeting or any adjournment, continuation or postponement thereof.

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

| | | CONTROL NUMBER | |
|-----------|----------------------------|----------------|-------|
| | | | |
| Signature | Signature, if held jointly | Date_ | 2025. |

Note: Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name by authorized officer.

2025

Important Notice Regarding the Internet Availability of Proxy Materials for the Special Meeting of Stockholders of BigBear.ai Holdings, Inc.
to be held on December 1, 2025

To view the Proxy Statement and to Attend the Special Meeting of Stockholders, please go to: https://www.cstproxy.com/bigbearai/sms2025

p FOLD HERE • DO NOT SEPARATE • INSERT IN ENVELOPE PROVIDED p

PROXY

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS BIGBEAR.AI HOLDINGS, INC.

The stockholder(s) hereby appoint(s) Kevin McAleenan, Sean Ricker and Carolyn Blankenship, or each of them, as proxies, each with the power to appoint his or her substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of common stock of BIGBEAR.AI HOLDINGS, INC. that the stockholder(s) is/are entitled to vote at the Special Meeting of Stockholders to be held at 8:00 a.m. ET on December 1, 2025, at https://www.cstproxy.com/bigbearai/sms2025, and any adjournment or postponement thereof.

THIS PROXY, WHEN PROPERLY EXECUTED, WILL BE VOTED IN THE MANNER DIRECTED HEREIN. IF NO SUCH DIRECTION IS MADE, THIS PROXY WILL BE VOTED IN ACCORDANCE WITH THE BOARD OF DIRECTORS' RECOMMENDATIONS. IF ANY OTHER MATTERS PROPERLY COME BEFORE THE MEETING THAT ARE NOT SPECIFICALLY SET FORTH ON THE PROXY CARD AND IN THE PROXY STATEMENT, THE PROXIES WILL VOTE IN THEIR DISCRETION.

PLEASE REFER TO THE PROXY STATEMENT FOR A DISCUSSION OF THE PROPOSALS.

(Continued and to be marked, dated and signed on the other side)