

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**FORM S-3  
REGISTRATION STATEMENT  
UNDER  
THE SECURITIES ACT OF 1933**

**Invitae Corporation**

(Exact Name of Registrant as Specified in Its Charter)

Delaware  
(State or Other Jurisdiction of  
Incorporation or Organization)

27-1701898  
(I.R.S. Employer  
Identification Number)

1400 16th Street  
San Francisco, CA 94103  
(415) 374-7782  
(Address, Including Zip Code, and Telephone Number, Including Area Code, of Registrant's Principal Executive Offices)

Sean E. George, Ph.D.  
President and Chief Executive Officer  
Invitae Corporation  
1400 16th Street  
San Francisco, CA 94103  
(415) 374-7782  
(Name, Address, Including Zip Code, and Telephone Number, Including Area Code, of Agent for Service)

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**Approximate date of commencement of proposed sale to the public:  
From time to time after this registration statement becomes effective, as determined by market conditions and other factors.**

If the only securities being registered on this form are being offered pursuant to dividend or interest reinvestment plans, please check the following box.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, other than securities offered only in connection with dividend or interest reinvestment plans, check the following box.

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering.

If this form is a registration statement pursuant to General Instruction I.D. or a post-effective amendment thereto that shall become effective upon filing with the Commission pursuant to Rule 462(e) under the Securities Act, check the following box.

If this form is a post-effective amendment to a registration statement filed pursuant to General Instruction I.D. filed to register additional securities or additional classes of securities pursuant to Rule 413(b) under the Securities Act, check the following box.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer

Accelerated filer

Non-accelerated filer  (Do not check if a smaller reporting company)

Smaller reporting company

Emerging growth company

If an emerging growth company, indicate by checkmark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(B) of the Securities Act.

**CALCULATION OF REGISTRATION FEE**

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price (1)(2)(3)	Amount of Registration Fee
Debt Securities (4)		
Common Stock, \$0.0001 par value per share (4)		
Preferred Stock, \$0.0001 par value per share (4)		
Depository Shares (5)		
Warrants		
Rights		
Total	\$250,000,000	\$31,125

- (1) Such indeterminate number or amount of debt securities, common stock, preferred stock and depository shares, warrants to purchase any combination of the foregoing securities, and rights, as may from time to time be issued at indeterminate prices, with an aggregate initial offering price not to exceed \$250,000,000. Securities registered hereunder may be sold separately or together in any combination with other securities registered hereunder.
- (2) Estimated solely for the purpose of calculating the registration fee for a primary offering pursuant to Rule 457(o) under the Securities Act of 1933 (the "Securities Act"). Pursuant to Rule 457(o) under the Securities Act and General Instruction II.D. of Form S-3, the table does not specify by each class information as to the amount to be registered or proposed maximum offering price per unit.
- (3) In accordance with Rule 415(a)(6) under the Securities Act, the securities registered pursuant to this Registration Statement include unsold debt securities, common stock, preferred stock, and depository shares, and warrants to purchase any combination of the foregoing securities, and rights, in the amount of \$91,900,011 (the "Unsold Securities") that previously were registered pursuant to the Registrant's Registration Statement on Form S-3 initially declared effective by the Securities and Exchange Commission on June 20, 2016 (File No. 333-211368). Pursuant to Rule 415(a)(6), the registration fees with respect to such Unsold Securities will continue to be applied to such Unsold Securities.
- (4) Subject to footnote (1), there are also being registered hereunder an indeterminate principal amount or number of shares of debt securities, preferred stock or common stock that may be issued upon conversion of, or in exchange for, debt securities or preferred stock registered hereunder or upon exercise of warrants registered hereunder, as the case may be.
- (5) Subject to footnote (1), there are being registered hereunder an indeterminate number of depository shares to be evidenced by depository receipts issued pursuant to a deposit agreement. If the Registrant elects to offer to the public fractional interests in shares of preferred stock registered hereunder, depository receipts will be distributed to those persons purchasing such fractional interests, and the shares of preferred stock will be issued to the depository under the deposit agreement.

**The Registrant hereby amends this registration statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this registration statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933 or until the registration statement shall become**

effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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## EXPLANATORY NOTE

This registration statement contains:

- a base prospectus that covers the offering, issuance and sale by the registrant of up to \$250,000,000 in the aggregate of the registrant's common stock, preferred stock, debt securities, depositary shares, warrants or rights from time to time in one or more offerings; and
- a sales agreement prospectus supplement covering the offering, issuance and sale by the registrant of up to a maximum aggregate offering price of \$75,000,000 of the registrant's common stock that may be issued and sold from time to time under a sales agreement with Cowen and Company, LLC.

The base prospectus immediately follows this explanatory note. The specific terms of any securities to be offered pursuant to the base prospectus will be specified in a prospectus supplement to the base prospectus. The sales agreement prospectus supplement immediately follows the base prospectus. The \$75,000,000 of common stock that may be offered, issued and sold by the registrant under the sales agreement prospectus supplement is included in the \$250,000,000 of securities that may be offered, issued and sold by the registrant under the base prospectus.

Upon termination of the sales agreement with Cowen and Company, LLC, any portion of the \$75,000,000 covered by the sales agreement prospectus supplement that is not sold pursuant to the sales agreement will be available for sale in one or more other offerings pursuant to the base prospectus and an accompanying prospectus supplement, and if no shares are sold under the sales agreement, the full \$75,000,000 of securities may be sold in one or more other offerings pursuant to the base prospectus and an accompanying prospectus supplement.

**The information in this prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with Securities and Exchange Commission is effective. This prospectus is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

**Subject to Completion, Dated August 9, 2018**

PROSPECTUS

**\$250,000,000**



# Invitae Corporation

**Debt Securities  
Common Stock  
Preferred Stock  
Depository Shares  
Warrants  
Rights**

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We may, from time to time, offer and sell the securities identified above in one or more offerings. The aggregate initial offering price of all securities sold under this prospectus will not exceed \$250,000,000.

This prospectus describes the general terms of these securities and the general manner in which these securities will be offered. We will provide the specific terms of these securities in supplements to this prospectus. The prospectus supplements will also describe the manner in which these securities will be offered and may also add to, update or change information contained in this prospectus. You should read carefully this prospectus and the accompanying prospectus supplement before you invest.

We may offer and sell the securities separately or together in any combination for sale directly to investors or through underwriters, dealers or agents. If any underwriters, dealers or agents are involved in the sale of these securities we will set forth their names and describe their compensation in the applicable prospectus supplement.

Our common stock is listed on The New York Stock Exchange under the symbol "NVTA." On August 8, 2018, the last reported sale price of our common stock on The New York Stock Exchange was \$9.44 per share.

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**Investing in our securities involves risks. See the section entitled "[Risk Factors](#)" included in or incorporated by reference into the accompanying prospectus supplement and in the documents we incorporate by reference in this prospectus.**

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**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus. Any representation to the contrary is a criminal offense.**

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The date of this prospectus is \_\_\_\_\_, 2018

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You should rely only on the information incorporated by reference or provided in this prospectus, any prospectus supplement, any applicable free writing prospectus and the registration statement. We have not authorized anyone else to provide you with different information. If anyone provides you with different or inconsistent information, you should not rely on it. We are not making an offer to sell these securities in any jurisdiction where the offer or sale is not permitted. You should assume that the information in this prospectus, any prospectus supplement, any applicable free writing prospectus or the documents incorporated by reference, is accurate only as of the dates of those documents. Our business, financial condition, results of operations and prospects may have changed since those dates.

## ABOUT THIS PROSPECTUS

This prospectus is part of a registration statement that we filed with the Securities and Exchange Commission, or SEC, using a “shelf” registration, or continuous offering, process. Under this shelf registration process, we may, from time to time, offer and sell separately or together in any combination the securities described in this prospectus in one or more offerings up to a maximum aggregate offering price of \$250,000,000.

This prospectus provides you with a general description of the securities we may offer. Each time we sell securities, we will provide a prospectus supplement that will contain specific information about the terms of that offering and the offered securities. Any prospectus supplement, or information incorporated by reference in this prospectus or any prospectus supplement that is of a more recent date, may also add, update or change information contained in this prospectus. Any statement that we make in this prospectus will be modified or superseded by any inconsistent statement made by us in a prospectus supplement. The registration statement we filed with the SEC includes exhibits that provide more detail of the matters discussed in this prospectus. You should read this prospectus and the related exhibits filed with the SEC, any prospectus supplement, and any applicable free writing prospectus, together with additional information described under the headings “Where You Can Find More Information,” and “Incorporation by Reference,” before making your investment decision.

Unless the context otherwise requires, references in this prospectus to “Invitae,” the “company,” “we,” “us” and “our” refer to Invitae Corporation and its consolidated subsidiaries.

## RISK FACTORS

Investing in our securities involves risk. The prospectus supplement relating to a particular offering will contain or incorporate by reference a discussion of risks applicable to an investment in the securities offered. Prior to making a decision about investing in our securities, you should carefully consider the specific factors discussed under the heading “Risk Factors” included in or incorporated by reference into the applicable prospectus supplement together with all of the other information contained in the prospectus supplement or appearing in or incorporated by reference into this prospectus, including the risk factors incorporated by reference to our most recent Annual Report on Form 10-K and any subsequent Quarterly Reports on Form 10-Q or Current Reports on Form 8-K. The occurrence of any of these risks might cause you to lose all or part of your investment in the offered securities.

## INVITAE CORPORATION

Our mission is to bring comprehensive genetic information into mainstream medical practice to improve the quality of healthcare for billions of people. Our goal is to aggregate most of the world’s genetic tests into a single service with higher quality, faster turnaround time and lower pricing than many single gene tests today. By aggregating large numbers of currently available genetic tests into a single service, we believe we can achieve great economies of scale that allow us to not only provide primary single gene or multi-gene tests but also to generate and store additional genetic information on behalf of the patient for future use. We refer to the service of managing genetic information over the course of disease or the lifetime of a patient as “genome management.” In addition, as more individuals gain access to their genetic information, we believe that sharing genetic information will provide an economic opportunity for patients and us to participate in advancing the understanding and treatment of disease.

We were incorporated in the state of Delaware on January 13, 2010, as Locus Development, Inc. and changed our name to Invitae Corporation in 2012. Our principal executive offices are located at 1400 16th Street, San Francisco, California 94103 and our telephone number is (415) 374-7782. Our website address is [www.invitae.com](http://www.invitae.com). We do not incorporate the information on, or accessible through, our website into this prospectus, and you should not consider any information on, or accessible through, our website as part of this prospectus.

Invitae, and the Invitae logo are our trademarks. This prospectus and the documents incorporated by reference into this prospectus may also contain trademarks and trade names that are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply relationships with, or endorsements or sponsorship of us by, these other companies.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year following the fifth anniversary of the completion of our initial public offering of common stock (December 31, 2020), (2) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.07 billion, (3) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th, and (4) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

## **FORWARD-LOOKING STATEMENTS**

When used in this prospectus, words such as "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect" and similar expressions, are intended to identify forward-looking statements. These statements are subject to known and unknown risks and uncertainties that could cause actual results to differ materially from those projected or otherwise implied by the forward-looking statements. These forward-looking statements speak only as of the date of this prospectus. Given these risks and uncertainties, you should not place undue reliance on these forward-looking statements. We will discuss many of these risks and uncertainties in greater detail in any prospectus supplement under the heading "Risk Factors." Additional cautionary statements or discussions of risks and uncertainties that could affect our results or the achievement of the expectations described in forward-looking statements may also be contained in the documents we incorporate by reference into this prospectus.

These forward-looking statements speak only as of the date of this prospectus. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based. You should, however, review additional disclosures we make in our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K filed with the SEC.

## **USE OF PROCEEDS**

Unless we state otherwise in the applicable prospectus supplement, we intend to use the net proceeds from the sale of the securities offered by this prospectus for general corporate purposes. General corporate purposes may include additions to working capital, financing of capital expenditures, repayment or redemption of existing indebtedness, repurchases of stock and future acquisitions and strategic investment opportunities. Unless we state otherwise in the applicable prospectus supplement, pending the application of net proceeds, we expect to invest the net proceeds in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

**RATIO OF EARNINGS TO FIXED CHARGES**

The ratio of earnings to fixed charges for each of the periods indicated are set forth in the following table. Our earnings were insufficient to cover fixed charges for each of those periods. For the periods indicated, we had no outstanding shares of preferred stock with required dividend payments. Accordingly, we have not included ratios of earnings to combined fixed charges and preferred stock dividends because those ratios would be identical to the ratio of earnings to fixed charges.

	<u>Year Ended December 31,</u>					<u>Six Months Ended</u>
	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>June 30, 2018</u>
Ratio of earnings to fixed charges	(1)	(1)	(1)	(1)	(1)	(1)

- (1) The ratio of earnings to fixed charges is computed by dividing loss before taxes plus fixed charges by fixed charges. Fixed charges consist of interest expense (including interest expense from capital leases), debt financing expense and the estimated portion of rental expense deemed by us to be representative of the interest factor of rental payments under operating leases. Earnings were insufficient to cover fixed charges by \$24.8 million, \$47.5 million, \$89.8 million, \$100.3 million, \$123.4 million and \$67.8 million for the years ended December 31, 2013, 2014, 2015, 2016 and 2017 and the six months ended June 30, 2018, respectively.

## DESCRIPTION OF DEBT SECURITIES

The following is a summary of the general terms of the debt securities. We will file a prospectus supplement that may contain additional terms when we issue debt securities. The terms presented here, together with the terms in a related prospectus supplement, together with any pricing supplement or term sheet, will be a description of the material terms of the debt securities.

We may issue, from time to time, debt securities, in one or more series. These debt securities that we may issue include senior debt securities, senior subordinated debt securities, subordinated debt securities, convertible debt securities and exchangeable debt securities. The debt securities we offer will be issued under an indenture between us and the trustee named in the indenture. The following is a summary of the material provisions of the form of indenture filed as an exhibit to the registration statement of which this prospectus is a part. All capitalized terms have the meanings specified in the indentures. For each series of debt securities, the applicable prospectus supplement for the series may change and supplement the summary below.

As used in this section only, “we,” “us” and “our” refer to Invitae Corporation excluding our subsidiaries, unless expressly stated or the context otherwise requires.

### General Terms of the Indenture

The indenture does not limit the amount of debt securities that we may issue. It provides that we may issue debt securities for any series of debt securities up to the principal amount that we may authorize. Except for the limitations on consolidation, merger and sale of all or substantially all of our assets contained in the indenture, the terms of the indenture do not contain any covenants or other provisions designed to give holders of any debt securities protection against changes in our operations, financial condition or transactions involving us. For each series of debt securities, any restrictive covenants for those debt securities will be described in the applicable prospectus supplement for those debt securities.

We may issue the debt securities issued under the indenture as “discount securities,” which means they may be sold at a discount below their stated principal amount. These debt securities, as well as other debt securities that are not issued at a discount, may, for United States federal income tax purposes, be treated as if they were issued with “original issue discount,” or OID, because of interest payment and other characteristics. Special United States federal income tax considerations applicable to debt securities issued with original issue discount will be described in more detail in any applicable prospectus supplement.

You should refer to the prospectus supplement relating to a particular series of debt securities for a description of the following terms of the debt securities offered by that prospectus supplement and by this prospectus:

- the title of those debt securities;
- any limit on the aggregate principal amount of that series of debt securities;
- the date or dates on which principal and premium, if any, of the debt securities of that series is payable;
- the interest rate or rates (which may be fixed or variable) or the method or methods used to determine the rate or rates, and the date or dates from which interest, if any, on the debt securities of that series will accrue, and the dates when interest is payable and related record dates, and the maturity;
- the right, if any, to extend the interest payment periods and the duration of the extensions;
- if the amount of payments of principal or interest is to be determined by reference to an index or formula, or based on a coin or currency other than that in which the debt securities are stated to be payable, the manner in which these amounts are determined and the calculation agent, if any, with respect thereto;

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- the place or places where and the manner in which principal of, premium, if any, and interest, if any, on the debt securities of that series will be payable and the place or places where those debt securities may be presented for transfer and, if applicable, conversion or exchange;
- the period or periods within which, the price or prices at which, and other terms and conditions upon which those debt securities may be redeemed, in whole or in part, at our option or the option of a holder of those securities, if we or a holder is to have that option;
- our obligation or right, if any, to redeem, repay or purchase those debt securities pursuant to any sinking fund or analogous provision or at the option of a holder of those securities, and the terms and conditions upon which the debt securities will be redeemed, repaid or purchased, in whole or in part, pursuant to that obligation;
- the terms, if any, on which the debt securities of that series will be subordinate in right and priority of payment to our other debt;
- the denominations in which those debt securities will be issuable;
- if other than the entire principal amount of the debt securities when issued, the portion of the principal amount payable upon acceleration of maturity as a result of a default on our obligations;
- whether any securities of that series are to be issued in whole or in part in the form of one or more global securities and the depositary for those global securities;
- if the principal of or any premium or interest on the debt securities of that series is to be payable, or is to be payable at our election or the election of a holder of those securities, in securities or other property, the type and amount of those securities or other property, or the manner of determining that amount, and the period or periods within which, and the terms and conditions upon which, any such election may be made;
- the events of default and covenants relating to the debt securities that are in addition to, modify or delete those described in this prospectus;
- conversion or exchange provisions, if any, including conversion or exchange prices or rates and adjustments thereto;
- whether and upon what terms the debt securities may be defeased, if different from the provisions set forth in the indenture;
- the nature and terms of any security for any secured debt securities;
- the terms applicable to any debt securities issued at a discount from their stated principal amount; and
- any other specific terms of any debt securities.

The applicable prospectus supplement will present material United States federal income tax considerations for holders of any debt securities and the securities exchange or quotation system on which any debt securities are to be listed or quoted.

### **Conversion or Exchange Rights**

Debt securities may be convertible into or exchangeable for shares of our equity securities or other securities. The terms and conditions of conversion or exchange will be stated in the applicable prospectus supplement. The terms will include, among others, the following:

- the conversion or exchange price;
- the conversion or exchange period;
- provisions regarding our ability or the ability of any holder to convert or exchange the debt securities;

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- events requiring adjustment to the conversion or exchange price; and
- provisions affecting conversion or exchange in the event of our redemption of the debt securities.

**Consolidation, Merger or Sale**

We cannot consolidate with or merge with or into, or transfer or lease all or substantially all of our assets to, any person, unless we are the surviving corporation or the successor person is a corporation organized under the laws of the United States, any state of the United States or the District of Columbia and expressly assumes our obligations under the debt securities and the indenture. In addition, we cannot complete such a transaction unless immediately after completing the transaction, no event of default under the indenture, and no event that, after notice or lapse of time or both, would become an event of default under the indenture, has occurred and is continuing. When the successor person has assumed our obligations under the debt securities and the indenture, we will be discharged from all our obligations under the debt securities and the indenture except in limited circumstances.

This covenant would not apply to any recapitalization transaction, a change of control affecting us or a highly leveraged transaction, unless the transaction or change of control were structured to include a merger or consolidation or transfer or lease of all or substantially all of our assets.

**Events of Default**

The indenture provides that the following will be “events of default” with respect to any series of debt securities:

- failure to pay interest for 30 days after the date payment is due and payable;
- failure to pay principal or premium, if any, on any debt security when due, either at maturity, upon any redemption, by declaration or otherwise and, in the case of technical or administrative difficulties, only if such default persists for a period of more than three business days;
- failure to make sinking fund payments when due and continuance of such default for a period of 30 days;
- failure to perform other covenants for 60 days after notice that performance was required;
- certain events in bankruptcy, insolvency or reorganization relating to us; or
- any other event of default provided in the applicable officer’s certificate, resolution of our board of directors or the supplemental indenture under which we issue a series of debt securities.

An event of default for a particular series of debt securities does not necessarily constitute an event of default for any other series of debt securities issued under the indenture. For each series of debt securities, any modifications to the above events of default will be described in the applicable prospectus supplement for those debt securities.

The indenture provides that if an event of default specified in the first, second, third, fourth or sixth bullets above occurs and is continuing, either the trustee or the holders of at least 25% in aggregate principal amount of the outstanding debt securities of that series may declare the principal amount of all those debt securities (or, in the case of discount securities or indexed securities, that portion of the principal amount as may be specified in the terms of that series) to be due and payable immediately. If an event of default specified in the fifth bullet above occurs and is continuing, then the principal amount of all those debt securities (or, in the case of discount securities or indexed securities, that portion of the principal amount as may be specified in the terms of that series) will be due and payable immediately, without any declaration or other act on the part of the trustee or any holder. In certain cases, holders of a majority in principal amount of the outstanding debt securities of any series may, on behalf of holders of all those debt securities, rescind and annul a declaration of acceleration.

The indenture imposes limitations on suits brought by holders of debt securities against us. Except for actions for payment of overdue principal or interest, no holder of debt securities of any series may institute any action against us under the indenture unless:

- the holder has previously given to the trustee written notice of default and continuance of such default;
- the holders of at least 25% in principal amount of the outstanding debt securities of the affected series have requested that the trustee institute the action;
- the requesting holders have offered the trustee indemnity for the reasonable expenses and liabilities that may be incurred by bringing the action;
- the trustee has not instituted the action within 60 days of the request and offer of indemnity; and
- the trustee has not received inconsistent direction by the holders of a majority in principal amount of the outstanding debt securities of the affected series.

We will be required to file annually with the trustee a certificate, signed by one of our officers, stating whether or not the officer knows of any default by us in the performance, observance or fulfillment of any condition or covenant of the indenture.

### **Discharge, Defeasance and Covenant Defeasance**

We can discharge or decrease our obligations under the indenture as stated below.

We may discharge obligations to holders of any series of debt securities that have not already been delivered to the trustee for cancellation and that have either become due and payable or are by their terms to become due and payable, or are scheduled for redemption, within one year. We may effect a discharge by irrevocably depositing with the trustee cash or government obligations, as trust funds, in an amount certified to be enough to pay when due, whether at maturity, upon redemption or otherwise, the principal of, and any premium and interest on, the debt securities and any mandatory sinking fund payments.

Unless otherwise provided in the applicable prospectus supplement, we may also discharge any and all of our obligations to holders of any series of debt securities at any time, which we refer to as defeasance. We may also be released from the obligations imposed by any covenants of any outstanding series of debt securities and provisions of the indenture, and we may omit to comply with those covenants without creating an event of default under the trust declaration, which we refer to as covenant defeasance. We may effect defeasance and covenant defeasance only if, among other things:

- we irrevocably deposit with the trustee cash or government obligations denominated in the currency of the debt securities, as trust funds, in an amount certified to be enough to pay at maturity, or upon redemption, the principal (including any mandatory sinking fund payments) of, and any premium and interest on, all outstanding debt securities of the series; and
- we deliver to the trustee an opinion of counsel from a nationally recognized law firm to the effect that the holders of the series of debt securities will not recognize income, gain or loss for U.S. federal income tax purposes as a result of the defeasance or covenant defeasance and that defeasance or covenant defeasance will not otherwise alter the holders' U.S. federal income tax treatment of principal, and any premium and interest payments on, the series of debt securities.

In the case of a defeasance by us, the opinion we deliver must be based on a ruling of the Internal Revenue Service issued, or a change in U.S. federal income tax law occurring, after the date of the indenture, since such a result would not occur under the U.S. federal income tax laws in effect on that date.

Although we may discharge or decrease our obligations under the indenture as described in the two preceding paragraphs, we may not avoid, among other things, our duty to register the transfer or exchange of any series of debt securities, to replace any temporary, mutilated, destroyed, lost or stolen series of debt securities or to maintain an office or agency in respect of any series of debt securities.

## **Modification of the Indenture**

The indenture provides that we and the trustee may enter into supplemental indentures without the consent of the holders of debt securities to, among other things:

- evidence the assumption by a successor entity of our obligations;
- add to our covenants for the benefit of the holders of debt securities, or to surrender any rights or power conferred upon us;
- add any additional events of default;
- add to, change or eliminate any of the provisions of the indenture in a manner that will become effective only when there is no outstanding debt security which is entitled to the benefit of the provision as to which the modification would apply;
- add guarantees with respect to or secure any debt securities;
- establish the forms or terms of debt securities of any series;
- evidence and provide for the acceptance of appointment by a successor trustee and add to or change any of the provisions of the indenture as is necessary for the administration of the trusts by more than one trustee;
- cure any ambiguity or correct any inconsistency or defect in the indenture;
- modify, eliminate or add to the provisions of the indenture as shall be necessary to effect the qualification of the indenture under the Trust Indenture Act of 1939 or under any similar federal statute later enacted, and to add to the indenture such other provisions as may be expressly required by the Trust Indenture Act; and
- make any other provisions with respect to matters or questions arising under the indenture that will not be inconsistent with any provision of the indenture as long as the new provisions do not adversely affect the interests of the holders of any outstanding debt securities of any series created prior to the modification.

The indenture also provides that we and the trustee may, with the consent of the holders of not less than a majority in aggregate principal amount of debt securities of each series of debt securities affected by such supplemental indenture then outstanding, add any provisions to, or change in any manner, eliminate or modify in any way the provisions of, the indenture or any supplemental indenture or modify in any manner the rights of the holders of the debt securities. We and the trustee may not, however, without the consent of the holder of each outstanding debt security affected thereby:

- extend the final maturity of any debt security;
- reduce the principal amount or premium, if any;
- reduce the rate or extend the time of payment of interest;
- reduce the amount of the principal of any debt security issued with an original issue discount that is payable upon acceleration;
- change the currency in which the principal, and any premium or interest, is payable;
- impair the right to institute suit for the enforcement of any payment on any debt security when due;
- if applicable, adversely affect the right of a holder to convert or exchange a debt security; or
- reduce the percentage of holders of debt securities of any series whose consent is required for any modification of the indenture or for waivers of compliance with or defaults under the indenture with respect to debt securities of that series.

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The indenture provides that the holders of not less than a majority in aggregate principal amount of the then outstanding debt securities of any series, by notice to the relevant trustee, may on behalf of the holders of the debt securities of that series waive any default and its consequences under the indenture except:

- a default in the payment of, any premium and any interest on, or principal of, any such debt security held by a non-consenting holder; or
- a default in respect of a covenant or provision of the indenture that cannot be modified or amended without the consent of the holder of each outstanding debt security of each series affected.

**Concerning the Trustee**

The indenture provides that there may be more than one trustee under the indenture, each for one or more series of debt securities. If there are different trustees for different series of debt securities, each trustee will be a trustee of a trust under the indenture separate and apart from the trust administered by any other trustee under that indenture. Except as otherwise indicated in this prospectus or any prospectus supplement, any action permitted to be taken by a trustee may be taken by such trustee only on the one or more series of debt securities for which it is the trustee under the indenture. Any trustee under the indenture may resign or be removed from one or more series of debt securities. All payments of principal of, and any premium and interest on, and all registration, transfer, exchange, authentication and delivery of, the debt securities of a series will be effected by the trustee for that series at an office designated by the trustee in New York, New York.

The indenture provides that, except during the continuance of an event of default, the trustee will perform only such duties as are specifically set forth in the indenture. During the existence of an event of default, the trustee will exercise those rights and powers vested in it under the indenture and use the same degree of care and skill in its exercise as a prudent person would exercise under the circumstances in the conduct of such person's own affairs.

If the trustee becomes a creditor of ours, the indenture places limitations on the right of the trustee to obtain payment of claims or to realize on property received in respect of any such claim as security or otherwise. The trustee may engage in other transactions. If it acquires any conflicting interest relating to any duties concerning the debt securities, however, it must eliminate the conflict or resign as trustee.

**No Individual Liability of Incorporators, Stockholders, Officers or Directors**

The indenture provides that no past, present or future director, officer, stockholder or employee of ours, any of our affiliates, or any successor corporation, in their capacity as such, shall have any individual liability for any of our obligations, covenants or agreements under the debt securities or the indenture.

**Governing Law**

The indenture and the debt securities will be governed by, and construed in accordance with, the laws of the State of New York.

## DESCRIPTION OF CAPITAL STOCK

This section describes the general terms and provisions of the shares of our common stock, \$0.0001 par value per share, and preferred stock, \$0.0001 par value per share. This description is only a summary. Our restated certificate of incorporation, the certificate of designation with respect to our Series A convertible preferred stock and our amended and restated bylaws have been filed as exhibits to our periodic reports filed with the SEC, which are incorporated by reference in this prospectus. You should read our restated certificate of incorporation, the certificate of designation with respect to our Series A convertible preferred stock and our amended and restated bylaws for additional information before you buy any of our common stock, preferred stock or other securities. See “Where You Can Find More Information.”

### Common Stock

We are authorized to issue 400,000,000 shares of common stock. As of June 30, 2018, there were 68,976,036 shares of common stock issued and outstanding. Each holder of common stock is entitled to one vote for each share of common stock held on all matters submitted to a vote of stockholders. We have not provided for cumulative voting for the election of directors in our restated certificate of incorporation. This means that the holders of a majority of the shares voted can elect all of the directors then standing for election. Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of assets legally available at the times and in the amounts that our board of directors may determine from time to time. Upon our liquidation, dissolution or winding-up, the holders of common stock are entitled to share ratably in all assets remaining after payment of all liabilities and the liquidation preferences of any outstanding preferred stock. Holders of common stock have no preemptive or conversion rights or other subscription rights. There are no redemption or sinking fund provisions applicable to the common stock. All outstanding shares of common stock are fully paid and nonassessable.

### Preferred Stock

We are authorized to issue 20,000,000 shares of preferred stock, of which 3,458,823 shares are designated as Series A convertible preferred stock, or the Series A Preferred Stock. As of June 30, 2018, 3,458,823 shares of Series A Preferred Stock were outstanding. The Series A Preferred Stock is a non-voting common stock equivalent and conversion of the Series A Preferred Stock is prohibited if the holder exceeds a specified threshold of voting security ownership. The Series A Preferred Stock is convertible into common stock on a one-for-one basis, subject to adjustment for events such as stock splits, combinations and the like. The Series A Preferred Stock has the right to receive dividends first or simultaneously with payment of dividends on common stock, in an amount equal to the product of (i) the dividend payable on each share of common stock and (ii) the number of shares of common stock issuable upon conversion of a share of Series A Preferred Stock. The Series A Preferred Stock has no voting rights except as required by law, as modified by our restated certificate of incorporation. In the event of any liquidation or dissolution of the company, the Series A Preferred Stock is entitled to receive \$0.001 per share prior to the payment of any amount to any holders of our capital stock ranking junior to the Series A Preferred Stock and thereafter shall participate *pari passu* with the holders of our common stock (on an as-if-converted-to-common-stock basis).

We may issue additional preferred stock, in series, with such designations, powers, preferences and other rights and qualifications, limitations or restrictions as our board of directors may authorize, without further action by our stockholders, including:

- the distinctive designation of each series and the number of shares that will constitute the series;
- the voting rights, if any, of shares of the series and the terms and conditions of the voting rights;
- the dividend rate on the shares of the series, the dates on which dividends are payable, any restriction, limitation or condition upon the payment of dividends, whether dividends will be cumulative, and the dates from and after which dividends shall accumulate;
- the prices at which, and the terms and conditions on which, the shares of the series may be redeemed, if the shares are redeemable;

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- the terms and conditions of a sinking or purchase fund for the purchase or redemption of shares of the series, if such a fund is provided;
- any preferential amount payable upon shares of the series in the event of the liquidation, dissolution or winding up of, or upon the distribution of any of our assets; and
- the prices or rates of conversion or exchange at which, and the terms and conditions on which, the shares of the series may be converted or exchanged into other securities, if the shares are convertible or exchangeable.

The particular terms of any series of preferred stock, and the transfer agent and registrar for that series, will be described in a prospectus supplement. Any material United States federal income tax consequences and other special considerations with respect to any preferred stock offered under this prospectus will also be described in the applicable prospectus supplement.

The issuance of additional preferred stock could decrease the amount of earnings and assets available for distribution to holders of our common stock or adversely affect the rights and powers, including voting rights, of the holders of our common stock. The issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of our company, which could depress the market price of our common stock.

### **Registration Rights**

As of June 30, 2018, the holders of approximately 15,408,903 shares of our common stock, including shares of our common stock issuable upon conversion of our Series A Preferred Stock, are entitled to contractual rights to require us to register those shares under the Securities Act of 1933, subject to certain exceptions. These rights are provided under the terms of our amended and restated registration rights agreement. We generally must pay all expenses relating to any such registration, other than underwriting discounts and selling commissions. The registration rights terminate automatically upon the earlier of the sale of the registrable securities (as such term is defined in the agreement), the date such registrable securities may be resold without volume or manner of sale limitations pursuant to Rule 144 under the Securities Act of 1933 or July 31, 2027.

### **Anti-Takeover Effects of Delaware Law and Our Restated Certificate of Incorporation and Bylaws**

Certain provisions of Delaware law, our restated certificate of incorporation and our amended and restated bylaws could have the effect of delaying, deferring or discouraging another party from acquiring control of us. These provisions, which are summarized below, are expected to discourage certain types of coercive takeover practices and inadequate takeover bids. These provisions are also designed, in part, to encourage persons seeking to acquire control of us to first negotiate with our board of directors. We believe that the benefits of increased protection of our potential ability to negotiate with an unfriendly or unsolicited acquirer outweigh the disadvantages of discouraging such proposals, including proposals that are priced above the then-current market value of our common stock, because, among other reasons, the negotiation of such proposals could result in an improvement of their terms.

*Certificate of Incorporation and Bylaws.* Our restated certificate of incorporation and amended and restated bylaws include provisions that:

- divide our board of directors into three classes, each serving staggered, three-year terms;
- authorize the board of directors to issue, without further action by the stockholders, up to 20,000,000 shares of undesignated preferred stock, of which 16,541,177 shares remain undesignated as of the date of this prospectus;
- require that any action to be taken by our stockholders be effected at a duly called annual or special meeting and not by written consent;
- specify that special meetings of our stockholders can be called only by the board of directors, the chairman of the board, or the chief executive officer;

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- establish an advance notice procedure for stockholder approvals to be brought before an annual meeting of our stockholders, including proposed nominations of persons for election to the board of directors;
- provide that directors may be removed only for cause;
- establish the Court of Chancery of the State of Delaware as the sole and exclusive forum for certain derivative actions or proceeding brought on our behalf, any action asserting a claim of breach of fiduciary duty, any action asserting a claim against us arising pursuant to the General Corporation Law of the State of Delaware (the “DGCL”), or any action asserting a claim governed by the internal affairs doctrine;
- require the affirmative vote of holders of at least 66 2/3 % of the total votes eligible to be cast in the election of directors to amend, alter, change or repeal our bylaws; and provide that vacancies on our board of directors may be filled only by a majority of directors then in office, even though less than a quorum.

*Delaware anti-takeover statute.* We are subject to the provisions of Section 203 of the DGCL regulating corporate takeovers. In general, Section 203 prohibits a publicly-held Delaware corporation from engaging, under certain circumstances, in a business combination with an interested stockholder for a period of three years following the date the person became an interested stockholder unless:

- prior to the date of the transaction, the board of directors of the corporation approved either the business combination or the transaction which resulted in the stockholder becoming an interested stockholder;
- upon completion of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction commenced, excluding for purposes of determining the voting stock outstanding, but not the outstanding voting stock owned by the interested stockholder, (1) shares owned by persons who are directors and also officers and (2) shares owned by employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or at or subsequent to the date of the transaction, the business combination is approved by the board of directors of the corporation and authorized at an annual or special meeting of stockholders, and not by written consent, by the affirmative vote of at least 66 2 / 3 % of the outstanding voting stock which is not owned by the interested stockholder.

Generally, a “business combination” includes a merger, asset or stock sale, or other transaction resulting in a financial benefit to the “interested stockholder” and an “interested stockholder” is a person who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of a corporation’s outstanding voting stock. We expect the existence of this provision to have an anti-takeover effect with respect to transactions our board of directors does not approve in advance. We also anticipate that Section 203 may discourage business combinations or other attempts that might result in a premium over the market price for the shares of common stock held by our stockholders. The provisions of DGCL, our restated certificate of incorporation and our amended and restated bylaws could have the effect of discouraging others from attempting hostile takeovers and, as a consequence, they may also inhibit temporary fluctuations in the market price of our common stock that often result from actual or rumored hostile takeover attempts. These provisions may also have the effect of preventing changes in our management. It is possible that these provisions could make it more difficult to accomplish transactions that stockholders may otherwise deem to be in their best interests.

### **Transfer Agent and Registrar**

The transfer agent and registrar for our common stock is American Stock Transfer & Trust Company, LLC. The transfer agent’s address is 6201 5th Avenue, Brooklyn, New York 11219.

## DESCRIPTION OF DEPOSITARY SHARES

The following description of the depositary shares does not purport to be complete and is subject to and qualified in its entirety by the relevant deposit agreement and the depositary receipts with respect to the depositary shares relating to any particular series of preferred stock. You should read these documents as they, and not this description, will define your rights as a holder of depositary shares. Forms of these documents will be filed with the SEC in connection with the offering of depositary shares.

### General

If we elect to offer fractional interests in shares of preferred stock, we will provide for the issuance by a depositary to the public of receipts for depositary shares. Each depositary share will represent fractional interests of preferred stock. We will deposit the shares of preferred stock underlying the depositary shares under a deposit agreement between us and a bank or trust company selected by us. The bank or trust company must have its principal office in the United States and a combined capital and surplus of at least \$50 million. The depositary receipts will evidence the depositary shares issued under the deposit agreement.

The deposit agreement will contain terms applicable to the holders of depositary shares in addition to the terms stated in the depositary receipts. Each owner of depositary shares will be entitled to all the rights and preferences of the preferred stock underlying the depositary shares in proportion to the applicable fractional interest in the underlying shares of preferred stock. The depositary will issue the depositary receipts to individuals purchasing the fractional interests in shares of the related preferred stock according to the terms of the offering described in a prospectus supplement.

### Dividends and Other Distributions

The depositary will distribute all cash dividends or other cash distributions received for the preferred stock to the entitled record holders of depositary shares in proportion to the number of depositary shares that the holder owns on the relevant record date. The depositary will distribute only an amount that can be distributed without attributing to any holder of depositary shares a fraction of one cent. The depositary will add the undistributed balance to and treat it as part of the next sum received by the depositary for distribution to holders of depositary shares.

If there is a non-cash distribution, the depositary will distribute property received by it to the entitled record holders of depositary shares, in proportion, insofar as possible, to the number of depositary shares owned by the holders, unless the depositary determines, after consultation with us, that it is not feasible to make such distribution. If this occurs, the depositary may, with our approval, sell such property and distribute the net proceeds from the sale to the holders. The deposit agreement also will contain provisions relating to how any subscription or similar rights that we may offer to holders of the preferred stock will be available to the holders of the depositary shares.

### Conversion, Exchange, Redemption and Liquidation

If any series of preferred stock underlying the depositary shares may be converted or exchanged, each record holder of depositary receipts will have the right or obligation to convert or exchange the depositary shares represented by the depositary receipts.

The terms on which the depositary shares relating to the preferred stock of any series may be redeemed, and any amounts distributable upon our liquidation, dissolution or winding up, will be described in the relevant prospectus supplement.

## **Voting**

When the depositary receives notice of a meeting at which the holders of the preferred stock are entitled to vote, the depositary will mail the particulars of the meeting to the record holders of the depositary shares. Each record holder of depositary shares on the record date may instruct the depositary on how to vote the shares of preferred stock underlying the holder's depositary shares. The depositary will try, if practical, to vote the number of shares of preferred stock underlying the depositary shares according to the instructions. We will agree to take all reasonable action requested by the depositary to enable it to vote as instructed.

## **Amendments**

We and the depositary may agree to amend the deposit agreement and the depositary receipt evidencing the depositary shares. Any amendment that (a) imposes or increases certain fees, taxes or other charges payable by the holders of the depositary shares as described in the deposit agreement or that (b) otherwise prejudices any substantial existing right of holders of depositary shares, will not take effect until 30 days after the depositary has mailed notice of the amendment to the record holders of depositary shares. Any holder of depositary shares that continues to hold its shares at the end of the 30-day period will be deemed to have agreed to the amendment.

## **Termination**

We may direct the depositary to terminate the deposit agreement by mailing a notice of termination to holders of depositary shares at least 30 days prior to termination. In addition, a deposit agreement will automatically terminate if:

- the depositary has redeemed all related outstanding depositary shares, or
- we have liquidated, terminated or wound up our business and the depositary has distributed the preferred stock of the relevant series to the holders of the related depositary shares.

## **Payment of Fees and Expenses**

We will pay all fees, charges and expenses of the depositary, including the initial deposit of the preferred stock and any redemption of the preferred stock. Holders of depositary shares will pay transfer and other taxes and governmental charges and any other charges as are stated in the deposit agreement for their accounts.

## **Resignation and Removal of Depositary**

At any time, the depositary may resign by delivering notice to us, and we may remove the depositary. Resignations or removals will take effect upon the appointment of a successor depositary and its acceptance of the appointment. The successor depositary must be appointed within 60 days after delivery of the notice of resignation or removal and must be a bank or trust company having its principal office in the United States and having a combined capital and surplus of at least \$50 million.

## **Reports**

The depositary will forward to the holders of depositary shares all reports and communications from us that are delivered to the depositary and that we are required by law, the rules of an applicable securities exchange or our restated certificate of incorporation to furnish to the holders of the preferred stock. Neither we nor the depositary will be liable if the depositary is prevented or delayed by law or any circumstances beyond its control in performing its obligations under the deposit agreement. The deposit agreement limits our obligations and the depositary's obligations to performance in good faith of the duties stated in the deposit agreement. Neither we nor the depositary will be obligated to prosecute or defend any legal proceeding connected with any depositary shares or preferred stock unless the holders of depositary shares requesting us to do so furnish us with satisfactory indemnity. In performing our obligations, we and the depositary may rely upon the written advice of our counsel or accountants, on any information that competent people provide to us and on documents that we believe are genuine.

## DESCRIPTION OF WARRANTS

We may issue warrants for the purchase of debt securities, preferred stock, common stock, depositary shares, or any combination thereof. We may issue warrants independently or together with any other securities offered by any prospectus supplement and may be attached to or separate from the other offered securities. Each series of warrants may be issued under a separate warrant agreement to be entered into by us with a warrant agent. The applicable warrant agent will act solely as our agent in connection with the warrants and will not assume any obligation or relationship of agency or trust for or with any holders or beneficial owners of warrants. Further terms of the warrants and the applicable warrant agreements will be set forth in the applicable prospectus supplement.

The applicable prospectus supplement relating to any particular issue of warrants will describe the terms of the warrants, including, as applicable, the following:

- the title of the warrants;
- the aggregate number of the warrants;
- the price or prices at which the warrants will be issued;
- the designation, terms and number of shares of debt securities, preferred stock or common stock purchasable upon exercise of the warrants;
- the designation and terms of the offered securities, if any, with which the warrants are issued and the number of the warrants issued with each offered security;
- the date, if any, on and after which the warrants and the related debt securities, preferred stock or common stock will be separately transferable;
- the price at which each share of debt securities, preferred stock or common stock purchasable upon exercise of the warrants may be purchased;
- the date on which the right to exercise the warrants shall commence and the date on which that right shall expire;
- the minimum or maximum amount of the warrants which may be exercised at any one time;
- information with respect to book-entry procedures, if any;
- a discussion of certain federal income tax considerations; and
- any other terms of the warrants, including terms, procedures and limitations relating to the exchange and exercise of the warrants.

We and the applicable warrant agent may amend or supplement the warrant agreement for a series of warrants without the consent of the holders of the warrants issued thereunder to effect changes that are not inconsistent with the provisions of the warrants and that do not materially and adversely affect the interests of the holders of the warrants.

## DESCRIPTION OF RIGHTS

We may issue rights to purchase common stock or preferred stock. This prospectus and any accompanying prospectus supplement will contain the material terms and conditions for each right. The accompanying prospectus supplement may add, update or change the terms and conditions of the rights as described in this prospectus.

We will describe in the applicable prospectus supplement the terms and conditions of the issue of rights being offered, the rights agreement relating to the rights and the rights certificates representing the rights, including, as applicable:

- the title of the rights;
- the date of determining the stockholders entitled to the rights distribution;
- the title, aggregate number of shares of common stock or preferred stock purchasable upon exercise of the rights;
- the exercise price;
- the aggregate number of rights issued;
- the date, if any, on and after which the rights will be separately transferable;
- the date on which the right to exercise the rights will commence and the date on which the right will expire; and
- any other terms of the rights, including terms, procedures and limitations relating to the distribution, exchange and exercise of the rights.

Each right will entitle the holder of rights to purchase for cash the principal amount of shares of common stock or preferred stock at the exercise price provided in the applicable prospectus supplement. Rights may be exercised at any time up to the close of business on the expiration date for the rights provided in the applicable prospectus supplement. After the close of business on the expiration date, all unexercised rights will be void.

Holders may exercise rights as described in the applicable prospectus supplement. Upon receipt of payment and the rights certificate properly completed and duly executed at the corporate trust office of the rights agent or any other office indicated in the prospectus supplement, we will, as soon as practicable, forward the shares of common stock or preferred stock purchasable upon exercise of the rights. If less than all of the rights issued in any rights offering are exercised, we may offer any unsubscribed securities directly to persons other than stockholders, to or through agents, underwriters or dealers or through a combination of such methods, including pursuant to standby underwriting arrangements, as described in the applicable prospectus supplement.

## FORMS OF SECURITIES

Each debt security, depositary share, warrant and right will be represented either by a certificate issued in definitive form to a particular investor or by one or more global securities representing the entire issuance of securities. Unless the applicable prospectus supplement provides otherwise, certificated securities will be issued in definitive form and global securities will be issued in registered form. Definitive securities name you or your nominee as the owner of the security, and in order to transfer or exchange these securities or to receive payments other than interest or other interim payments, you or your nominee must physically deliver the securities to the trustee, registrar, paying agent or other agent, as applicable. Global securities name a depositary or its nominee as the owner of the debt securities, depositary shares, warrants or rights represented by these global securities. The depositary maintains a computerized system that will reflect each investor's beneficial ownership of the securities through an account maintained by the investor with its broker/dealer, bank, trust company or other representative, as we explain more fully below.

### Registered Global Securities

We may issue the registered debt securities, depositary shares, warrants and rights in the form of one or more fully registered global securities that will be deposited with a depositary or its nominee identified in the applicable prospectus supplement and registered in the name of that depositary or nominee. In those cases, one or more registered global securities will be issued in a denomination or aggregate denominations equal to the portion of the aggregate principal or face amount of the securities to be represented by registered global securities. Unless and until it is exchanged in whole for securities in definitive registered form, a registered global security may not be transferred except as a whole by and among the depositary for the registered global security, the nominees of the depositary or any successors of the depositary or those nominees.

If not described below, any specific terms of the depositary arrangement with respect to any securities to be represented by a registered global security will be described in the prospectus supplement relating to those securities. We anticipate that the following provisions will apply to all depositary arrangements.

Ownership of beneficial interests in a registered global security will be limited to persons, called participants, that have accounts with the depositary or persons that may hold interests through participants. Upon the issuance of a registered global security, the depositary will credit, on its book-entry registration and transfer system, the participants' accounts with the respective principal or face amounts of the securities beneficially owned by the participants. Any underwriters, dealers or agents participating in the distribution of the securities will designate the accounts to be credited. Ownership of beneficial interests in a registered global security will be shown on, and the transfer of ownership interests will be effected only through, records maintained by the depositary, with respect to interests of participants, and on the records of participants, with respect to interests of persons holding through participants. The laws of some states may require that some purchasers of securities take physical delivery of these securities in definitive form. These laws may impair your ability to own, transfer or pledge beneficial interests in registered global securities.

So long as the depositary, or its nominee, is the registered owner of a registered global security, that depositary or its nominee, as the case may be, will be considered the sole owner or holder of the securities represented by the registered global security for all purposes under the applicable indenture, deposit agreement, warrant agreement or rights agreement. Except as described below, owners of beneficial interests in a registered global security:

- will not be entitled to have the securities represented by the registered global security registered in their names;
- will not receive or be entitled to receive physical delivery of the securities in definitive form; and
- will not be considered the owners or holders of the securities under the applicable indenture, deposit agreement, warrant agreement or rights agreement.

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Accordingly, each person owning a beneficial interest in a registered global security must rely on the procedures of the depository for that registered global security and, if that person is not a participant, on the procedures of the participant through which the person owns its interest, to exercise any rights of a holder under the applicable indenture, deposit agreement, warrant agreement or rights agreement.

We understand that under existing industry practices, if we request any action of holders or if an owner of a beneficial interest in a registered global security desires to give or take any action that a holder is entitled to give or take under the applicable indenture, deposit agreement, warrant agreement or rights agreement, the depository for the registered global security would authorize the participants holding the relevant beneficial interests to give or take that action, and the participants would authorize beneficial owners owning through them to give or take that action or would otherwise act upon the instructions of beneficial owners holding through them.

We will make payments of principal, premium, if any, and interest, if any, on debt securities, and any payments to holders with respect to depository shares, warrants or rights, represented by a registered global security registered in the name of a depository or its nominee to the depository or its nominee, as the case may be, as the registered owner of the registered global security. None of us, the trustees, the depositories for depository shares, the warrant agents, the rights agents or any other agent of ours, agent of the trustees, agent of such depositories, agent of the warrant agents or agent of the rights agents will have any responsibility or liability for any aspect of the records relating to, or payments made on account of, beneficial ownership interests in the registered global security or for maintaining, supervising or reviewing any records relating to those beneficial ownership interests.

We expect that the depository for any of the securities represented by a registered global security, upon receipt of any payment of principal, premium, interest or other distribution of underlying securities or other property to holders on that registered global security, will immediately credit participants' accounts in amounts proportionate to their respective beneficial interests in that registered global security as shown on the records of the depository. We also expect that standing customer instructions and customary practices will govern payments by participants to owners of beneficial interests in a registered global security held through the participants, as is now the case with the securities held for the accounts of customers registered in "street name." We also expect that any of these payments will be the responsibility of those participants.

If the depository for any of the securities represented by a registered global security is at any time unwilling or unable to continue as depository or ceases to be a clearing agency registered under the Securities Exchange Act of 1934, or Exchange Act, and a successor depository registered as a clearing agency under the Exchange Act is not appointed by us within 90 days, we will issue securities in definitive form in exchange for the registered global security that had been held by the depository. Any securities issued in definitive form in exchange for a registered global security will be registered in the name or names that the depository gives to the relevant trustee, warrant agent, unit agent or other relevant agent of ours or theirs. It is expected that the depository's instructions will be based upon directions received by the depository from participants with respect to ownership of beneficial interests in the registered global security that had been held by the depository.

## PLAN OF DISTRIBUTION

We may sell the securities offered by this prospectus to one or more underwriters or dealers for public offering and sale by them or to investors directly or through agents. The accompanying prospectus supplement will set forth the terms of the offering and the method of distribution and will identify any firms acting as underwriters, dealers or agents in connection with the offering, including:

- the name or names of any underwriters, dealers or agents;
- the purchase price of the securities and the proceeds to us from the sale;
- any underwriting discounts and other items constituting compensation to underwriters, dealers or agents;
- any public offering price;
- any discounts or concessions allowed or reallowed or paid to dealers; and
- any securities exchange or market on which the securities offered in the prospectus supplement may be listed.

Only those underwriters identified in such prospectus supplement are deemed to be underwriters in connection with the securities offered in the prospectus supplement.

The distribution of the securities may be effected from time to time in one or more transactions at a fixed price or prices, which may be changed, or at prices determined as the applicable prospectus supplement specifies. The securities may be sold through an at-the-market offering, a rights offering, forward contracts or similar arrangements. In addition, we may enter into derivative transactions with third parties, or sell securities not covered by this prospectus to third parties in privately negotiated transactions. If the applicable prospectus supplement so indicates, in connection with those derivatives, the third parties may sell securities covered by this prospectus and the applicable prospectus supplement, including in short sale transactions. If so, the third party may use securities pledged by us or borrowed from us or others to settle those sales or to close out any related open borrowings of stock, and may use securities received from us in settlement of those derivatives to close out any related open borrowings of stock. The third party in such sale transactions will be an underwriter and, if not identified in this prospectus, will be named in the applicable prospectus supplement (or a post-effective amendment). In addition, we may otherwise loan or pledge securities to a financial institution or other third party that in turn may sell the securities short using this prospectus and an applicable prospectus supplement. Such financial institution or other third party may transfer its economic short position to investors in our securities or in connection with a concurrent offering of other securities.

In connection with the sale of the securities, underwriters, dealers or agents may be deemed to have received compensation from us in the form of underwriting discounts or commissions and also may receive commissions from securities purchasers for whom they may act as agent. Underwriters may sell the securities to or through dealers, and the dealers may receive compensation in the form of discounts, concessions or commissions from the underwriters or commissions from the purchasers for whom they may act as agent.

We will provide in the applicable prospectus supplement information regarding any underwriting discounts or other compensation that we pay to underwriters or agents in connection with the securities offering, and any discounts, concessions or commissions that underwriters allow to dealers. Underwriters, dealers and agents participating in the securities distribution may be deemed to be underwriters, and any discounts, commissions or concessions they receive and any profit they realize on the resale of the securities may be deemed to be underwriting discounts and commissions under the Securities Act of 1933. Underwriters and their controlling persons, dealers and agents may be entitled, under agreements entered into with us, to indemnification against and contribution toward specific civil liabilities, including liabilities under the Securities Act. Some of the underwriters, dealers or agents who participate in the securities distribution may engage in other transactions with, and perform other services for, us or our subsidiaries in the ordinary course of business.

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Our common stock is currently listed on The New York Stock Exchange, but any other securities may or may not be listed on a national securities exchange. To facilitate the offering of securities, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of the securities. This may include over-allotments or short sales of the securities, which involve the sale by persons participating in the offering of more securities than were sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option, if any. In addition, these persons may stabilize or maintain the price of the securities by bidding for or purchasing securities in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if securities sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of the securities at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

## LEGAL MATTERS

The validity of any securities offered by this prospectus will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP, Palo Alto, California.

## EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017, as set forth in their report, which is incorporated by reference in this prospectus and elsewhere in this registration statement. Our consolidated financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

The consolidated financial statements of CombiMatrix Corporation as of December 31, 2016 and for the year then ended incorporated by reference in this prospectus have been incorporated by reference in reliance upon the report of Haskell & White LLP, an independent registered public accounting firm, and given on the authority of said firm as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC under the Securities Act of 1933. This prospectus is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement and any other document we file with the SEC at the public reference room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a web site that contains reports, proxy and information statements and other information regarding companies, such as ours, that file documents electronically with the SEC. The address of that site on the worldwide web is <http://www.sec.gov>. The information on the SEC's web site is not part of this prospectus, and any references to this web site or any other web site are inactive textual references only.

The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus. Information that is incorporated by reference is considered to be part of this prospectus and you should read it with the same care that you read this prospectus. Later information that we file with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus, and will be considered to be a part of this prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2017;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2018 and June 30, 2018;
- our Current Reports on Form 8-K filed with the SEC on November 15, 2017 (as amended by Forms 8-K/A filed with the SEC on January 26, 2018 and March 6, 2018), February 28, 2018, March 13, 2018, April 2, 2018, May 18, 2018, and June 29, 2018; and
- the description of our common stock contained in our Registration Statement on Form 8-A filed on February 11, 2015, including any amendment or report filed for the purpose of updating such description.

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We also incorporate by reference all additional documents that we file with the SEC under the terms of Section 13(a), 13(c), 14 or 15(d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus is a part and the effectiveness of the registration statement, as well as between the date of this prospectus and the termination of any offering of securities offered by this prospectus. We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

You may request a copy of any or all of the documents incorporated by reference but not delivered with this prospectus, at no cost, by writing or telephoning us at the following address and number: Investor Relations, Invitae Corporation, 1400 16th Street, San Francisco, California 94103 and (415) 374-7782. We will not, however, send exhibits to those documents, unless the exhibits are specifically incorporated by reference in those documents.

We make available free of charge on our website our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports, as soon as reasonably practicable after we electronically file or furnish such materials to the Securities and Exchange Commission, or SEC. You may obtain a free copy of these reports in the Investor Relations section of our website, [www.invitae.com](http://www.invitae.com).

**The information in this preliminary prospectus supplement is not complete and may be changed. We may not sell any of these securities until the registration statement filed with Securities and Exchange Commission is effective. This preliminary prospectus supplement is not an offer to sell these securities and is not soliciting an offer to buy these securities in any state where the offer or sale is not permitted.**

**Subject to Completion, Dated August 9, 2018**

**PROSPECTUS SUPPLEMENT  
(To Prospectus dated \_\_\_\_\_, 2018)**



# **Invitae Corporation**

**Up to \$75,000,000**

**Common Stock**

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We have entered into a sales agreement with Cowen and Company, LLC, or Cowen, relating to shares of our common stock offered by this prospectus supplement and the accompanying prospectus. In accordance with the terms of the sales agreement, we may offer and sell shares of our common stock having an aggregate offering price of up to \$75,000,000 from time to time through Cowen acting as our agent.

Our common stock is listed on The New York Stock Exchange under the symbol “NVTA.” On August 8, 2018, the last reported sale price of our common stock on The New York Stock Exchange was \$9.44 per share.

Sales of our common stock, if any, under this prospectus supplement and the accompanying prospectus will be made in sales deemed to be an “at the market offering” as defined in Rule 415(a)(4) promulgated under the Securities Act of 1933, as amended, or the Securities Act. Cowen is not required to sell any specific amount of securities, but will act as our sales agent using commercially reasonable efforts consistent with its normal trading and sales practices, on mutually agreed terms between Cowen and us. There is no arrangement for funds to be received in any escrow, trust or similar arrangement.

The compensation to Cowen 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, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act and the compensation of Cowen will be deemed to be underwriting commissions or discounts. We have also agreed to provide indemnification and contribution to Cowen with respect to certain liabilities, including liabilities under the Securities Act or the Securities Exchange Act of 1934, as amended.

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**Investing in our common stock involves risks. See the section entitled “[Risk Factors](#)” beginning on page S-5 of this prospectus supplement and in the documents we incorporate by reference into this prospectus supplement and the accompanying prospectus.**

**Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus supplement and the accompanying prospectus. Any representation to the contrary is a criminal offense.**

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**Cowen**

**The date of this prospectus is \_\_\_\_\_, 2018**

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## ABOUT THIS PROSPECTUS SUPPLEMENT

This document contains two parts. The first part is this prospectus supplement, which describes the specific terms of this offering and also supplements and updates information contained in the accompanying prospectus and the documents incorporated by reference into this prospectus supplement and the accompanying prospectus. The second part is the accompanying prospectus, which provides more general information, some of which may not apply to this offering. If the information contained in this prospectus supplement differs or varies from the information contained in the accompanying prospectus, you should rely on the information set forth in this prospectus supplement.

You should rely only on the information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus. We have not, and Cowen has not, authorized anyone else to provide you with information that is in addition to or different from that contained or incorporated by reference in this prospectus supplement and the accompanying prospectus, along with the information contained in any permitted free writing prospectuses we have authorized for use in connection with this offering.

We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus supplement and the accompanying prospectus is accurate only as of the date of this prospectus supplement or the date of the accompanying prospectus, and the information in the documents incorporated by reference in this prospectus supplement and the accompanying prospectus is accurate only as of the date of those respective documents, regardless of the time of delivery of this prospectus supplement and the accompanying prospectus or of any sale of our common stock. Our business, financial condition, results of operations and prospects may have changed since those dates. It is important for you to read and consider all information contained or incorporated by reference in this prospectus supplement and the accompanying prospectus in making your investment decision. You should read both this prospectus supplement and the accompanying prospectus, as well as the documents incorporated by reference into this prospectus supplement and the accompanying prospectus and the additional information described under “Where You Can Find More Information” in this prospectus supplement and in the accompanying prospectus, before investing in our common stock.

Unless the context otherwise requires, references in this prospectus supplement to “Invitae,” the “company,” “we,” “us” and “our” refer to Invitae Corporation and its consolidated subsidiaries.

## PROSPECTUS SUPPLEMENT SUMMARY

*This summary highlights certain information about us and this offering. Because it is a summary, it does not contain all of the information that you should consider before investing. Before investing in our common stock, you should read this entire prospectus supplement and the accompanying prospectus carefully, including the “Risk Factors,” and the financial statements and accompanying notes and other information incorporated by reference in this prospectus supplement and the accompanying prospectus.*

### **Our Company**

Our mission is to bring comprehensive genetic information into mainstream medical practice to improve the quality of healthcare for billions of people. Combining genetic testing services that support patient care throughout life’s journey—from family planning, to proactive health screening, to inherited disease diagnosis—with a unique, rapidly expanding network of patients, healthcare providers, biopharma and advocacy partners, we seek to capture the broad potential of genetics and expand its use across the healthcare continuum.

We offer high quality, comprehensive, affordable genetic testing across multiple clinical areas, including hereditary cancer, cardiology, neurology, pediatrics, metabolic conditions and rare diseases. To augment our offering and realize our mission, we have acquired multiple assets. We acquired four businesses in 2017 and in doing so expanded our suite of genome management offerings and completed our entry into prenatal and perinatal genetic testing.

In 2017, we established a leading position in family health genetic information services through the strategic acquisition of reproductive health testing capabilities. In January 2017, we acquired AltaVoice, formerly PatientCrossroads, a patient-centered data company with a global platform for collecting, curating, coordinating and delivering safeguarded data from patients and clinicians. This acquisition was complemented by the acquisition in June 2017 of Ommdom, Inc. and its product, CancerGene Connect, an end-to-end platform for collecting and managing genetic family histories to deliver personalized genetic risk information. In August 2017, we acquired Good Start Genetics Inc., or Good Start, a molecular diagnostics company focused on preimplantation and carrier screening for inherited disorders. In November 2017, we completed our acquisition of CombiMatrix Corporation, or CombiMatrix, a company which specialized in prenatal diagnosis, miscarriage analysis and pediatric developmental disorders.

We have experienced rapid growth. For the years ended December 31, 2017, 2016 and 2015, our revenue was \$68.2 million, \$25.0 million and \$8.4 million, respectively, and we incurred net losses of \$123.4 million, \$100.3 million and \$89.8 million, respectively. For the six months ended June 30, 2018 and 2017, our revenue was \$65.0 million and \$24.7 million, respectively, and we incurred net losses of \$67.8 million and \$55.5 million, respectively. At June 30, 2018, our accumulated deficit was \$455.1 million. To meet the demands of scaling our business, we increased our number of employees to 688 at June 30, 2018 from 395 on June 30, 2017. We grew our sales force to 109 at June 30, 2018 from 63 at June 30, 2017. We expect headcount will continue to increase in 2018 as we add to the team to support anticipated growth.

Sales of our tests have grown significantly. In 2017, 2016 and 2015, we generated approximately 145,000, 57,000 and 19,000 billable tests, respectively. In the six months ended June 30, 2018, we generated approximately 131,000 billable tests compared to approximately 53,000 billable tests in the same period in 2017. Approximately 29% of the billable tests we performed in the first six months of 2018 were billable to institutions and patients, and the remainder were billable to third-party payers. Many of the gene tests on our assays are tests for which private insurers reimburse. However, when we do not have reimbursement policies or contracts with private insurers, our claims for reimbursement may be denied upon submission, and we must appeal the claims. The appeals process is time consuming and expensive, and may not result in payment. Even if we are successful

in achieving reimbursement, we may be paid at lower rates than if we were under contract with the third-party payer. When there is not a contracted rate for reimbursement, there is typically a greater co-insurance or co-payment requirement from the patient which may result in further delay or decreased likelihood of collection.

We expect to incur operating losses for the near-term future and may need to raise additional capital in order to fund our operations. If we are unable to achieve our revenue growth objectives and successfully manage our costs, we may not be able to achieve profitability.

We believe that the keys to our future growth will be to increase billable test volume, achieve broad reimbursement coverage for our tests from third-party payers, consistently drive down the price for genetic analysis and interpretation, steadily increase the amount of genetic content we offer, consistently improve the client experience, drive physician and patient utilization of our website for ordering and delivery of results and increase the number of strategic partners working with us to add value for our clients.

### **Corporate Information**

We were incorporated in the state of Delaware on January 13, 2010, as Locus Development, Inc. and changed our name to Invitae Corporation in 2012. Our principal executive offices are located at 1400 16th Street, San Francisco, California 94103 and our telephone number is (415) 374-7782. Our website address is [www.invitae.com](http://www.invitae.com). We do not incorporate the information on, or accessible through, our website into this prospectus supplement, and you should not consider any information on, or accessible through, our website as part of this prospectus supplement.

Invitae, and the Invitae logo are our trademarks. This prospectus supplement and the documents incorporated by reference into this prospectus supplement may also contain trademarks and trade names that are the property of their respective owners. We do not intend our use or display of other companies' trade names, trademarks or service marks to imply relationships with, or endorsements or sponsorship of us by, these other companies.

We are an "emerging growth company," as defined in the Jumpstart Our Business Startups Act of 2012. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year following the fifth anniversary of the completion of our initial public offering of common stock (December 31, 2020), (2) the last day of the fiscal year in which we have total annual gross revenue of at least \$1.07 billion, (3) the last day of the fiscal year in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds \$700 million as of the prior June 30th, and (4) the date on which we have issued more than \$1.0 billion in non-convertible debt during the prior three-year period.

## THE OFFERING

Common stock offered by us	7,944,915 shares
Common stock to be outstanding immediately after the offering	76,920,951 shares
Manner of offering	“At the market offering” that may be made from time to time through our sales agent, Cowen and Company, LLC. See “Plan of Distribution.”
Use of proceeds	We currently intend to use the net proceeds from this offering for working capital and general corporate purposes. We may also use a portion of the net proceeds from this offering to acquire or invest in complementary businesses, assets or technologies, although we have no present commitments or agreements to do so. See “Use of Proceeds.”
Risk factors	See “Risk Factors” for a discussion of factors you should consider carefully before deciding to invest in our common stock.
NYSE symbol	“NVTA”

The number of shares of common stock to be outstanding immediately after this offering is based on 68,976,036 shares outstanding as of June 30, 2018 and excludes:

- 4,216,507 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2018 under our equity incentive plans, with a weighted-average exercise price of \$8.50 per share;
- 4,011,941 shares of common stock issuable upon vesting of restricted stock units as of June 30, 2018 under our equity incentive plans;
- 547,104 shares of common stock available for future issuance under our 2015 Stock Incentive Plan;
- 567,707 shares of common stock available for future issuance under our 2015 Employee Stock Purchase Plan;
- 3,458,823 shares of common stock issuable upon the conversion of our Series A convertible preferred stock;
- 444,609 shares of common stock issuable in 2018 in connection with acquisitions and up to 680,272 shares of common stock potentially issuable in connection with an earn-out in 2019, in each case as of June 30, 2018; and
- 1,500,886 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of June 30, 2018, with a weighted-average exercise price of \$17.12 per share.

## RISK FACTORS

*Investing in our common stock involves a high degree of risk. Before making an investment decision, you should carefully consider the risks described below and in our Annual Report on Form 10-K for the year ended December 31, 2017, Quarterly Reports on Form 10-Q and Current Reports on Form 8-K incorporated by reference in this prospectus supplement and the accompanying prospectus, any amendment or update thereto reflected in our subsequent filings with the SEC, and all of the other information in this prospectus supplement and the accompanying prospectus, including our financial statements and related notes incorporated by reference in this prospectus supplement and the accompanying prospectus. If any of these risks is realized, our business, financial condition, results of operations and prospects could be materially and adversely affected. In that event, the trading price of our common stock could decline and you could lose part or all of your investment. Additional risks and uncertainties that are not yet identified or that we think are immaterial may also materially harm our business, operating results and financial condition and could result in a complete loss of your investment.*

### **Risks related to this offering**

#### ***Purchasers in this offering will experience immediate and substantial dilution in the book value of their investment.***

The common stock sold in this offering from time to time will be sold at various prices; however, we expect the price per share of common stock will be substantially higher than the net tangible book value of our common stock. Therefore, purchasers of our common stock in this offering will experience immediate dilution in the net tangible book value of the common stock purchased in this offering. Assuming that an aggregate of 7,944,915 shares of common stock are sold at a public offering price of \$9.44 per share, the last reported sale price of our common stock on The New York Stock Exchange on August 8, 2018, for an aggregate gross proceeds of \$75,000,000 and after deducting estimated commissions and estimated offering expenses payable by us, our adjusted net tangible book value as of June 30, 2018, would have been approximately \$130.9 million, or approximately \$1.70 per share of our common stock. As a result, if you purchase shares of common stock in this offering at that assumed public offering price, you would suffer immediate and substantial dilution of \$7.74 per share with respect to the net tangible book value of the common stock. See “Dilution” in this prospectus supplement for a detailed illustration of the dilution you will incur if you purchase shares in this offering.

#### ***We will have broad discretion in how we use the net proceeds of this offering. We may not use these proceeds effectively, which could affect our results of operations and cause our stock price to decline.***

Although we currently intend to use the net proceeds from this offering in the manner described in the section entitled “Use of Proceeds” in this prospectus supplement, we will have considerable discretion in the application of the net proceeds of this offering. We may use the net proceeds for purposes that do not yield a significant return or any return at all for our stockholders. In addition, pending their use, we may invest the net proceeds from this offering in a manner that does not produce income or that loses value. If we do not invest or apply the net proceeds from this offering in ways that enhance stockholder value, we may fail to achieve expected financial results, which could cause our stock price to decline.

#### ***If we raise additional capital in the future, your ownership in us could be diluted.***

Any issuance of equity we may undertake in the future to raise additional capital could cause the price of our common stock to decline, or require us to issue shares at a price that is lower than that paid by holders of our common stock in the past, which would result in those newly issued shares being dilutive. If we obtain funds through a credit facility or through the issuance of debt or preferred securities, these securities would likely have rights senior to your rights as a common shareholder, which could impair the value of our common stock.

***We have never paid dividends on our capital stock and we do not anticipate paying dividends in the foreseeable future.***

We have never paid dividends on any of our capital stock and currently intend to retain any future earnings to fund the growth of our business. In addition, our loan and security agreement restricts our ability to pay cash dividends on our common stock. Any determination to pay dividends in the future will be at the discretion of our board of directors and will depend on our financial condition, operating results, capital requirements, general business conditions and other factors that our board of directors may deem relevant. As a result, capital appreciation, if any, of our common stock will be the sole source of gain for the foreseeable future.

***Sales of a substantial number of shares of our common stock in the public market could cause our stock price to fall.***

Sales of a substantial number of shares of our common stock in the public market or the perception that these sales might occur could depress the market price of our common stock and could impair our ability to raise capital through the sale of additional equity securities. We are unable to predict the effect that sales may have on the prevailing market price of our common stock. In addition, the sale of substantial amounts of our common stock could adversely impact its price. As of June 30, 2018, we had outstanding 68,976,036 shares of our common stock, options to purchase 4,216,507 shares of our common stock (of which 2,716,615 were exercisable as of that date), outstanding restricted stock units representing 4,011,941 shares of our common stock, outstanding Series A convertible preferred stock convertible into 3,458,823 shares of our common stock, 444,609 shares of our common stock issuable in 2018 in connection with acquisitions, up to 680,272 shares of our common stock potentially issuable in connection with an earn-out in 2019 and warrants to purchase 1,500,886 shares of our common stock. The sale or the availability for sale of a large number of shares of our common stock in the public market could cause the price of our common stock to decline.

## FORWARD-LOOKING STATEMENTS

This prospectus supplement, the accompanying base prospectus and the documents we have filed with the SEC that are incorporated by reference in this prospectus supplement and the accompanying prospectus contain forward-looking statements that involve risks and uncertainties. These statements relate to future periods, future events or our future operating or financial plans or performance. All statements other than statements of fact, including statements identified by words such as “believe,” “may,” “will,” “estimate,” “continue,” “anticipate,” “plan,” “intend,” “expect” and similar expressions are forward-looking statements, and include but are not limited to, statements regarding our expected increases in employee headcount, our strategy; our business plan, including expectations regarding future partnerships, acquisitions and networks; future growth and the keys to such growth; continued investment in our business; future operations; the anticipated use of proceeds from this offering; future operating results and expense levels; and the prospects, plans and objectives of management are forward-looking statements. We have based these forward-looking statements on our current expectations and projections about future events and trends that we believe may affect our financial condition, results of operations, strategy, short- and long-term business operations and objectives, and financial requirements. These statements are subject to known and unknown risks, uncertainties and assumptions that could cause actual results to differ materially from those projected or otherwise implied by the forward-looking statements, including the following: risks associated with our ability to develop and commercialize new tests and expand into new markets; our ability to use rapidly changing genetic data to interpret test results accurately, consistently and quickly; our history of losses; our need to scale our infrastructure in advance of demand for our tests and our ability to increase demand for our tests; our ability to drive revenue; our ability to successfully operationalize payer contracts; our ability to achieve and maintain positive cash flows and to execute our strategy to create a profitable long-term business; the risk that we may not obtain or maintain sufficient levels of reimbursement for our tests; laws and regulations applicable to our business, including potential regulation by the Food and Drug Administration; the risk that Medicare and other payers may change the pricing or other terms for reimbursement, or not reimburse for our tests in the future; and our ability to compete. You should not place undue reliance on these forward-looking statements. We discuss in greater detail, and incorporate by reference into this prospectus supplement and the accompanying prospectus, many of these risks, uncertainties and assumptions under the heading “Risk Factors.” Additional cautionary statements or discussions of risks, uncertainties and assumptions that could affect our results or the achievement of the expectations described in forward-looking statements are also contained in the documents we incorporate by reference into this prospectus supplement and the accompanying prospectus. Any forward-looking statement made by us in this prospectus supplement, the accompanying prospectus, or any of the documents incorporated by reference in this prospectus supplement and the accompanying prospectus speaks only as of the date on which it was made. We expressly disclaim any obligation or undertaking to release publicly any updates or revisions to any forward-looking statements contained herein to reflect any change in our expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based. You should, however, review additional disclosures we make in our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, and Current Reports on Form 8-K filed with the SEC.

You should read this prospectus supplement, the accompanying prospectus, and the documents that we incorporate by reference in this prospectus supplement and the accompanying prospectus completely and with the understanding that our actual future results, levels of activity and performance as well as other events and circumstances may be materially different from what we expect. We qualify all of our forward-looking statements by these cautionary statements.

## USE OF PROCEEDS

We may issue and sell shares of common stock having aggregate sales proceeds of up to \$75,000,000 from time to time in this offering. Because there is no minimum offering amount required as a condition to close this offering, the actual total public offering amount, commissions and net proceeds to us, if any, are not determinable at this time. There can be no assurance that, in the future, we will sell any shares under or fully utilize the sales agreement with Cowen as a source of financing.

We currently intend to use the net proceeds from the sale of common stock offered by this prospectus supplement and the accompanying prospectus for working capital and general corporate purposes. We may also use a portion of the net proceeds from this offering to acquire or invest in complementary businesses, assets or technologies, although we have no present commitments or agreements to do so. Accordingly, we will retain broad discretion over the use of these proceeds. Pending application of the net proceeds as described above, we intend to invest the net proceeds in short- and intermediate-term, interest-bearing obligations, investment-grade instruments, certificates of deposit or direct or guaranteed obligations of the U.S. government.

## DILUTION

If you purchase our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the public offering price per share and the net tangible book value per share of our common stock immediately after this offering. Net tangible book value per share is determined by dividing the number of shares of common stock outstanding as of June 30, 2018 into our total tangible assets less total liabilities.

Our net tangible book value as of June 30, 2018 was approximately \$58.4 million, or \$0.85 per share, based on 68,976,036 shares of our common stock outstanding as of that date. After giving effect to the sale of 7,944,915 shares of common stock by us at an assumed public offering price of \$9.44 per share, the last reported sale price of our common stock on The New York Stock Exchange on August 8, 2018, and after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us, our as adjusted net tangible book value as of June 30, 2018 would have been \$130.9 million, or \$1.70 per share. This represents an immediate increase in net tangible book value of \$0.85 per share to existing stockholders and immediate dilution of \$7.74 per share to investors in this offering, as illustrated by the following table:

Assumed public offering price per share		\$9.44
Net tangible book value per share as of June 30, 2018	\$0.85	
Increase in net tangible book value per share attributable to investors participating in this offering	<u>0.85</u>	
As adjusted net tangible book value per share after giving effect to this offering		<u>1.70</u>
Dilution per share to investors in this offering		<u>\$7.74</u>

The table above assumes for illustrative purposes that an aggregate of 7,944,915 shares of our common stock are sold at a price of \$9.44 per share, the last reported sale price of our common stock on The New York Stock Exchange on August 8, 2018, for aggregate gross proceeds of \$75,000,000. The shares sold in this offering, if any, will be sold from time to time at various prices. A \$1.00 increase or decrease in the price at which the shares are sold from the assumed public offering price of \$9.44 per share, would increase or decrease our as adjusted net tangible book value by approximately \$0.10 per share, and the dilution per share to investors in this offering by approximately \$0.90 per share, after deducting estimated commissions and estimated offering expenses payable by us. The as adjusted information provided above is illustrative only. The common stock sold in this offering, if any, will be sold from time to time at various prices.

The number of shares of common stock to be outstanding immediately after this offering is based on 68,976,036 shares outstanding as of June 30, 2018 and excludes:

- 4,216,507 shares of common stock issuable upon exercise of stock options outstanding as of June 30, 2018 under our equity incentive plans, with a weighted-average exercise price of \$8.50 per share;
- 4,011,941 shares of common stock issuable upon vesting of restricted stock units as of June 30, 2018 under our equity incentive plans;
- 547,104 shares of common stock available for future issuance under our 2015 Stock Incentive Plan;
- 567,707 shares of common stock available for future issuance under our 2015 Employee Stock Purchase Plan;
- 3,458,823 shares of common stock issuable upon the conversion of our Series A convertible preferred stock;
- 444,609 shares of common stock issuable in 2018 in connection with acquisitions and up to 680,272 shares of common stock potentially issuable in connection with an earn-out in 2019, in each case as of June 30, 2018; and

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- 1,500,886 shares of common stock issuable upon the exercise of warrants to purchase common stock outstanding as of June 30, 2018, with a weighted-average exercise price of \$17.12 per share.

To the extent that additional shares are issued pursuant to the foregoing, investors purchasing our common stock in this offering will experience further dilution. In addition, we may offer other securities in other offerings due to market conditions or strategic considerations. To the extent we issue such securities, investors may experience further dilution.

## PLAN OF DISTRIBUTION

We have entered into a sales agreement with Cowen, under which we may issue and sell from time to time up to \$75,000,000 of our common stock through Cowen as our sales agent. Sales of our common stock, if any, will be made at market prices by any method that is deemed to be an “at the market offering” as defined in Rule 415(a)(4) under the Securities Act, including sales made directly on The New York Stock Exchange or any other existing trading market for our common stock. If authorized by us in writing, Cowen may purchase shares of our common stock as principal.

Cowen will offer our common stock subject to the terms and conditions of the sales agreement on a daily basis or as otherwise agreed upon by us and Cowen. We will designate the maximum amount of common stock to be sold through Cowen on a daily basis or otherwise determine such maximum amount together with Cowen. Subject to the terms and conditions of the sales agreement, Cowen will use its commercially reasonable efforts to sell on our behalf all of the shares of common stock requested to be sold by us. We may instruct Cowen not to sell common stock if the sales cannot be effected at or above the price designated by us in any such instruction. Cowen or we may suspend the offering of our common stock being made through Cowen under the sales agreement upon proper notice to the other party. Cowen and we each have the right, by giving written notice as specified in the sales agreement, to terminate the sales agreement in each party’s sole discretion at any time.

The aggregate compensation payable to Cowen as sales agent will be an amount equal to 3.0% of the gross sales price of the shares sold through it pursuant to the sales agreement. We have also agreed to reimburse Cowen (i) up to an aggregate of \$50,000 of Cowen’s actual outside legal expenses incurred by Cowen in connection with this offering and (ii) if applicable, up to an aggregate of \$10,000 of Cowen’s actual outside legal expenses for filings with the FINRA Corporate Financing Department. We estimate that the total expenses of the offering payable by us, excluding commissions payable to Cowen under the sales agreement, will be approximately \$300,000.

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.

Cowen will provide written confirmation to us following the close of trading on The New York Stock Exchange on each day in which common stock is sold through it as sales agent under the sales agreement. Each confirmation will include the number of shares of common stock sold through it as sales agent on that day, the volume weighted average price of the shares sold, the percentage of the daily trading volume and the net proceeds to us.

We will report at least quarterly the number of shares of common stock sold through Cowen under the sales agreement, the net proceeds to us and the compensation paid by us to Cowen in connection with the sales of common stock.

Settlement for sales of common stock will occur, unless the parties agree otherwise or as otherwise required by law, on the second business day that is also a trading day following the date on which any sales were made in return for payment of the net proceeds to us. There is no arrangement for funds to be received in an escrow, trust or similar arrangement.

In connection with the sales of our common stock on our behalf, Cowen will be deemed to be an “underwriter” within the meaning of the Securities Act, and the compensation paid to Cowen will be deemed to be underwriting commissions or discounts. We have agreed in the sales agreement to provide indemnification and contribution to Cowen against certain liabilities, including liabilities under the Securities Act. As sales agent, Cowen will not engage in any transactions that stabilize our common stock.

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Our common stock is listed on The New York Stock Exchange and trades under the symbol “NVT.A.” The transfer agent of our common stock is American Stock Transfer & Trust Company, LLC.

Cowen and/or its affiliates have provided, and may in the future provide, various investment banking and other financial services for us for which services they have received and, may in the future receive, customary fees.

## LEGAL MATTERS

The validity of the common stock offered by this prospectus supplement will be passed upon for us by Pillsbury Winthrop Shaw Pittman LLP, Palo Alto, California. Cowen and Company, LLC is being represented by Cooley LLP, New York, New York, in connection with this offering.

## EXPERTS

Ernst & Young LLP, independent registered public accounting firm, has audited our consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017, as set forth in their report, which is incorporated by reference in this prospectus supplement and elsewhere in this registration statement. Our consolidated financial statements are incorporated by reference in reliance on Ernst & Young LLP's report, given on their authority as experts in accounting and auditing.

The consolidated financial statements of CombiMatrix Corporation as of December 31, 2016 and for the year then ended incorporated by reference in this prospectus supplement have been incorporated by reference in reliance upon the report of Haskell & White LLP, an independent registered public accounting firm, and given on the authority of said firm as experts in accounting and auditing.

## WHERE YOU CAN FIND MORE INFORMATION

We have filed a registration statement on Form S-3 with the SEC under the Securities Act of 1933. This prospectus supplement and the accompanying prospectus is part of the registration statement but the registration statement includes and incorporates by reference additional information and exhibits. We file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy the registration statement and any other document we file with the SEC at the public reference room maintained by the SEC at 100 F Street, N.E., Washington, D.C. 20549. You may obtain information on the operation of the public reference room by calling the SEC at 1-800-SEC-0330. The SEC also maintains a web site that contains reports, proxy and information statements and other information regarding companies, such as ours, that file documents electronically with the SEC. The address of that site on the worldwide web is <http://www.sec.gov>. The information on the SEC's web site is not part of this prospectus supplement and the accompanying prospectus, and any references to this website or any other web site are inactive textual references only.

The SEC permits us to "incorporate by reference" the information contained in documents we file with the SEC, which means that we can disclose important information to you by referring you to those documents rather than by including them in this prospectus supplement and the accompanying prospectus. Information that is incorporated by reference is considered to be part of this prospectus supplement and the accompanying prospectus and you should read it with the same care that you read this prospectus supplement and the accompanying prospectus. Later information that we file with the SEC will automatically update and supersede the information that is either contained, or incorporated by reference, in this prospectus supplement and the accompanying prospectus, and will be considered to be a part of this prospectus supplement and the accompanying prospectus from the date those documents are filed. We have filed with the SEC, and incorporate by reference in this prospectus supplement and the accompanying prospectus:

- our Annual Report on Form 10-K for the year ended December 31, 2017;
- our Quarterly Reports on Form 10-Q for the quarters ended March 31, 2018 and June 30, 2018;

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- our Current Reports on Form 8-K filed with the SEC on November 15, 2017 (as amended by Forms 8-K/A filed with the SEC on January 26, 2018 and March 6, 2018), February 28, 2018, March 13, 2018, April 2, 2018, May 18, 2018, and June 29, 2018; and
- the description of our common stock contained in our Registration Statement on Form 8-A filed on February 11, 2015, including any amendment or report filed for the purpose of updating such description.

We also incorporate by reference all additional documents that we file with the SEC under the terms of Section 13(a), 13(c), 14 or 15(d) of the Exchange Act that are made after the initial filing date of the registration statement of which this prospectus supplement and the accompanying prospectus is a part and the effectiveness of the registration statement, as well as between the date of this prospectus supplement and the termination of any offering of securities offered by this prospectus supplement and the accompanying prospectus. We are not, however, incorporating, in each case, any documents or information that we are deemed to furnish and not file in accordance with SEC rules.

You may request a copy of any or all of the documents incorporated by reference but not delivered with this prospectus supplement and the accompanying prospectus, at no cost, by writing or telephoning us at the following address and number: Investor Relations, Invitae Corporation, 1400 16th Street, San Francisco, California 94103 and (415) 374-7782. We will not, however, send exhibits to those documents, unless the exhibits are specifically incorporated by reference in those documents.

# INVITAE CORPORATION

Up to \$75,000,000

Common Stock

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PROSPECTUS SUPPLEMENT

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Cowen

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, 2018

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**PART II**  
**Information Not Required In Prospectus**

**Item 14. Other Expenses of Issuance and Distribution.**

The following is a statement of estimated expenses in connection with the issuance and distribution of the securities being registered, other than underwriting discounts and commissions.

SEC Registration Fee	\$31,125
NYSE Listing Fees	(1)
Transfer Agent and Registrar, Trustee and Depository Fees	(1)
Printing Expenses	(1)
Legal Fees and Expenses	(1)
Accounting Fees and Expenses	(1)
Miscellaneous	(1)
	<u>\$ (1)</u>

(1) These fees are calculated based on the securities offered and the number of issuances and, accordingly, cannot be estimated at this time.

**Item 15. Indemnification of Directors and Officers.**

Section 102 of the Delaware General Corporation Law (the “DGCL”) allows a corporation to eliminate the personal liability of directors of a corporation to the corporation or its stockholders for monetary damages for breach of fiduciary duty as a director, except where the director breached the duty of loyalty, failed to act in good faith, engaged in intentional misconduct or knowingly violated a law, authorized the payment of a dividend or approved a stock repurchase in violation of the DGCL or obtained an improper personal benefit.

Section 145 of the DGCL provides, among other things, that we may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding—other than an action by or in the right of the Registrant—by reason of the fact that the person is or was a director, officer, agent or employee of the Registrant, or is or was serving at our request as a director, officer, agent or employee of another corporation, partnership, joint venture, trust or other enterprise against expenses, including attorneys’ fees, judgments, fines and amounts paid in settlement actually and reasonably incurred by the person in connection with such action, suit or proceeding. The power to indemnify applies (a) if such person is successful on the merits or otherwise in defense of any action, suit or proceeding, or (b) if such person acting in good faith and in a manner he or she reasonably believed to be in the best interest, or not opposed to the best interest, of the Registrant, and with respect to any criminal action or proceeding had no reasonable cause to believe his or her conduct was unlawful. The power to indemnify applies to actions brought by or in the right of the Registrant as well but only to the extent of defense expenses, including attorneys’ fees but excluding amounts paid in settlement, actually and reasonably incurred and not to any satisfaction of judgment or settlement of the claim itself, and with the further limitation that in such actions no indemnification shall be made in the event of any adjudication of liability to the Registrant, unless the court believes that in light of all the circumstances indemnification should apply.

Section 174 of the DGCL provides, among other things, that a director, who willfully or negligently approves of an unlawful payment of dividends or an unlawful stock purchase or redemption, may be held liable for such actions. A director who was either absent when the unlawful actions were approved or dissented at the time, may avoid liability by causing his or her dissent to such actions to be entered in the books containing minutes of the meetings of the board of directors at the time such action occurred or immediately after such absent director receives notice of the unlawful acts.

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The Registrant's restated certificate of incorporation and amended and restated bylaws, filed as Exhibits 3.1 and 3.2 to the Registrant's Current Report on Form 8-K filed on February 22, 2015, provide that the Registrant shall indemnify its directors, officers, employees and other agents to the fullest extent not prohibited by the DGCL or any other applicable law. In addition, the Registrant has entered into agreements to indemnify its directors and expects to continue to enter into agreements to indemnify all of its directors. These agreements require the Registrant, among other things, to indemnify its directors and officers against certain liabilities which may arise by reason of their status or service as directors or officers to the fullest extent not prohibited by law. These indemnification provisions and the indemnification agreements may be sufficiently broad to permit indemnification of the Registrant's officers and directors for liabilities, including reimbursement of expenses incurred, arising under the Securities Act of 1933.

**Item 16. Exhibits.**

<u>Exhibit No.</u>	<u>Description</u>
1.1*	Form of Underwriting Agreement.
1.2	<a href="#">Sales Agreement, dated as of August 9, 2018, between the Registrant and Cowen and Company, LLC.</a>
4.1	<a href="#">Form of Indenture relating to debt securities.</a>
4.2*	Form of supplemental indenture or other instrument establishing the issuance of one or more series of debt securities (including the form of such debt security).
4.3*	Form of Warrant Agreement and Warrant Certificate.
4.4*	Form of Deposit Agreement.
4.5*	Form of Depositary Receipt (included in Exhibit 4.4).
4.6*	Form of Specimen Preferred Stock Certificate.
4.7*	Form of Rights Agreement and Rights Certificate.
4.8	<a href="#">Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-1 (File No. 333-201433)).</a>
4.9	<a href="#">Amended and Restated Registration Rights Agreement, dated July 31, 2017, between the Registrant and certain investors (incorporated by reference to Exhibit 10.4 to the Registrant's Current Report on Form 8-K filed on August 1, 2017).</a>
5.1	<a href="#">Opinion of Pillsbury Winthrop Shaw Pittman LLP.</a>
5.2	<a href="#">Opinion of Pillsbury Winthrop Shaw Pittman LLP.</a>
12.1	<a href="#">Statement regarding computation of ratios.</a>
23.1	<a href="#">Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.1).</a>
23.2	<a href="#">Consent of Pillsbury Winthrop Shaw Pittman LLP (included in Exhibit 5.2).</a>
23.3	<a href="#">Consent of Independent Registered Public Accounting Firm.</a>
23.4	<a href="#">Consent of Independent Registered Public Accounting Firm</a>
24.1	<a href="#">Power of Attorney (included on the signature page hereof).</a>
25.1+	Form T-1 Statement of Eligibility of the trustee for the debt securities.

\* To be filed by amendment or pursuant to a report to be filed pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934, if applicable, and incorporated herein by reference.

+ To be filed by amendment or pursuant to Trust Indenture Act Section 305(b)(2), if applicable.

**Item 17. Undertakings.**

The undersigned Registrant hereby undertakes:

(1) To file, during any period in which offers or sales are being made, a post-effective amendment to this registration statement:

(i) To include any prospectus required by Section 10(a)(3) of the Securities Act of 1933;

(ii) To reflect in the prospectus any facts or events arising after the effective date of the registration statement (or the most recent post-effective amendment thereof) which, individually or in the aggregate, represent a fundamental change in the information set forth in the registration statement. Notwithstanding the foregoing, any increase or decrease in volume of securities offered (if the total dollar value of securities offered would not exceed that which was registered) and any deviation from the low or high end of the estimated maximum offering range may be reflected in the form of prospectus filed with the Securities and Exchange Commission pursuant to Rule 424(b) if, in the aggregate, the changes in volume and price represent no more than a 20 percent change in the maximum aggregate offering price set forth in the "Calculation of Registration Fee" table in the effective registration statement; and

(iii) To include any material information with respect to the plan of distribution not previously disclosed in the registration statement or any material change to such information in the registration statement;

*provided*, however, that paragraphs (i), (ii) and (iii) above do not apply if the information required to be included in a post-effective amendment by those paragraphs is contained in reports filed with or furnished to the Securities and Exchange Commission by the Registrant pursuant to Section 13 or Section 15(d) of the Securities Exchange Act of 1934 that are incorporated by reference in the registration statement, or is contained in a form of prospectus filed pursuant to Rule 424(b) that is part of the registration statement.

(2) That, for the purpose of determining any liability under the Securities Act of 1933, each such post-effective amendment shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(3) To remove from registration by means of a post-effective amendment any of the securities being registered which remain unsold at the termination of the offering.

(4) That, for the purpose of determining liability under the Securities Act of 1933 to any purchaser:

(A) Each prospectus filed by the Registrant pursuant to Rule 424(b)(3) shall be deemed to be part of the registration statement as of the date the filed prospectus was deemed part of and included in the registration statement; and

(B) Each prospectus required to be filed pursuant to Rule 424(b)(2), (b)(5), or (b)(7) as part of a registration statement in reliance on Rule 430B relating to an offering made pursuant to Rule 415(a)(1)(i), (vii), or (x) for the purpose of providing the information required by Section 10(a) of the Securities Act of 1933 shall be deemed to be part of and included in the registration statement as of the earlier of the date such form of prospectus is first used after effectiveness or the date of the first contract of sale of securities in the offering described in the prospectus. As provided in Rule 430B, for liability purposes of the issuer and any person that is at that date an underwriter, such date shall be deemed to be a new effective date of the registration statement relating to the securities in the registration statement to which that prospectus relates, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof. Provided, however, that no statement made in a registration statement or prospectus that is part of the registration statement or made in a document incorporated or deemed incorporated by reference into the registration statement or prospectus that is

part of the registration statement will, as to a purchaser with a time of contract of sale prior to such effective date, supersede or modify any statement that was made in the registration statement or prospectus that was part of the registration statement or made in any such document immediately prior to such effective date.

(5) That, for the purpose of determining liability of the Registrant under the Securities Act of 1933 to any purchaser in the initial distribution of the securities:

The undersigned Registrant undertakes that in a primary offering of securities of the undersigned Registrant pursuant to this registration statement, regardless of the underwriting method used to sell the securities to the purchaser, if the securities are offered or sold to such purchaser by means of any of the following communications, the undersigned Registrant will be a seller to the purchaser and will be considered to offer or sell such securities to such purchaser:

- (i) Any preliminary prospectus or prospectus of the undersigned Registrant relating to the offering required to be filed pursuant to Rule 424;
- (ii) Any free writing prospectus relating to the offering prepared by or on behalf of the undersigned Registrant or used or referred to by the undersigned Registrant;
- (iii) The portion of any other free writing prospectus relating to the offering containing material information about the undersigned Registrant or its securities provided by or on behalf of the undersigned Registrant; and
- (iv) Any other communication that is an offer in the offering made by the undersigned Registrant to the purchaser.

(6) That, for the purposes of determining any liability under the Securities Act of 1933, each filing of the Registrant's annual report pursuant to Section 13(a) or Section 15(d) of the Securities Exchange Act of 1934 (and, where applicable, each filing of an employee benefit plan's annual report pursuant to Section 15(d) of the Securities Exchange Act of 1934) that is incorporated by reference in the registration statement shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

(7) To file an application for the purpose of determining the eligibility of the trustee to act under subsection (a) of Section 310 of the Trust Indenture Act (the "Act") in accordance with the rules and regulations prescribed by the Commission under Section 305(b)(2) of the Act.

The undersigned Registrant hereby undertakes to supplement the prospectus, after the expiration of the subscription period (if any), to set forth the results of the subscription offer, the transactions by the underwriters during the subscription period, the amount of unsubscribed securities to be purchased by the underwriters, and the terms of any subsequent reoffering thereof. If any public offering by the underwriters is to be made on terms differing from those set forth on the cover page of the prospectus, a post-effective amendment will be filed to set forth the terms of such offering.

Insofar as indemnification for liabilities arising under the Securities Act of 1933 may be permitted to directors, officers and controlling persons of the Registrant pursuant to any charter provision, by law or otherwise, the Registrant has been advised that in the opinion of the Securities and Exchange Commission such indemnification is against public policy as expressed in the Securities Act of 1933 and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the Registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the Registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Securities Act and will be governed by the final adjudication of such issue.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-3 and has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized in the City of San Francisco, State of California, on this 9th day of August, 2018.

Invitae Corporation

By: /s/ Sean E. George, Ph.D.

Sean E. George, Ph.D.

President and Chief Executive Officer

**POWER OF ATTORNEY**

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Sean E. George and Shelly D. Guyer, and each of them, his or her true and lawful attorneys-in-fact and agents, with full power of substitution and resubstitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign any and all amendments, including post-effective amendments, to this Registration Statement, and any registration statement relating to the offering covered by this Registration Statement and filed pursuant to Rule 462(b) under the Securities Act of 1933, and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing requisite and necessary to be done, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that each of said attorneys in fact and agents or their substitute or substitutes may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

<u>Name</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Sean E. George, Ph.D.</u> Sean E. George, Ph.D.	President and Chief Executive Officer, and Director (Principal Executive Officer)	August 9, 2018
<u>/s/ Shelly D. Guyer</u> Shelly D. Guyer	Chief Financial Officer (Principal Financial Officer)	August 9, 2018
<u>/s/ Patricia E. Dumond</u> Patricia E. Dumond	Vice President, Finance (Principal Accounting Officer)	August 9, 2018
<u>/s/ Randal W. Scott, Ph.D.</u> Randall W. Scott, Ph.D.	Executive Chairman of the Board of Directors	August 9, 2018
<u>/s/ Eric Aguiar, M.D.</u> Eric Aguiar, M.D.	Director	August 9, 2018
<u>/s/ Geoffrey S. Crouse</u> Geoffrey S. Crouse	Director	August 9, 2018
<u>/s/ Christine M. Gorjanc</u> Christine M. Gorjanc	Director	August 9, 2018

## INVITAE CORPORATION

\$75,000,000

COMMON STOCKSALES AGREEMENT

August 9, 2018

Cowen and Company, LLC  
599 Lexington Avenue  
New York, NY 10022

Ladies and Gentlemen:

Invitae Corporation, a Delaware corporation (the “**Company**”), confirms its agreement (this “**Agreement**”) with Cowen and Company, LLC (“**Cowen**”), as follows:

1. **Issuance and Sale of Shares.** The Company agrees that, from time to time during the term of this Agreement, on the terms and subject to the conditions set forth herein, it may issue and sell through Cowen, acting as agent and/or principal, shares of the Company’s common stock, \$0.0001 par value per share (the “**Common Stock**”), having an aggregate offering price of up to \$75,000,000.00 (the “**Placement Shares**”). Notwithstanding anything to the contrary contained herein, the parties hereto agree that compliance with the limitation set forth in this **Section 1** on the number of shares of Common Stock issued and sold under this Agreement shall be the sole responsibility of the Company, and Cowen shall have no obligation in connection with such compliance. The issuance and sale of Common Stock through Cowen will be effected pursuant to the Registration Statement (as defined below) being filed by the Company and which will be declared effective by the Securities and Exchange Commission (the “**Commission**”), although nothing in this Agreement shall be construed as requiring the Company to use the Registration Statement (as defined below) to issue the Common Stock.

The Company has filed or will file, in accordance with the provisions of the Securities Act of 1933, as amended, and the rules and regulations thereunder (collectively, the “**Securities Act**”), with the Commission a registration statement on Form S-3, including a base prospectus, relating to certain securities, including the Common Stock, to be issued from time to time by the Company, and which incorporates by reference documents that the Company has filed or will file in accordance with the provisions of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (collectively, the “**Exchange Act**”). The Company has prepared a prospectus supplement specifically relating to the Placement Shares (the “**Prospectus Supplement**”) to the base prospectus included as part of such registration statement. Following the date that such registration statement is declared effective, the Company shall furnish to Cowen, for use by Cowen, copies of the base prospectus included as part of such registration statement, as supplemented by the Prospectus Supplement, relating to the Placement Shares. Except where the context otherwise requires, such registration statement, as amended when it becomes effective, including all documents filed as part thereof or incorporated by reference therein, and including

any information contained in a Prospectus (as defined below) subsequently filed with the Commission pursuant to Rule 424(b) under the Securities Act or deemed to be a part of such registration statement pursuant to Rule 430B or 462(b) of the Securities Act, is herein called the “**Registration Statement**.” The base prospectus, including all documents incorporated therein by reference, included in the Registration Statement, as it may be supplemented by the Prospectus Supplement, in the form in which such base prospectus and/or Prospectus Supplement have most recently been filed by the Company with the Commission pursuant to Rule 424(b) under the Securities Act, together with any “issuer free writing prospectus,” as defined in Rule 433 of the Securities Act regulations (“**Rule 433**”), relating to the Placement Shares that (i) is required to be filed with the Commission by the Company or (ii) is exempt from filing pursuant to Rule 433(d)(5)(i), in each case in the form filed or required to be filed with the Commission or, if not required to be filed, in the form retained in the Company’s records pursuant to Rule 433(g), is herein called the “**Prospectus**.” Any reference herein to the Registration Statement, the Prospectus or any amendment or supplement thereto shall be deemed to refer to and include the documents incorporated by reference therein, and any reference herein to the terms “amend,” “amendment” or “supplement” with respect to the Registration Statement or the Prospectus shall be deemed to refer to and include the filing after the execution hereof of any document with the Commission deemed to be incorporated by reference therein. For purposes of this Agreement, all references to the Registration Statement, the Prospectus or to any amendment or supplement thereto shall be deemed to include any copy filed with the Commission pursuant to the Electronic Data Gathering, Analysis, and Retrieval system or any successor thereto (“**EDGAR**”).

2. **Placements**. Each time that the Company wishes to issue and sell any Placement Shares hereunder (each, a “**Placement**”), it will notify Cowen by email notice (or other method mutually agreed to in writing by the parties) (a “**Placement Notice**”) containing the parameters in accordance with which it desires the Placement Shares to be sold, which shall at a minimum include the number of Placement Shares to be issued, the time period during which sales are requested to be made, any limitation on the number of Placement Shares that may be sold in any one Trading Day (as defined in Section 3) and any minimum price below which sales may not be made, a form of which containing such minimum sales parameters necessary is attached hereto as **Schedule 1**. The Placement Notice shall originate from any of the individuals from the Company set forth on **Schedule 2** (with a copy to each of the other individuals from the Company listed on such schedule), and shall be addressed to each of the individuals from Cowen set forth on **Schedule 2**, as such **Schedule 2** may be amended from time to time. The Placement Notice shall be effective upon receipt by Cowen unless and until (i) in accordance with the notice requirements set forth in Section 4, Cowen declines to accept the terms contained therein for any reason, in its sole discretion, (ii) the entire amount of the Placement Shares thereunder have been sold, (iii) in accordance with the notice requirements set forth in Section 4, the Company suspends or terminates the Placement Notice, (iv) the Company issues a subsequent Placement Notice with parameters superseding those on the earlier dated Placement Notice, or (v) this Agreement has been terminated under the provisions of **Section 11**. The amount of any discount, commission or other compensation to be paid by the Company to Cowen in connection with the sale of the Placement Shares shall be calculated in accordance with the terms set forth in **Schedule 3**. It is expressly acknowledged and agreed that neither the Company nor Cowen will have any obligation whatsoever with respect to a Placement or any Placement Shares unless and until the Company delivers a Placement Notice to Cowen and Cowen does not decline such Placement Notice pursuant to the terms set forth above, and then only upon the terms specified therein and herein. In the event of a conflict between the terms of this Agreement and the terms of a Placement Notice, the terms of the Placement Notice will control.

3. Sale of Placement Shares by Cowen. Subject to the terms and conditions herein set forth, upon the Company's delivery of a Placement Notice, and unless the sale of the Placement Shares described therein has been declined, suspended, or otherwise terminated in accordance with the terms of this Agreement, Cowen, for the period specified in the Placement Notice, will use its commercially reasonable efforts consistent with its normal trading and sales practices and applicable state and federal laws, rules and regulations and the rules of the New York Stock Exchange (the "**NYSE**") to sell such Placement Shares up to the amount specified in such Placement Notice, and otherwise in accordance with the terms of such Placement Notice. Cowen will provide written confirmation to the Company (including by email correspondence to each of the individuals of the Company set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) no later than the opening of the Trading Day (as defined below) immediately following the Trading Day on which it has made sales of Placement Shares hereunder setting forth the number of Placement Shares sold on such day, the volume-weighted average price of the Placement Shares sold, and the Net Proceeds (as defined below) payable to the Company. Subject to the terms of a Placement Notice, Cowen may sell Placement Shares by any method permitted by law deemed to be an "at the market offering" as defined in Rule 415(a)(4) of the Securities Act, including without limitation sales made through the NYSE or on any other existing trading market for the Common Stock. Notwithstanding the provisions of Section 6(ddd), Cowen shall not purchase Placement Shares for its own account as principal unless expressly authorized to do so by the Company in a Placement Notice. The Company acknowledges and agrees that (i) there can be no assurance that Cowen will be successful in selling Placement Shares, and (ii) Cowen will incur no liability or obligation to the Company or any other person or entity if it does not sell Placement Shares for any reason other than a failure by Cowen to use its commercially reasonable efforts consistent with its normal trading and sales practices to sell such Placement Shares as required under this Section 3. For the purposes hereof, "**Trading Day**" means any day on which the Company's Common Stock is purchased and sold on the principal market on which the Common Stock is listed or quoted.

4. Suspension of Sales.

(a) The Company or Cowen may, upon notice to the other party in writing (including by email correspondence to each of the individuals of the other party set forth on **Schedule 2**, if receipt of such correspondence is actually acknowledged by any of the individuals to whom the notice is sent, other than via auto-reply) or by telephone (confirmed immediately by verifiable facsimile transmission or email correspondence to each of the individuals of the other party set forth on **Schedule 2**), suspend any sale of Placement Shares; *provided, however*, that such suspension shall not affect or impair either party's obligations with respect to any Placement Shares sold hereunder prior to the receipt of such notice. Each of the parties agrees that no such notice under this Section 4 shall be effective against the other unless it is made to one of the individuals named on **Schedule 2** hereto, as such schedule may be amended from time to time.

(b) Notwithstanding any other provision of this Agreement, during any period in which the Company is in possession of material non-public information, the Company and Cowen agree that (i) no sale of Placement Shares will take place, (ii) the Company shall not request the sale of any Placement Shares, and (iii) Cowen shall not be obligated to sell or offer to sell any Placement Shares.

(c) If either Cowen or the Company has reason to believe that the exemptive provisions set forth in Rule 101(c)(1) of Regulation M under the Exchange Act are not satisfied with respect to the Common Stock, it shall promptly notify the other party, and Cowen may, at its sole discretion, suspend sales of the Placement Shares under this Agreement.

(d) Notwithstanding any other provision of this Agreement, during any period in which the Registration Statement is no longer effective under the Securities Act, the Company shall promptly notify Cowen, the Company shall not request the sale of any Placement Shares, and Cowen shall not be obligated to sell or offer to sell any Placement Shares.

5. Settlement.

(a) Settlement of Placement Shares. Unless otherwise specified in the applicable Placement Notice, settlement for sales of Placement Shares will occur on the second (2nd) Trading Day (or such earlier day as is industry practice for regular-way trading) following the date on which such sales are made (each, a “**Settlement Date**” and the first such settlement date, the “**First Delivery Date**”). The amount of proceeds to be delivered to the Company on a Settlement Date against receipt of the Placement Shares sold (the “**Net Proceeds**”) will be equal to the aggregate sales price received by Cowen at which such Placement Shares were sold, after deduction for (i) Cowen’s commission, discount or other compensation for such sales payable by the Company pursuant to Section 2 hereof, (ii) any other amounts due and payable by the Company to Cowen hereunder pursuant to Section 7(g) (Expenses) hereof, and (iii) any transaction fees imposed by any governmental or self-regulatory organization in respect of such sales.

(b) Delivery of Placement Shares. On or before each Settlement Date, the Company will, or will cause its transfer agent to, electronically transfer the Placement Shares being sold by crediting Cowen’s or its designee’s account (*provided* that Cowen shall have given the Company written notice of such designee at least one Trading Day prior to the Settlement Date) at The Depository Trust Company through its Deposit and Withdrawal at Custodian System or by such other means of delivery as may be mutually agreed upon by the parties hereto which in all cases shall be freely tradeable, transferable, registered shares in good deliverable form. On each Settlement Date, Cowen will deliver the related Net Proceeds in same day funds to an account designated by the Company on, or prior to, the Settlement Date. The Company agrees that if the Company, or its transfer agent (if applicable), defaults in its obligation to deliver duly authorized Placement Shares on a Settlement Date, the Company agrees that in addition to and in no way limiting the rights and obligations set forth in Section 9(a) (Indemnification and Contribution) hereto, it will (i) hold Cowen harmless against any loss, claim, damage, or reasonable and documented expense (including reasonable and documented legal fees and expenses), as incurred, arising out of or in connection with such default by the Company and (ii) pay to Cowen (without duplication) any commission, discount, or other compensation to which it would otherwise have been entitled absent such default.

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6. Representations and Warranties of the Company. The Company represents and warrants to, and agrees with, Cowen that, unless such representation and warranty specifies a different time, as of the date of this Agreement, each Representation Date (as defined in Section 7(m)), each date on which a Placement Notice is given, and any date on which Placement Shares are sold hereunder:

(a) Compliance with Registration Requirements. The Registration Statement and any Rule 462(b) Registration Statement has been or will be declared effective by the Commission under the Securities Act prior to the delivery of any Placement Notice by the Company. The Company has complied to the Commission's satisfaction with all requests of the Commission for additional or supplemental information in connection therewith. No stop order suspending the effectiveness of the Registration Statement or any Rule 462(b) Registration Statement is in effect and no proceedings for such purpose have been instituted or are pending or, to the knowledge of the Company, threatened by the Commission. The Company meets the requirements for use of Form S-3 under the Securities Act. The sale of the Placement Shares hereunder meets the requirements of General Instruction I.B.1 of Form S-3.

(b) No Misstatement or Omission. The Prospectus when filed complied and, as amended or supplemented, if applicable, will comply in all material respects with the Securities Act. Each of the Registration Statement, any Rule 462(b) Registration Statement, the Prospectus and any post-effective amendments or supplements thereto, at the time it became effective or its date, as applicable, complied and as of each of the Settlement Dates, if any, will comply in all material respects with the Securities Act and did not and, as of each Settlement Date, if any, will not contain any untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading. The Prospectus, as amended or supplemented, as of its date, did not and, as of each of the Settlement Dates, if any, will not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. The representations and warranties set forth in the two immediately preceding sentences do not apply to statements in or omissions from the Registration Statement, any Rule 462(b) Registration Statement, or any post-effective amendment thereto, or the Prospectus, or any amendments or supplements thereto, made in reliance upon and in conformity with information relating to Cowen furnished to the Company in writing by Cowen expressly for use therein. There are no contracts or other documents required to be described in the Prospectus or to be filed as exhibits to the Registration Statement which have not been described or filed as required.

(c) Offering Materials Furnished to Cowen. The Company has delivered to Cowen one complete copy of the Registration Statement and a copy of each consent and certificate of experts filed as a part thereof, and conformed copies of the Registration Statement (without exhibits) and the Prospectus, as amended or supplemented, in such quantities and at such places as Cowen has reasonably requested.

(d) Emerging Growth Company. From the time of initial confidential submission of the registration statement relating to the Company's initial public offering to the Commission (or, if earlier, the first date on which the Company engaged directly or through any person authorized to act on its behalf in any Testing-the-Waters Communication) through the date hereof, the Company has been and is an "emerging growth company," as defined in Section 2(a) of the Securities Act (an "Emerging Growth Company").

(e) Incorporated Documents. The documents incorporated by reference in the Registration Statement and the Prospectus, when they were filed with the Commission conformed in all material respects to the requirements of the Exchange Act, and none of such documents contained any untrue statement of a material fact or omitted to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading; and any further documents so filed and incorporated by reference in the Registration Statement or the Prospectus, when such documents are filed with the Commission, will conform in all material respects to the requirements of the Exchange Act and will not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

(f) Financial Statements. The financial statements (including the related notes thereto) of the Company and its consolidated subsidiaries and CombiMatrix Corporation included or incorporated by reference in the Registration Statement and the Prospectus comply in all material respects with the applicable requirements of the Securities Act and the Exchange Act, as applicable, and present fairly, in all material respects, the financial position of the Company and its consolidated subsidiaries and CombiMatrix Corporation as of the dates indicated and the results of their operations and the changes in their cash flows for the periods specified; such financial statements have been prepared in conformity with generally accepted accounting principles in the United States (“**GAAP**”) applied on a consistent basis throughout the periods covered thereby, and any supporting schedules included or incorporated by reference in the Registration Statement present fairly, in all material respects, the information required to be stated therein; and the other financial information included or incorporated by reference in the Registration Statement and the Prospectus has been derived from the accounting records of the Company and its consolidated subsidiaries and CombiMatrix Corporation and presents fairly the information shown thereby.

(g) No Material Adverse Change. Since the date of the most recent financial statements of the Company included or incorporated by reference in the Registration Statement and the Prospectus, (i) there has not been any change in the capital stock (other than the issuance of shares of Common Stock upon exercise of stock options and warrants described as outstanding in, the grant of options and awards under existing equity incentive plans described in, and the issuance of Common Stock in connection with acquisitions described in, the Registration Statement and the Prospectus), short-term debt or long-term debt of the Company or any of its subsidiaries, or any dividend or distribution of any kind declared, set aside for payment, paid or made by the Company on any class of capital stock, or any material adverse change, or any development that would reasonably be expected to result in a material adverse change, in or affecting the business, properties, management, financial position, stockholders’ equity, results of operations or prospects of the Company and its subsidiaries taken as a whole; (ii) neither the Company nor any of its subsidiaries has entered into any transaction or agreement (whether or not in the ordinary course of business) that is material to the Company and its subsidiaries taken as a whole or incurred any liability or obligation, direct or contingent, that is material to the Company and its subsidiaries taken as a whole; and (iii) neither the Company nor any of its subsidiaries has sustained any loss or interference with its business that is material to the Company and its subsidiaries taken as a whole and that is either from fire, explosion, flood or other calamity, whether or not covered by insurance, or from any labor disturbance or dispute or any action, order or decree of any court or arbitrator or governmental or regulatory authority, except in each case as otherwise disclosed in the Registration Statement and the Prospectus.

(h) Organization and Good Standing. The Company and each of its subsidiaries have been duly organized and are validly existing and in good standing under the laws of their respective jurisdictions of organization, are duly qualified to do business and are in good standing in each jurisdiction in which their respective ownership or lease of property or the conduct of their respective businesses requires such qualification, and have all power and authority necessary to own or hold their respective properties and to conduct the businesses in which they are engaged, except where the failure to be so qualified or in good standing or have such power or authority would not, individually or in the aggregate, have a material adverse effect on the business, properties, management, financial position, stockholders' equity, results of operations or prospects of the Company and its subsidiaries taken as a whole or on the performance by the Company of its obligations under this Agreement (a "**Material Adverse Effect**"). Except as disclosed in the Registration Statement and the Prospectus, the Company does not own or control, directly or indirectly, any corporation, association or other entity other than the subsidiaries listed in Exhibit 21 to the Company's most recently filed Annual Report on Form 10-K. The subsidiaries listed in **Schedule 4** to this Agreement are the only significant subsidiaries of the Company as of the end of the Company's most recently completed fiscal year.

(i) Capitalization. The Company has an authorized capitalization as set forth in the Registration Statement and the Prospectus under the heading "Description of Capital Stock"; all the outstanding shares of capital stock of the Company have been duly and validly authorized and issued and are fully paid and non-assessable and are not subject to any pre-emptive or similar rights; except as described in or expressly contemplated by the Prospectus, there are no outstanding rights (including, without limitation, pre-emptive rights), warrants or options to acquire, or instruments convertible into or exchangeable for, any shares of capital stock or other equity interest in the Company or any of its subsidiaries, or any contract, commitment, agreement, understanding or arrangement of any kind relating to the issuance of any capital stock of the Company or any such subsidiary, any such convertible or exchangeable securities or any such rights, warrants or options; the capital stock of the Company conforms in all material respects to the description thereof contained in the Registration Statement and the Prospectus; and all the outstanding shares of capital stock or other equity interests of each subsidiary owned, directly or indirectly, by the Company have been duly and validly authorized and issued, are fully paid and non-assessable (except, in the case of any foreign subsidiary, for directors' qualifying shares) and are owned directly or indirectly by the Company, free and clear of any lien, charge, encumbrance, security interest, restriction on voting or transfer or any other claim of any third party.

(j) Stock Options. With respect to the stock options (the "**Stock Options**") granted pursuant to the stock-based compensation plans of the Company and its subsidiaries (the "**Company Stock Plans**"), (i) each Stock Option intended to qualify as an "incentive stock option" under Section 422 of the Internal Revenue Code of 1986, as amended (the "**Code**") so qualifies, (ii) each grant of a Stock Option was duly authorized no later than the date on which the grant of such Stock Option was by its terms to be effective by all necessary corporate action, including, as applicable, approval by the board of directors of the Company (or a duly constituted and authorized committee thereof) and any required stockholder approval by the necessary number of votes or written consents, and the award agreement governing such grant (if any) was duly executed and delivered by each party thereto, (iii) each such grant was made in accordance with the terms of the Company Stock Plans and, to the extent applicable, the Exchange Act and the rules of the NYSE, and (iv) each such grant was properly accounted for in accordance with GAAP in the financial statements (including the related notes) of the Company. Each Company Stock Plan is accurately described in all material respects in the Registration Statement and the Prospectus.

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(k) Due Authorization. The Company has full right, power and authority to execute and deliver this Agreement and to perform its obligations hereunder; and all action required to be taken for the due and proper authorization, execution and delivery by it of this Agreement and the consummation by it of the transactions contemplated hereby has been duly and validly taken.

(l) Sales Agreement. This Agreement has been duly authorized, executed and delivered by the Company.

(m) The Placement Shares. The Placement Shares to be issued and sold by the Company hereunder have been duly authorized by the Company and, when issued and delivered and paid for as provided herein, will be duly and validly issued, will be fully paid and nonassessable and will conform to the descriptions thereof in the Registration Statement and the Prospectus; and the issuance of the Placement Shares is not subject to any preemptive or similar rights.

(n) No Violation or Default. Neither the Company nor any of its subsidiaries is (i) in violation of its charter or by-laws or similar organizational documents; (ii) in default, and no event has occurred that, with notice or lapse of time or both, would constitute such a default, in the due performance or observance of any term, covenant or condition contained in any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject; or (iii) in violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of clauses (ii) and (iii) above, for any such default or violation that would not, individually or in the aggregate, have a Material Adverse Effect.

(o) No Conflicts. The execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Placement Shares and the consummation by the Company of the transactions contemplated by this Agreement will not (i) conflict with or result in a breach or violation of any of the terms or provisions of, or constitute a default under, or result in the creation or imposition of any lien, charge or encumbrance upon any property or assets of the Company or any of its subsidiaries pursuant to, any indenture, mortgage, deed of trust, loan agreement or other agreement or instrument to which the Company or any of its subsidiaries is a party or by which the Company or any of its subsidiaries is bound or to which any of the property or assets of the Company or any of its subsidiaries is subject, (ii) result in any violation of the provisions of the charter or by-laws or similar organizational documents of the Company or any of its subsidiaries or (iii) result in the violation of any law or statute or any judgment, order, rule or regulation of any court or arbitrator or governmental or regulatory authority, except, in the case of clauses (i) and (iii) above, for any such conflict, breach, violation or default that would not, individually or in the aggregate, have a Material Adverse Effect.

(p) No Consents Required. No consent, filing, approval, authorization, order, license, registration or qualification of or with any court or arbitrator or governmental or regulatory authority is required for the execution, delivery and performance by the Company of this Agreement, the issuance and sale of the Placement Shares and the consummation of the transactions contemplated by this Agreement, except for the registration of the Placement Shares under the Securities Act and such consents, approvals, authorizations, orders and registrations or qualifications as may be required by the Financial Industry Regulatory Authority, Inc. (“FINRA”), the NYSE and under applicable state securities laws in connection with the purchase and distribution of the Placement Shares by Cowen.

(q) Legal Proceedings. Except as described in the Registration Statement and the Prospectus: (x) there are no legal, governmental or regulatory investigations, actions, suits or proceedings pending to which the Company or any of its subsidiaries is or may be a party or to which any property of the Company or any of its subsidiaries is or may be the subject that, individually or in the aggregate, if determined adversely to the Company or any of its subsidiaries, could reasonably be expected to have a Material Adverse Effect or have a material adverse effect on the power or ability of the Company to perform its obligations under this Agreement or to consummate the transactions contemplated hereby; (y) to the knowledge of the Company, no such investigations, actions, suits or proceedings are threatened or contemplated by any governmental or regulatory authority or threatened by others; and (z) (i) there are no current or pending legal, governmental or regulatory actions, suits or proceedings that are required under the Securities Act to be described in the Registration Statement or the Prospectus that are not so described in the Registration Statement and the Prospectus and (ii) there are no statutes, regulations or contracts or other documents that are required under the Securities Act to be filed as exhibits to the Registration Statement or described in the Registration Statement or the Prospectus that are not so filed as exhibits to the Registration Statement or described in the Registration Statement and the Prospectus.

(r) Independent Accountants. Ernst & Young LLP, who has certified certain financial statements of the Company and its subsidiaries, is an independent registered public accounting firm with respect to the Company and its subsidiaries within the applicable rules and regulations adopted by the Commission and the Public Company Accounting Oversight Board (United States) and as required by the Securities Act.

(s) Title to Real and Personal Property. The Company and its subsidiaries have good and marketable title in fee simple (in the case of real property) to, or have valid and marketable rights to lease or otherwise use, all items of real and personal property and assets that are material to the respective businesses of the Company and its subsidiaries, in each case free and clear of all liens, encumbrances, claims and defects and imperfections of title except those that (i) do not materially interfere with the use made and proposed to be made of such property by the Company and its subsidiaries, (ii) could not reasonably be expected, individually or in the aggregate, to have a Material Adverse Effect or (iii) result from the lease of such property and assets, to the extent applicable.

(t) Title to Intellectual Property. Except as described in the Registration Statement and the Prospectus or as could not reasonably be expected to result in a Material Adverse Effect, to the Company’s knowledge (i) the Company and its subsidiaries own, possess, license or can acquire or license on reasonable terms all material patents, patent applications, trademarks, service marks, trade names, trademark registrations, service mark registrations, copyrights, licenses and know-how (including trade secrets and other unpatented and/or unpatentable proprietary or confidential information, systems or procedures) necessary for the conduct of their respective businesses as currently conducted and as proposed to be conducted in the manner described in the Registration

Statement and the Prospectus (collectively, “**Intellectual Property**”), and (ii) the conduct of their respective businesses does not and will not conflict in any material respect with any valid and enforceable Intellectual Property rights of others. Except as described in the Registration Statement and the Prospectus, the Company and its subsidiaries have not received any notice of any claim of infringement, misappropriation or conflict with any intellectual property rights of another in connection with its patents, patent applications, patent rights, licenses, inventions, trademarks, service marks, trade names, copyrights and know-how which could reasonably be expected to result in a Material Adverse Effect, and the Company is unaware of any facts which would form a reasonable basis for any such notice or claim. To the Company’s knowledge, (i) there are no third party rights to any of the Intellectual Property that is disclosed in the Registration Statement and the Prospectus as owned by the Company (the “**Company Intellectual Property**”); and (ii) there is no material infringement by third parties of any of the Company Intellectual Property. Except as disclosed in the Registration Statement and the Prospectus or as could not reasonably be expected to result in a Material Adverse Effect, there is no pending or, to the Company’s knowledge, threatened action, suit, proceeding or claim by others: (A) challenging the Company’s rights in or to any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; (B) challenging the validity, enforceability or scope of any Intellectual Property, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim; or (C) asserting that the Company or its subsidiaries infringe, misappropriate, or otherwise violate, or would, upon the commercialization of any product or service described in the Registration Statement and the Prospectus as under development, infringe, misappropriate, or otherwise violate, any intellectual property rights of others, and the Company is unaware of any facts which would form a reasonable basis for any such action, suit, proceeding or claim. To the knowledge of the Company, the Company and its subsidiaries have complied with the terms of each agreement pursuant to which Intellectual Property has been licensed to the Company or its subsidiaries, and all such agreements are in full force and effect. To the Company’s knowledge, and except as is disclosed in the Registration Statement and the Prospectus, there are no material defects in any of the patents or patent applications included in the Company Intellectual Property.

(u) **Trade Secrets**. The Company and its subsidiaries have taken reasonable and customary actions to protect their rights in and prevent the unauthorized use and disclosure of material trade secrets and confidential business information (including confidential source code, ideas, research and development information, know-how, formulas, compositions, technical data, designs, drawings, specifications, research records, records of inventions, test information, financial, marketing and business data, customer and supplier lists and information, pricing and cost information, business and marketing plans and proposals) owned by the Company and its subsidiaries, and, to the knowledge of the Company, there has been no material unauthorized use or disclosure.

(v) **IT Assets**. Except as could not reasonably be expected to have a Material Adverse Effect, (i) the computers, software, servers, networks, data communications lines, and other information technology systems owned, licensed, leased or otherwise used by the Company or its subsidiaries (excluding any public networks) (collectively, the “**IT Assets**”) operate and perform as is reasonably necessary for the operation of the business of the Company and its subsidiaries as currently conducted and as proposed to be conducted as described in the Registration Statement and the Prospectus, and (ii) to the Company’s knowledge such IT Assets are not infected by viruses, disabling code or other harmful code.

(w) Data Privacy and Security Laws. The Company and its subsidiaries are, and at all prior times were, in material compliance with all applicable state and federal data privacy and security laws and regulations, including without limitation the Health Insurance Portability and Accountability Act of 1996 (“HIPAA”) as amended by the Health Information Technology for Economic and Clinical Health Act (the “HITECH Act”) (collectively, the “Privacy Laws”). To ensure compliance with the Privacy Laws, the Company and its subsidiaries have in place, comply with, and take appropriate steps reasonably designed to ensure compliance in all material respects with their policies and procedures relating to data privacy and security and the collection, storage, use, disclosure, handling, and analysis of Personal Data (the “Policies”). “Personal Data” means (i) a natural person’s name, street address, telephone number, e-mail address, photograph, social security number or tax identification number, driver’s license number, passport number, credit card number, bank information, or customer or account number; (ii) any information which would qualify as “personally identifying information” under the Federal Trade Commission Act, as amended; (iii) Protected Health Information as defined by HIPAA; and (iv) any other piece of information that allows the identification of such natural person, or his or her family, or permits the collection or analysis of any data related to an identified person’s health or sexual orientation. The Company and its subsidiaries have at all times made all disclosures to users or customers required by applicable laws and regulatory rules or requirements, and no disclosure made pursuant to any Policy has, to the knowledge of the Company, been inaccurate or in violation of any applicable laws and regulatory rules or requirements in any material respect. The Company further certifies that neither it nor any subsidiary: (i) has received notice of any actual or potential material liability under or relating to, or actual or potential material violation of, any of the Privacy Laws, and has no knowledge of any event or condition that would reasonably be expected to result in any such notice; (ii) is currently conducting or paying for, in whole or in part, any investigation, remediation or other corrective action pursuant to any Privacy Law; or (iii) is a party to any order, decree, or agreement that imposes any obligation or liability under any Privacy Law.

(x) No Complaints. There is no complaint, audit, proceeding, investigation (formal or informal) or claim currently pending against the Company or its subsidiaries, or to the knowledge of the Company, any of its customers (specific to the customer’s use of the products or services of the Company) by the Federal Trade Commission, the U.S. Department of Health and Human Services and any office contained therein (“HHS”), or any similar authority in any jurisdiction other than the United States or any other governmental entity, or by any person with respect to the collection, use or disclosure of Personal Data by the Company or its subsidiaries, and, to the knowledge of the Company, no such complaint, audit, proceeding, investigation or claim is threatened.

(y) Clinical Data. The descriptions of the results of any studies and tests conducted by or on behalf of, or sponsored by, the Company or its subsidiaries, or in which the Company has participated, that are described in the Registration Statement and the Prospectus, or the results of which are referred to in the Registration Statement and the Prospectus do not contain any misstatement of material fact or omit to state a material fact necessary to make such statements not misleading. The Company has no knowledge of any studies or tests not described in the Registration Statement and the Prospectus the results of which reasonably call into question in any material respect the results of the studies, tests and trials described in the Registration Statement or Prospectus.

(z) Compliance with Health Care Laws. The Company and its subsidiaries are, and at all times have been, in compliance in all material respects with all applicable Health Care Laws. For purposes of this Agreement, "Health Care Laws" means: (i) the Federal Food, Drug, and Cosmetic Act and the regulations promulgated thereunder; (ii) all applicable federal, state, local and foreign health care laws, including, without limitation, the Clinical Laboratory Improvement Amendments of 1988 (42 U.S.C. Section 263a et seq.), the U.S. Anti-Kickback Statute (42 U.S.C. Section 1320a-7b(b)), the Anti-Inducement Law (42 U.S.C. § 1320a-7a(a)(5)), the U.S. Civil False Claims Act (31 U.S.C. Section 3729 et seq.), the criminal False Statements Law (42 U.S.C. Section 1320a-7b(a)), 18 U.S.C. Sections 286 and 287, the health care fraud criminal provisions under HIPAA (42 U.S.C. Section 1320d et seq.), the Stark Law (42 U.S.C. Section 1395nn), the civil monetary penalties law (42 U.S.C. Section 1320a-7a), the exclusion laws, laws governing government funded or sponsored healthcare programs, and the directives and regulations promulgated pursuant to such statutes and any state or non-U.S. counterpart thereof; (iii) HIPAA, as amended by the HITECH Act (42 U.S.C. Section 17921 et seq.); (iv) the Patient Protection and Affordable Care Act of 2010, as amended by the Health Care and Education Affordability Reconciliation Act of 2010, the regulations promulgated thereunder; (v) licensure, quality, safety and accreditation requirements under applicable federal, state, local or foreign laws or regulatory bodies; and (vi) all other local, state, federal, national, supranational and foreign laws, relating to the regulation of the Company or its subsidiaries. Neither the Company, any of its subsidiaries, nor to the Company's knowledge, any of its officers, directors, employees or agents have engaged in activities which are, as applicable, cause for material liability under a Health Care Law. Neither the Company nor any of its subsidiaries has received written notice of any claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action from any court or arbitrator or governmental or regulatory authority or third party alleging a material violation of any Health Care Laws nor, to the Company's knowledge, is any such claim, action, suit, proceeding, hearing, enforcement, investigation, arbitration or other action threatened. The Company and its subsidiaries have filed, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required by the applicable Health Care Laws, and all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were complete and accurate on the date filed in all material respects (or were corrected or supplemented by a subsequent submission). Neither the Company nor any of its subsidiaries is a party to any corporate integrity agreements, monitoring agreements, consent decrees, settlement orders, or similar agreements with or imposed by any governmental or regulatory authority. Additionally, neither the Company, any of its subsidiaries nor any of their respective employees, officers, directors, or agents has been excluded, suspended or debarred from participation in any U.S. federal health care program or human clinical research or, to the knowledge of the Company, is subject to a governmental inquiry, investigation, proceeding, or other similar action that could reasonably be expected to result in debarment, suspension, or exclusion.

(aa) Clinical Laboratory Tests. The Company's clinical laboratory tests are conducted in compliance in all material respects with all applicable Health Care Laws, and, to the extent applicable, the respective counterparts thereof promulgated by governmental authorities in countries outside the United States. The Company has not received notice from the FDA, HHS or other governmental authority alleging or asserting material noncompliance with any applicable Health Care Law. To the Company's knowledge, neither the FDA nor any other governmental authority is considering such action.

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(bb) No Undisclosed Relationships. No relationship, direct or indirect, exists between or among the Company or any of its subsidiaries, on the one hand, and the directors, officers or stockholders of the Company or, to the knowledge of the Company, the customers or suppliers of the Company or any of its subsidiaries, on the other, that is required by the Securities Act to be described in the Registration Statement and the Prospectus and that is not so described in such documents.

(cc) Investment Company Act. The Company is not and, after giving effect to the offering and sale of the Placement Shares and the application of the proceeds thereof as described in the Registration Statement and the Prospectus, will not be required to register as an “investment company” or an entity “controlled” by an “investment company” within the meaning of the Investment Company Act of 1940, as amended, and the rules and regulations of the Commission thereunder (collectively, the “**Investment Company Act**”).

(dd) Taxes. The Company and its subsidiaries have paid all federal, state, local and foreign taxes and filed all tax returns required to be paid or filed through the date hereof; and except as otherwise disclosed in the Registration Statement and the Prospectus, there is no tax deficiency that has been, or could reasonably be expected to be, asserted against the Company or any of its subsidiaries or any of their respective properties or assets.

(ee) Licenses and Permits. The Company and its subsidiaries possess all licenses, certificates, permits and other authorizations issued by, and have made all declarations and filings with, the appropriate federal, state, local or foreign governmental or regulatory authorities that are necessary for the ownership or lease of their respective properties or the conduct of their respective businesses as described in the Registration Statement and the Prospectus, except where the failure to possess or make the same would not, individually or in the aggregate, have a Material Adverse Effect; and except as described in the Registration Statement and the Prospectus, neither the Company nor any of its subsidiaries has received notice of any revocation or modification of any such license, certificate, permit or authorization or has any reason to believe that any such license, certificate, permit or authorization will not be renewed in the ordinary course. To the Company’s knowledge, no party granting any such licenses, certificates, permits and other authorizations has taken any action to limit, suspend or revoke the same in any material respect. The Company and its subsidiaries have filed, obtained, maintained or submitted all material reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments as required and that all such reports, documents, forms, notices, applications, records, claims, submissions and supplements or amendments were materially complete and correct on the date filed (or were corrected or supplemented by a subsequent submission) as required for maintenance of their licenses, certificates, permits and other authorizations that are necessary for the conduct of their respective businesses.

(ff) No Labor Disputes. No labor disturbance by or dispute with employees of the Company or any of its subsidiaries exists or, to the knowledge of the Company, is contemplated or threatened, and the Company is not aware of any existing or imminent labor disturbance by, or dispute with, the employees of any of its or its subsidiaries’ principal suppliers, contractors or customers, except as would not have a Material Adverse Effect.

(gg) Compliance with and Liability under Environmental Laws. (i) The Company and its subsidiaries (a) are, and at all prior times were, in material compliance with any and all applicable federal, state, local and foreign laws, rules, regulations, requirements, decisions, judgments, decrees, orders and the common law relating to pollution or the protection of the environment, natural resources or human health or safety, including those relating to the generation, storage, treatment, use, handling, transportation, Release or threat of Release of Hazardous Materials (collectively, “**Environmental Laws**”), (b) have received and are in compliance with all permits, licenses, certificates or other authorizations or approvals required of them under applicable Environmental Laws to conduct their respective businesses, (c) have not received notice of any actual or potential liability under or relating to, or actual or potential violation of, any Environmental Laws, including for the investigation or remediation of any Release or threat of Release of Hazardous Materials, and have no knowledge of any event or condition that would reasonably be expected to result in any such notice, (d) are not conducting or paying for, in whole or in part, any investigation, remediation or other corrective action pursuant to any Environmental Law at any location, and (e) are not a party to any order, decree or agreement that imposes any obligation or liability under any Environmental Law, and (ii) there are no costs or liabilities associated with Environmental Laws of or relating to the Company or its subsidiaries, except in the case of each of (i) and (ii) above, for any such matter, as would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect; and (iii) except as described in the Registration Statement and the Prospectus, (a) there are no proceedings that are pending, or that are known to be contemplated, against the Company or any of its subsidiaries under any Environmental Laws in which a governmental entity is also a party, other than such proceedings regarding which it is reasonably believed no monetary sanctions of \$100,000 or more will be imposed, (b) the Company and its subsidiaries are not aware of any facts or issues regarding the Company’s or its subsidiaries’ compliance with Environmental Laws, or liabilities or other obligations under Environmental Laws, including the Release or threat of Release of Hazardous Materials, that could reasonably be expected to have a material effect on the capital expenditures, earnings or competitive position of the Company and its subsidiaries, and (c) none of the Company and its subsidiaries anticipates material capital expenditures relating to any Environmental Laws.

(hh) Hazardous Materials. There has been no storage, generation, transportation, use, handling, treatment, Release or threat of Release of Hazardous Materials by, relating to or caused by the Company or any of its subsidiaries (or, to the knowledge of the Company and its subsidiaries, any other entity (including any predecessor) for whose acts or omissions the Company or any of its subsidiaries is or could reasonably be expected to be liable) at, on, under or from any property or facility now or previously owned, operated or leased by the Company or any of its subsidiaries, or at, on, under or from any other property or facility, in violation of any Environmental Laws or in a manner or amount or to a location that could reasonably be expected to result in any liability under any Environmental Law, except for any violation or liability which would not, individually or in the aggregate, reasonably be expected to have a Material Adverse Effect. “**Hazardous Materials**” means any material, chemical, substance, waste, pollutant, contaminant, compound, mixture, or constituent thereof, in any form or amount, including petroleum (including crude oil or any fraction thereof) and petroleum products, natural gas liquids, asbestos and asbestos containing materials, naturally occurring radioactive materials, brine, and drilling mud, regulated or which can give rise to liability under any Environmental Law. “**Release**” means any spilling, leaking, seepage, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, disposing, depositing, dispersing, or migrating in, into or through the environment, or in, into from or through any building or structure.

(ii) Compliance with ERISA. (i) Each employee benefit plan, within the meaning of Section 3(3) of the Employee Retirement Income Security Act of 1974, as amended (“ERISA”), for which the Company or any member of its “Controlled Group” (defined as any organization which is a member of a controlled group of corporations within the meaning of Section 414 of the Code) would have any liability (each, a “Plan”) has been maintained in compliance with its terms and the requirements of any applicable statutes, orders, rules and regulations, including but not limited to ERISA and the Code, except for noncompliance that could not reasonably be expected to result in material liability to the Company or its subsidiaries; (ii) no prohibited transaction, within the meaning of Section 406 of ERISA or Section 4975 of the Code, has occurred with respect to any Plan excluding transactions effected pursuant to a statutory or administrative exemption that could reasonably be expected to result in a material liability to the Company or its subsidiaries; (iii) for each Plan that is subject to the funding rules of Section 412 of the Code or Section 302 of ERISA, the minimum funding standard of Section 412 of the Code or Section 302 of ERISA, as applicable, has been satisfied (without taking into account any waiver thereof or extension of any amortization period) and is reasonably expected to be satisfied in the future (without taking into account any waiver thereof or extension of any amortization period); (iv) the fair market value of the assets of each Plan exceeds the present value of all benefits accrued under such Plan (determined based on those assumptions used to fund such Plan); (v) no “reportable event” (within the meaning of Section 4043(c) of ERISA) has occurred or is reasonably expected to occur that either has resulted, or could reasonably be expected to result, in material liability to the Company or its subsidiaries; (vi) neither the Company nor any member of the Controlled Group has incurred, nor reasonably expects to incur, any liability under Title IV of ERISA (other than contributions to the Plan or premiums to the PBGC, in the ordinary course and without default) in respect of a Plan (including a “multiemployer plan”, within the meaning of Section 4001(a)(3) of ERISA); and (vii) there is no pending audit or investigation by the Internal Revenue Service, the U.S. Department of Labor, the Pension Benefit Guaranty Corporation or any other governmental agency or any foreign regulatory agency with respect to any Plan that could reasonably be expected to result in material liability to the Company or its subsidiaries. None of the following events has occurred or is reasonably likely to occur: (x) a material increase in the aggregate amount of contributions required to be made to all Plans by the Company or its subsidiaries in the current fiscal year of the Company and its subsidiaries compared to the amount of such contributions made in the Company and its subsidiaries’ most recently completed fiscal year; or (y) a material increase in the Company and its subsidiaries’ “accumulated post-retirement benefit obligations” (within the meaning of Statement of Financial Accounting Standards 106) compared to the amount of such obligations in the Company and its subsidiaries’ most recently completed fiscal year.

(jj) Disclosure Controls. The Company and its subsidiaries maintain a system of disclosure controls and procedures (as defined in Rule 13a-15(e) of the Exchange Act) that are designed to comply with the requirements of the Exchange Act and that has been designed to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the Commission’s rules and forms, including controls and procedures designed to ensure that such information is accumulated and communicated to the Company’s management as appropriate to allow timely decisions regarding required disclosure. The Company and its subsidiaries have carried out evaluations of the effectiveness of their disclosure controls and procedures as required by Rule 13a-15 of the Exchange Act.

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(kk) Accounting Controls. The Company and its subsidiaries maintain a system of internal control over financial reporting (as defined in Rule 13a-15(f) of the Exchange Act) that comply with the requirements of the Exchange Act and have been designed by, or under the supervision of, their respective principal executive and principal financial officers, or persons performing similar functions, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP, including, but not limited to, internal accounting controls sufficient to provide reasonable assurance that (i) transactions are executed in accordance with management's general or specific authorizations; (ii) transactions are recorded as necessary to permit preparation of financial statements in conformity with GAAP and to maintain asset accountability; (iii) access to assets is permitted only in accordance with management's general or specific authorization; (iv) the recorded accountability for assets is compared with the existing assets at reasonable intervals and appropriate action is taken with respect to any differences and (v) interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and is prepared in accordance with the Commission's rules and guidelines applicable thereto. Except as disclosed in the Registration Statement and the Prospectus, there are no material weaknesses in the Company's internal controls over financial reporting. The Company's auditors and the Audit Committee of the Board of Directors of the Company have been advised of: (i) all significant deficiencies and material weaknesses in the design and operation of internal controls over financial reporting which have adversely affected or are reasonably likely to adversely affect the Company's ability to record, process, summarize and report financial information; and (ii) any fraud, whether or not material, that involves management or other employees who have a significant role in the Company's internal accounting controls over financial reporting.

(ll) eXtensible Business Reporting Language. The interactive data in eXtensible Business Reporting Language included or incorporated by reference in the Registration Statement fairly presents the information called for in all material respects and has been prepared in accordance with the Commission's rules and guidelines applicable thereto.

(mm) Insurance. The Company and its subsidiaries have insurance covering their respective properties, operations, personnel and businesses, including business interruption insurance, which insurance is in amounts and insures against such losses and risks the Company reasonably believes as are adequate to protect the Company and its subsidiaries and their respective businesses; and neither the Company nor any of its subsidiaries has (i) received notice from any insurer or agent of such insurer that capital improvements or other expenditures are required or necessary to be made in order to continue such insurance or (ii) any reason to believe that it will not be able to renew its existing insurance coverage as and when such coverage expires or to obtain similar coverage at reasonable cost from similar insurers as may be necessary to continue its business.

(nn) No Unlawful Contributions or Other Payments. Neither the Company nor any of its subsidiaries nor, to the Company's knowledge, any director, officer, employee, agent, affiliate or other person acting on behalf of the Company or any subsidiary has (i) used any corporate funds for any unlawful contribution, gift, entertainment or other unlawful expense relating to political activity; (ii) made any direct or indirect unlawful payment to any foreign or domestic government officials or employees, political parties or campaigns, political party officials, or candidates for political office from corporate funds; (iii) violated or is in violation of any provision of the U.S. Foreign Corrupt Practices Act of 1977, as amended, or any applicable anti-corruption laws, rules, or regulations of any other jurisdiction in which the Company or any subsidiary conducts business; or (iv) made any other unlawful bribe, rebate, payoff, influence payment, kickback or other unlawful payment to any person.

(oo) Compliance with Money Laundering Laws. The operations of the Company and its subsidiaries are and have been conducted at all times in compliance with all applicable financial recordkeeping and reporting requirements, including those of the U.S. Bank Secrecy Act, as amended by Title III of the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001 (USA PATRIOT Act), and the applicable anti-money laundering statutes of jurisdictions where the Company and its subsidiaries conduct business, the rules and regulations thereunder and any related or similar rules, regulations or guidelines, issued, administered or enforced by any governmental agency (collectively, the "Anti-Money Laundering Laws"), and no action, suit or proceeding by or before any court or governmental agency, authority, body or any arbitrator involving the Company or any of its subsidiaries with respect to Anti-Money Laundering Laws is pending, or to the knowledge of the Company, threatened.

(pp) Compliance with OFAC.

- (A)(i) Neither the Company nor any of its subsidiaries, nor to the Company's knowledge, any director, officer or employee thereof, any agent, affiliate, representative, or other person acting on behalf of the Company or any of its subsidiaries, is an individual or entity ("Person") that is, or is 50% or more owned, in the aggregate, by one or more Persons that is the subject of any sanctions administered or enforced by the U.S. Department of Treasury's Office of Foreign Assets Control ("OFAC"), the United Nations Security Council ("UNSC"), the European Union ("EU"), Her Majesty's Treasury ("HMT"), or other relevant sanctions authority (collectively, "Sanctions"), and (ii) neither the Company nor any of its subsidiaries is located, organized, or resident in a country or territory that is the subject of a U.S. government embargo (currently including, without limitation, Cuba, Iran, North Korea, Syria and the Crimea Region of Ukraine).
- (B) The Company will not, directly or indirectly, use the Net Proceeds, or knowingly lend, contribute or otherwise make available such Net Proceeds to any subsidiary, joint venture partner or other Person: (i) to fund or facilitate any activities or business of or with any Person that, at the time of such funding or facilitation, is the subject of Sanctions, or in any country or territory that, at the time of such funding or facilitation, is the subject of a U.S. government embargo; or (ii) in any other manner, in each case of clause (i) or (ii), that would result in a violation of Sanctions by any Person (including Cowen)

(C) For the past five (5) years, the Company and its subsidiaries have not knowingly engaged in, are not now knowingly engaged in, any direct or indirect dealings or transactions with any Person that at the time of the dealing or transaction is or was the subject of Sanctions or any country or territory that, at the time of the dealing or transaction is or was the subject of a U.S. government embargo.

(qq) No Restrictions on Subsidiaries. No subsidiary of the Company is currently prohibited, directly or indirectly, under any agreement or other instrument to which it is a party or is subject, from paying any dividends to the Company, from making any other distribution on such subsidiary's capital stock, from repaying to the Company any loans or advances to such subsidiary from the Company or from transferring any of such subsidiary's properties or assets to the Company or any other subsidiary of the Company.

(rr) No Broker's Fees. Neither the Company nor any of its subsidiaries is a party to any contract, agreement or understanding with any person (other than this Agreement) that would give rise to a valid claim against the Company or any of its subsidiaries or Cowen for a brokerage commission, finder's fee or like payment in connection with the offering and sale of the Placement Shares.

(ss) No Registration Rights. Except as disclosed in the Registration Statement and the Prospectus and as have been duly waived or satisfied, no person has the right to require the Company or any of its subsidiaries to register any securities for sale under the Securities Act by reason of the filing of the Registration Statement with the Commission or the issuance and sale of the Placement Shares.

(tt) No Stabilization. The Company has not taken, directly or indirectly, any action designed to or that could reasonably be expected to cause or result in any stabilization or manipulation of the price of the Placement Shares.

(uu) Margin Rules. The application of the proceeds received by the Company from the issuance, sale and delivery of the Placement Shares as described in the Registration Statement, and the Prospectus will not violate Regulation T, U or X of the Board of Governors of the Federal Reserve System or any other regulation of such Board of Governors.

(vv) Forward-Looking Statements. No forward-looking statement (within the meaning of Section 27A of the Securities Act and Section 21E of the Exchange Act) contained in the Registration Statement or the Prospectus has been made without a reasonable basis or has been disclosed other than in good faith.

(ww) Statistical and Market Data. Nothing has come to the attention of the Company that has caused the Company to believe that the statistical and market-related data included or incorporated by reference in the Registration Statement and the Prospectus is not based on or derived from sources that are reliable and accurate in all material respects.

(xx) Sarbanes-Oxley Act. There is and has been no failure on the part of the Company or, to the knowledge of the Company, any of the Company's directors or officers, in their capacities as such, to comply with any provision of the Sarbanes-Oxley Act of 2002, as amended, and the rules and regulations promulgated in connection therewith (the "Sarbanes-Oxley Act") applicable to the Company or any of the Company's directors or officers, in their capacities as such, including Section 402 related to loans and Sections 302 and 906 related to certifications.

(yy) Status under the Securities Act. The Company currently is not an “ineligible issuer,” as defined in Rule 405 of the rules and regulation of the Commission. The Company has paid the registration fee for this offering pursuant to Rule 456(b)(1) under the Securities Act or will pay such fee within the time period required by such rule (without giving effect to the proviso therein) and in any event prior to any Settlement Date.

(zz) No Ratings. There are no debt securities or preferred stock issued or guaranteed by the Company or any of its subsidiaries that are rated by a “nationally recognized statistical rating organization”, as such term is defined in Section 3(a)(62) of the Exchange Act.

(aaa) Required Filings. The Company has timely made all filings required to be made by it under the Exchange Act.

(bbb) No Reliance. The Company has not relied upon Cowen or legal counsel for Cowen for any legal, tax or accounting advice in connection with the offering and sale of the Placement Shares.

(ccc) Cowen Purchases. The Company acknowledges and agrees that Cowen has informed the Company that Cowen may, to the extent permitted under the Securities Act and the Exchange Act, purchase and sell shares of Common Stock for its own account while this Agreement is in effect.

(ddd) Listing. The Company is subject to and in compliance in all material respects with the reporting requirements of Section 13 or Section 15(d) of the Exchange Act. The Common Stock is registered pursuant to Section 12(b) or Section 12(g) of the Exchange Act and is listed on the NYSE, and the Company has taken no action designed to, or reasonably likely to have the effect of, terminating the registration of the Common Stock under the Exchange Act or delisting the Common Stock from the NYSE, nor has the Company received any notification that the Commission or NYSE is contemplating terminating such registration or listing.

(eee) FINRA Exemption. To enable Cowen to rely on Rule 5110(b)(7)(C)(i) of FINRA, the Company represents that the Company (i) has a non-affiliate, public common equity float of at least \$150 million or a non-affiliate, public common equity float of at least \$100 million and annual trading volume of at least three million shares and (ii) has been subject to the Exchange Act reporting requirements for a period of at least 36 months.

Any certificate signed by an officer of the Company and delivered to Cowen or to counsel for Cowen in connection with this Agreement shall be deemed to be a representation and warranty by the Company to Cowen as to the matters set forth therein.

The Company acknowledges that Cowen and, for purposes of the opinions to be delivered pursuant to Section 7 hereof, counsel to the Company and counsel to Cowen, will rely upon the accuracy and truthfulness of the foregoing representations and hereby consents to such reliance.

7. Covenants of the Company. The Company covenants and agrees with Cowen that:

(a) Registration Statement Amendments. After the date of this Agreement and during any period in which a Prospectus relating to any Placement Shares is required to be delivered by Cowen under the Securities Act (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act or similar rule), (i) the Company will notify Cowen promptly of the time when any subsequent amendment to the Registration Statement, other than documents incorporated by reference, has been filed with the Commission and/or has become effective or any subsequent supplement to the Prospectus has been filed and of any request by the Commission for any amendment or supplement to the Registration Statement or Prospectus or for additional information (insofar as such request relates to the transactions contemplated hereby), (ii) the Company will prepare and file with the Commission, promptly upon Cowen's reasonable request, any amendments or supplements to the Registration Statement or Prospectus that, in Cowen's reasonable opinion, may be necessary or advisable in connection with the distribution of the Placement Shares by Cowen (*provided, however*, that the failure of Cowen to make such request shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement; *provided, further*, that the only remedy Cowen shall have with respect to the failure by the Company to comply with Cowen's request shall be to cease making sales under this Agreement); (iii) the Company will not file any amendment or supplement to the Registration Statement or Prospectus, other than documents incorporated by reference, relating to the Placement Shares or a security convertible into the Placement Shares unless a copy thereof has been submitted to Cowen within a reasonable period of time before the filing and Cowen has not reasonably objected thereto (*provided, however*, that (A) the failure of Cowen to make such objection shall not relieve the Company of any obligation or liability hereunder, or affect Cowen's right to rely on the representations and warranties made by the Company in this Agreement, (B) the Company has no obligation to provide Cowen any advance copy of such filing or to provide Cowen an opportunity to object to such filing if the filing does not name Cowen or does not relate to the transaction herein provided and (C) the only remedy Cowen shall have with respect to the failure by the Company to provide Cowen with such copy or the filing of such amendment or supplement despite Cowen's objection shall be to cease making sales under this Agreement) and the Company will furnish to Cowen at the time of filing thereof a copy of any document that upon filing is deemed to be incorporated by reference into the Registration Statement or Prospectus, except for those documents available via EDGAR; (iv) the Company will cause each amendment or supplement to the Prospectus, other than documents incorporated by reference, to be filed with the Commission as required pursuant to the applicable paragraph of Rule 424(b) of the Securities Act; and (v) prior to the termination of this Agreement, the Company will notify Cowen if at any time the Registration Statement shall no longer be effective as a result of the passage of time pursuant to Rule 415 under the Securities Act or otherwise.

(b) Notice of Commission Stop Orders. The Company will advise Cowen, promptly after it receives notice or obtains knowledge thereof, of the issuance or threatened issuance by the Commission of any stop order suspending the effectiveness of the Registration Statement, of the suspension of the qualification of the Placement Shares for offering or sale in any jurisdiction, or of the initiation or threatening of any proceeding for any such purpose; and it will promptly use its commercially reasonable efforts to prevent the issuance of any stop order or to obtain its withdrawal if such a stop order should be issued.

(c) Delivery of Prospectus; Subsequent Changes. During any period in which a Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act or similar rule), the Company will comply with all the requirements imposed upon it by the Securities Act, as from time to time in force, and to file on or before their respective due dates (taking into account any extensions available under the Exchange Act) all reports and any definitive proxy or information statements required to be filed by the Company with the Commission pursuant to Sections 13(a), 13(c), 14, 15(d) or any other provision of or under the Exchange Act. If during such period any event occurs as a result of which the Prospectus as then amended or supplemented would include an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in the light of the circumstances then existing, not misleading, or if during such period it is necessary to amend or supplement the Registration Statement or Prospectus to comply with the Securities Act, the Company will promptly notify Cowen to suspend the offering of Placement Shares during such period and the Company will promptly amend or supplement the Registration Statement or Prospectus (at the expense of the Company) so as to correct such statement or omission or effect such compliance; *provided, however*, that the Company may delay the filing of any amendment or supplement if, in the reasonable judgment of the Company, it is in the best interest of the Company to do so.

(d) Listing of Placement Shares. During any period in which the Prospectus relating to the Placement Shares is required to be delivered by Cowen under the Securities Act with respect to a pending sale of the Placement Shares (including in circumstances where such requirement may be satisfied pursuant to Rule 172 under the Securities Act or similar rule), the Company will use its commercially reasonable efforts to cause the Placement Shares to be listed on the NYSE and to qualify the Placement Shares for sale under the securities laws of such jurisdictions as Cowen reasonably designates and to continue such qualifications in effect so long as required for the distribution of the Placement Shares; *provided, however*, that the Company shall not be required in connection therewith to qualify as a foreign corporation or dealer in securities or file a general consent to service of process in any jurisdiction.

(e) Delivery of Registration Statement and Prospectus. Following the date that the Registration Statement is declared effective by the Commission, the Company will furnish to Cowen and its counsel (at the expense of the Company) copies of the Registration Statement, the Prospectus (including all documents incorporated by reference therein) and all amendments and supplements to the Registration Statement or Prospectus that are filed with the Commission during any period in which a Prospectus relating to the Placement Shares is required to be delivered under the Securities Act (including all documents filed with the Commission during such period that are deemed to be incorporated by reference therein), in each case as soon as reasonably practicable and in such quantities as Cowen may from time to time reasonably request and, at Cowen's reasonable request, will also furnish copies of the Prospectus to each exchange or market on which sales of the Placement Shares may be made; *provided, however*, that the Company shall not be required to furnish any document (other than the Prospectus) to Cowen to the extent such document is available on EDGAR.

(f) Earnings Statement. The Company will make generally available to its security holders as soon as practicable, but in any event not later than 15 months after the end of the Company's current fiscal quarter, an earnings statement covering a 12-month period that satisfies the provisions of Section 11(a) and Rule 158 of the Securities Act.

(g) Expenses. The Company, whether or not the transactions contemplated hereunder are consummated or this Agreement is terminated, in accordance with the provisions of Section 11 hereunder, will pay the following expenses all incident to the performance of its obligations hereunder, including, but not limited to, expenses relating to (i) the preparation, printing and filing of the Registration Statement and each amendment and supplement thereto, and of each Prospectus and of each amendment and supplement thereto, (ii) the preparation, issuance and delivery of the Placement Shares, (iii) the qualification of the Placement Shares under securities laws in accordance with the provisions of Section 7(d) of this Agreement, including filing fees ( *provided, however*, that any fees or disbursements of counsel for Cowen in connection therewith shall be paid by Cowen except as set forth in (vii) below), (iv) the printing and delivery to Cowen of copies of the Prospectus and any amendments or supplements thereto, and of this Agreement, (v) the fees and expenses incurred in connection with the listing or qualification of the Placement Shares for trading on the NYSE, (vi) the filing fees and expenses, if any, of the Commission, (vii) the filing fees and associated legal expenses of Cowen's outside counsel for filings with the FINRA Corporate Financing Department, such legal expense reimbursement not to exceed \$10,000 in the aggregate and (viii) the reasonable fees and disbursements of Cowen's outside counsel in an amount not to exceed \$50,000 in the aggregate.

(h) Use of Proceeds. The Company will use the Net Proceeds as described in the Prospectus in the section entitled "Use of Proceeds."

(i) Notice of Other Sales. During the pendency of any Placement Notice given hereunder, and for three (3) trading days following the termination of any Placement Notice given hereunder, the Company shall provide Cowen notice as promptly as reasonably practicable before it offers to sell, contracts to sell, sells, grants any option to sell or otherwise disposes of any shares of Common Stock (other than Placement Shares offered pursuant to the provisions of this Agreement) or securities convertible into or exchangeable for Common Stock, warrants or any rights to purchase or acquire Common Stock; *provided*, that such notice shall not be required in connection with (i) the issuance, grant or sale of Common Stock, options to purchase shares of Common Stock or any other equity awards, or Common Stock issuable upon the exercise of options or other equity awards pursuant to any equity incentive plan, stock option, stock bonus, employee stock purchase or other stock plan or arrangement described in the Prospectus, (ii) warrants that may be issued by the Company in connection with that certain Loan and Security Agreement dated as of March 15, 2017 among the Company, Oxford Capital, LLC and PatientCrossroads, Inc., as amended, (iii) the issuance of securities in connection with an acquisition, merger or sale or purchase of assets, (iv) the issuance or sale of Common Stock pursuant to any dividend reinvestment plan that the Company may adopt from time to time provided the implementation of such is disclosed to Cowen in advance, or (v) the issuance of any shares of Common Stock issuable upon the exchange, conversion or redemption of securities or the exercise of warrants, options or other rights in effect or outstanding.

(j) Change of Circumstances. The Company will, at any time during a fiscal quarter in which the Company intends to tender a Placement Notice or sell Placement Shares, advise Cowen promptly after it shall have received notice or obtained knowledge thereof, of any information or fact that would alter or affect in any material respect any opinion, certificate, letter or other document provided to Cowen pursuant to this Agreement.

(k) Due Diligence Cooperation. During the term of this Agreement, the Company will cooperate with any reasonable due diligence review conducted by Cowen or its agents in connection with the transactions contemplated hereby, including, without limitation, providing information and making available documents and senior corporate officers, during regular business hours and at the Company's principal offices, as Cowen may reasonably request.

(l) Required Filings Relating to Placement of Placement Shares. The Company agrees that on such dates as the Securities Act shall require, the Company will (i) file a prospectus supplement with the Commission under the applicable paragraph of Rule 424(b) under the Securities Act (each and every filing under Rule 424(b), a "**Filing Date**"), which prospectus supplement will set forth, within the relevant period, the amount of Placement Shares sold through Cowen, the Net Proceeds to the Company and the compensation payable by the Company to Cowen with respect to such Placement Shares, and (ii) deliver such number of copies of each such prospectus supplement to each exchange or market on which such sales were effected as may be required by the rules or regulations of such exchange or market.

(m) Representation Dates: Certificate. During the term of this Agreement, on or prior to the First Delivery Date and each time the Company (i) files the Prospectus relating to the Placement Shares or amends or supplements the Registration Statement or the Prospectus relating to the Placement Shares (other than a prospectus supplement filed in accordance with Section 7(l) of this Agreement) by means of a post-effective amendment, sticker, or supplement but not by means of incorporation of document(s) by reference to the Registration Statement or the Prospectus relating to the Placement Shares; (ii) files an Annual Report on Form 10-K under the Exchange Act; (iii) files its Quarterly Reports on Form 10-Q under the Exchange Act; or (iv) files a Current Report on Form 8-K containing amended financial information (other than an earnings release) under the Exchange Act (each date of filing of one or more of the documents referred to in clauses (i) through (iv) shall be a "**Representation Date**"); the Company shall furnish Cowen with a certificate, in the form attached hereto as Exhibit 7(m) within three (3) Trading Days of any Representation Date if requested by Cowen. The requirement to provide a certificate under this Section 7(m) shall be automatically waived for any Representation Date occurring at a time at which no Placement Notice is pending, which waiver shall continue until the earlier to occur of the date the Company delivers a Placement Notice hereunder (which for such calendar quarter shall be considered a Representation Date) and the next occurring Representation Date; *provided, however*, that such waiver shall not apply for any Representation Date on which the Company files its Annual Report on Form 10-K. Notwithstanding the foregoing, if the Company subsequently decides to sell Placement Shares following a Representation Date when the Company relied on such waiver and did not provide Cowen with a certificate under this Section 7(m), then before the Company delivers the Placement Notice or Cowen sells any Placement Shares, the Company shall provide Cowen with a certificate, in the form attached hereto as Exhibit 7(m), dated the date of the Placement Notice.

(n) Legal Opinion. On or prior to the First Delivery Date and within three (3) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause to be furnished to Cowen a written opinion of Pillsbury Winthrop Shaw Pittman LLP ("**Company Counsel**"), or other counsel satisfactory to Cowen, in form and substance reasonably satisfactory to Cowen and its counsel, dated the date that the opinion is

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required to be delivered, modified, as necessary, to relate to the Registration Statement and the Prospectus as then amended or supplemented; *provided, however*, that in lieu of such opinion for subsequent Representation Dates, counsel may furnish Cowen with a letter (a “**Reliance Letter**”) to the effect that Cowen may rely on a prior opinion delivered under this Section 7(n) to the same extent as if it were dated the date of such letter (except that statements in such prior opinion shall be deemed to relate to the Registration Statement and the Prospectus as amended or supplemented at such Representation Date).

(o) Comfort Letter. On or prior to the First Delivery Date and within three (3) Trading Days of each Representation Date with respect to which the Company is obligated to deliver a certificate in the form attached hereto as Exhibit 7(m) for which no waiver is applicable, the Company shall cause its independent accountants to furnish Cowen letters (the “**Comfort Letters**”), dated the date the Comfort Letter is delivered, in form and substance reasonably satisfactory to Cowen, (i) confirming that they are an independent registered public accounting firm within the meaning of the Securities Act and the PCAOB, (ii) stating, as of such date, the conclusions and findings of such firm with respect to the financial information and other matters ordinarily covered by accountants’ “comfort letters” to Cowen in connection with registered public offerings (the first such letter, the “**Initial Comfort Letter**”) and (iii) updating the Initial Comfort Letter with any information that would have been included in the Initial Comfort Letter had it been given on such date and modified as necessary to relate to the Registration Statement and the Prospectus, as amended and supplemented to the date of such letter.

(p) Market Activities. The Company will not, directly or indirectly, (i) take any action designed to cause or result in, or that constitutes or might reasonably be expected to constitute, the stabilization or manipulation of the price of any security of the Company to facilitate the sale or resale of the Placement Shares or (ii) sell, bid for, or purchase the Placement Shares to be issued and sold pursuant to this Agreement, or pay anyone any compensation for soliciting purchases of the Placement Shares other than Cowen; *provided, however*, that the Company may bid for and purchase shares of its Common Stock in accordance with Rule 10b-18 under the Exchange Act.

(q) Insurance. The Company and its subsidiaries shall maintain, or cause to be maintained, insurance in such amounts and covering such risks as is reasonable and customary for the business for which it is engaged.

(r) Compliance with Laws. The Company and each of its subsidiaries shall use commercially reasonable efforts to maintain, or cause to be maintained, all material environmental permits, licenses and other authorizations required by federal, state and local law in order to conduct their businesses as described in the Prospectus, and the Company and each of its subsidiaries shall conduct their businesses, or cause their businesses to be conducted, in substantial compliance with such permits, licenses and authorizations and with applicable environmental laws, except where the failure to maintain or be in compliance with such permits, licenses and authorizations could not reasonably be expected to result in a Material Adverse Effect.

(s) Investment Company Act. The Company will conduct its affairs in such a manner so as to reasonably ensure that neither it nor its subsidiaries will be or become, at any time prior to the termination of this Agreement, an “investment company,” as such term is defined in the Investment Company Act, assuming no change in the Commission’s current interpretation as to entities that are not considered an investment company.

(t) Securities Act and Exchange Act. The Company will use commercially reasonable efforts to comply with all requirements imposed upon it by the Securities Act and the Exchange Act as from time to time in force, so far as necessary to permit the continuance of sales of, or dealings in, the Placement Shares as contemplated by the provisions hereof and the Prospectus.

(u) No Offer to Sell. Other than a free writing prospectus (as defined in Rule 405 under the Securities Act) approved in advance by the Company and Cowen in its capacity as principal or agent hereunder, neither Cowen nor the Company (including its agents and representatives, other than Cowen in its capacity as such) will make, use, prepare, authorize, approve or refer to any written communication (as defined in Rule 405 under the Securities Act), required to be filed with the Commission, that constitutes an offer to sell or solicitation of an offer to buy Placement Shares hereunder.

(v) Sarbanes-Oxley Act. The Company and its subsidiaries will use commercially reasonable efforts to comply with all effective applicable provisions of the Sarbanes-Oxley Act.

(w) Status under the Securities Act. The Company shall notify Cowen promptly upon the Company becoming an “ineligible issuer,” as defined in Rule 405 of the rules and regulations of the Commission.

8. Conditions to Cowen’s Obligations. The obligations of Cowen hereunder with respect to a Placement will be subject to the continuing accuracy and completeness of the representations and warranties made by the Company herein, to the due performance by the Company of its obligations hereunder, to the completion by Cowen of a due diligence review satisfactory to Cowen in its reasonable judgment, and to the continuing satisfaction (or waiver by Cowen in its sole discretion) of the following additional conditions:

(a) Registration Statement Effective. The Registration Statement shall be effective and shall be available for (i) all sales of Placement Shares issued pursuant to all prior Placement Notices and (ii) the sale of all Placement Shares contemplated to be issued by any Placement Notice.

(b) No Material Notices. None of the following events shall have occurred and be continuing: (i) receipt by the Company or any of its subsidiaries of any request for additional information from the Commission or any other federal or state governmental authority during the period of effectiveness of the Registration Statement, the response to which would require any post-effective amendments or supplements to the Registration Statement or the Prospectus; (ii) the issuance by the Commission or any other federal or state governmental authority of any stop order suspending the effectiveness of the Registration Statement or the initiation of any proceedings for that purpose; (iii) receipt by the Company of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Placement Shares for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose; or (iv) the occurrence of any event that makes any material statement made in the Registration Statement or the Prospectus or any material document incorporated or deemed to be incorporated therein by reference untrue in any material respect or that requires the making of any changes in the Registration Statement, related Prospectus or such documents so that, in the case of the Registration Statement, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein not misleading and, that in the case of the Prospectus, it will not contain any materially untrue statement of a material fact or omit to state any material fact required to be stated therein or necessary to make the statements therein, in the light of the circumstances under which they were made, not misleading.

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(c) No Misstatement or Material Omission. Cowen shall not have advised the Company that the Registration Statement or Prospectus, or any amendment or supplement thereto, contains an untrue statement of fact that in Cowen's reasonable opinion is material, or omits to state a fact that in Cowen's reasonable opinion is material and is required to be stated therein or is necessary to make the statements therein not misleading.

(d) Material Changes. Except as contemplated in the Prospectus, or disclosed in the Company's reports filed with the Commission, there shall not have been any material adverse change, on a consolidated basis, in the authorized capital stock of the Company or any Material Adverse Effect or any development that could reasonably be expected to result in a Material Adverse Effect, or any downgrading in or withdrawal of the rating assigned to any of the Company's securities (other than asset backed securities) by any rating organization or a public announcement by any rating organization that it has under surveillance or review its rating of any of the Company's securities (other than asset backed securities), the effect of which, in the case of any such action by a rating organization described above, in the reasonable judgment of Cowen (without relieving the Company of any obligation or liability it may otherwise have), is so material as to make it impracticable or inadvisable to proceed with the offering of the Placement Shares on the terms and in the manner contemplated in the Prospectus.

(e) Company Counsel Legal Opinion. Cowen shall have received the opinion of Company Counsel required to be delivered pursuant to Section 7(n) on or before the date on which such delivery of such opinion is required pursuant to Section 7(n).

(f) Cowen Counsel Legal Opinion. Cowen shall have received from Cooley LLP, counsel for Cowen, such opinion or opinions, on or before the date on which the delivery of the Company Counsel legal opinion is required pursuant to Section 7(n), with respect to such matters as Cowen may reasonably require, and the Company shall have furnished to such counsel such documents as they request for enabling them to pass upon such matters.

(g) Comfort Letter. Cowen shall have received the Comfort Letter required to be delivered pursuant to Section 7(o) on or before the date on which such delivery of such Comfort Letter is required pursuant to Section 7(o).

(h) Representation Certificate. Cowen shall have received the certificate required to be delivered pursuant to Section 7(m) on or before the date on which delivery of such certificate is required pursuant to Section 7(m).

(i) Secretary's Certificate. On or prior to the First Delivery Date, Cowen shall have received a certificate, signed on behalf of the Company by its corporate Secretary, in form and substance satisfactory to Cowen and its counsel.

(j) No Suspension. Trading in the Common Stock shall not have been suspended on the NYSE.

(k) Other Materials. On each date on which the Company is required to deliver a certificate pursuant to Section 7(m), the Company shall have furnished to Cowen such appropriate further information, certificates and documents as Cowen may have reasonably requested. All such opinions, certificates, letters and other documents shall have been in compliance with the provisions hereof. The Company will furnish Cowen with such conformed copies of such opinions, certificates, letters and other documents as Cowen shall have reasonably requested.

(l) Securities Act Filings Made. All filings with the Commission required by Rule 424 under the Securities Act to have been filed prior to the issuance of any Placement Notice hereunder shall have been made within the applicable time period prescribed for such filing by Rule 424.

(m) Approval for Listing. The Placement Shares shall have been approved for listing on the NYSE, subject only to notice of issuance.

(n) No Termination Event. There shall not have occurred any event that would permit Cowen to terminate this Agreement pursuant to Section 11(a)

9. Indemnification and Contribution.

(a) Company Indemnification. The Company agrees to indemnify and hold harmless Cowen, the directors, officers, partners, employees and agents of Cowen and each person, if any, who (i) controls Cowen within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act, or (ii) is controlled by or is under common control with Cowen from and against any and all losses, claims, liabilities, expenses and damages (including, but not limited to, any and all reasonable investigative, legal and other expenses incurred in connection with, and any and all amounts paid in settlement (in accordance with Section 9(c)) of, any action, suit or proceeding between any of the indemnified parties and any indemnifying parties or between any indemnified party and any third party, or otherwise, or any claim asserted), as and when incurred, to which Cowen, or any such person, may become subject under the Securities Act, the Exchange Act or other federal or state statutory law or regulation, at common law or otherwise, insofar as such losses, claims, liabilities, expenses or damages arise out of or are based, directly or indirectly, on (x) any untrue statement or alleged untrue statement of a material fact contained in the Registration Statement or the Prospectus or any amendment or supplement to the Registration Statement or the Prospectus or in any free writing prospectus or in any application or other document executed by or on behalf of the Company or based on written information furnished by or on behalf of the Company filed in any jurisdiction in order to qualify the Placement Shares under the securities laws thereof or filed with the Commission or (y) the omission or alleged omission to state in any such document a material fact required to be stated in it or necessary to make the statements in it not misleading; *provided, however*, that this indemnity agreement shall not apply to the extent that such loss, claim, liability, expense or damage arises from the sale of the Placement Shares pursuant to this Agreement and is caused directly or indirectly by an untrue statement or omission made in reliance upon and in conformity with the Agent's Information. This indemnity agreement will be in addition to any liability that the Company might otherwise have.

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(b) Cowen Indemnification. Cowen agrees to indemnify and hold harmless the Company and its directors and each officer of the Company that signed the Registration Statement, and each person, if any, who controls the Company within the meaning of Section 15 of the Securities Act or Section 20 of the Exchange Act against any and all loss, liability, claim, damage and expense described in the indemnity contained in Section 9(a), as incurred, but only with respect to untrue statements or omissions, or alleged untrue statements or omissions, made in the Registration Statement (or any amendments thereto) or the Prospectus (or any amendment or supplement thereto) in reliance upon and in conformity with the Agent's Information.

(c) Procedure. Any party that proposes to assert the right to be indemnified under this Section 9 will, promptly after receipt of notice of commencement of any action against such party in respect of which a claim is to be made against an indemnifying party or parties under this Section 9, notify each such indemnifying party of the commencement of such action, enclosing a copy of all papers served, but the omission so to notify such indemnifying party will not relieve the indemnifying party from (i) any liability that it might have to any indemnified party otherwise than under this Section 9 and (ii) any liability that it may have to any indemnified party under the foregoing provision of this Section 9 unless, and only to the extent that, such omission results in the forfeiture of substantive rights or defenses by the indemnifying party. If any such action is brought against any indemnified party and it notifies the indemnifying party of its commencement, the indemnifying party will be entitled to participate in and, to the extent that it elects by delivering written notice to the indemnified party promptly after receiving notice of the commencement of the action from the indemnified party, jointly with any other indemnifying party similarly notified, to assume the defense of the action, with counsel reasonably satisfactory to the indemnified party, and after notice from the indemnifying party to the indemnified party of its election to assume the defense, the indemnifying party will not be liable to the indemnified party for any legal or other expenses except as provided below and except for the reasonable costs of investigation subsequently incurred by the indemnified party in connection with the defense. The indemnified party will have the right to employ its own counsel in any such action, but the fees, expenses and other charges of such counsel will be at the expense of such indemnified party unless (1) the employment of counsel by the indemnified party has been authorized in writing by the indemnifying party, (2) the indemnified party has reasonably concluded (based on advice of counsel) that there may be legal defenses available to it or other indemnified parties that are different from or in addition to those available to the indemnifying party, (3) a conflict or potential conflict exists (based on advice of counsel to the indemnified party) between the indemnified party and the indemnifying party (in which case the indemnifying party will not have the right to direct the defense of such action on behalf of the indemnified party) or (4) the indemnifying party has not in fact employed counsel to assume the defense of such action within a reasonable time after receiving notice of the commencement of the action, in each of which cases the reasonable fees, disbursements and other charges of counsel will be at the expense of the indemnifying party or parties. It is understood that the indemnifying party or parties shall not, in connection with any proceeding or related proceedings in the same jurisdiction, be liable for the reasonable fees, disbursements and other charges of more than one separate firm admitted to practice in such jurisdiction at any one time for all such indemnified party or parties. All such fees, disbursements and other charges will be reimbursed by the indemnifying party promptly as they are incurred. An indemnifying party will not, in any event, be liable for any settlement of any action or claim effected without its written consent. No indemnifying party shall, without the prior written consent of each indemnified party, settle or compromise or consent to the entry of any judgment in any pending or threatened claim, action or proceeding relating to the matters contemplated by this Section 9 (whether or not any indemnified party is a party thereto), unless such settlement, compromise or consent includes an unconditional release of each indemnified party from all liability arising or that may arise out of such claim, action or proceeding.

(d) Contribution. In order to provide for just and equitable contribution in circumstances in which the indemnification provided for in the foregoing paragraphs of this Section 9 is applicable in accordance with its terms but for any reason is held to be unavailable from the Company or Cowen, the Company and Cowen will contribute to the total losses, claims, liabilities, expenses and damages (including any investigative, legal and other expenses reasonably incurred in connection with, and any amount paid in settlement of, any action, suit or proceeding or any claim asserted, but after deducting any contribution received by the Company from persons other than Cowen, such as persons who control the Company within the meaning of the Securities Act, officers of the Company who signed the Registration Statement and directors of the Company, who also may be liable for contribution) to which the Company and Cowen may be subject in such proportion as shall be appropriate to reflect the relative benefits received by the Company on the one hand and Cowen on the other. The relative benefits received by the Company on the one hand and Cowen on the other hand shall be deemed to be in the same proportion as the total Net Proceeds from the sale of the Placement Shares (before deducting expenses) received by the Company bear to the total compensation received by Cowen from the sale of Placement Shares on behalf of the Company. If, but only if, the allocation provided by the foregoing sentence is not permitted by applicable law, the allocation of contribution shall be made in such proportion as is appropriate to reflect not only the relative benefits referred to in the foregoing sentence but also the relative fault of the Company, on the one hand, and Cowen, on the other, with respect to the statements or omission that resulted in such loss, claim, liability, expense or damage, or action in respect thereof, as well as any other relevant equitable considerations with respect to such offering. Such relative fault shall be determined by reference to, among other things, whether the untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact relates to information supplied by the Company or Cowen, the intent of the parties and their relative knowledge, access to information and opportunity to correct or prevent such statement or omission. The Company and Cowen agree that it would not be just and equitable if contributions pursuant to this Section 9(d) were to be determined by pro rata allocation or by any other method of allocation that does not take into account the equitable considerations referred to herein. The amount paid or payable by an indemnified party as a result of the loss, claim, liability, expense, or damage, or action in respect thereof, referred to above in this Section 9(d) shall be deemed to include, for the purpose of this Section 9(d), any legal or other expenses reasonably incurred by such indemnified party in connection with investigating or defending any such action or claim to the extent consistent with Section 9(c) hereof. Notwithstanding the foregoing provisions of this Section 9(d), Cowen shall not be required to contribute any amount in excess of the commissions received by it under this Agreement and no person found guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) will be entitled to contribution from any person who was not guilty of such fraudulent misrepresentation. For purposes of this Section 9(d), any person who controls a party to this Agreement within the meaning of the Securities Act, and any officers, directors, partners, employees or agents of Cowen, will have the same rights to contribution as that party, and each director of the Company and each officer of the Company who signed the Registration Statement will have the same rights to contribution as the Company, subject in each case to the provisions hereof. Any party entitled to contribution, promptly after receipt of notice of commencement of any action against such party in respect of which a claim for contribution may be made under this Section 9(d), will notify any such party or parties from whom contribution may be sought, but the omission to so notify will not relieve that party or parties from whom contribution may be sought from any other obligation it or they may have under this Section 9(d) except to the extent that the failure to so notify such other party materially prejudiced the substantive rights or defenses of the party from whom contribution is sought. Except for a settlement entered into pursuant to the last sentence of Section 9(c) hereof, no party will be liable for contribution with respect to any action or claim settled without its written consent if such consent is required pursuant to Section 9(c) hereof.

10. Representations and Agreements to Survive Delivery. The indemnity and contribution agreements contained in Section 9 of this Agreement and all representations and warranties of the Company herein or in certificates delivered pursuant hereto shall survive, as of their respective dates, regardless of (i) any investigation made by or on behalf of Cowen, any controlling persons, or the Company (or any of their respective officers, directors or controlling persons), (ii) delivery and acceptance of the Placement Shares and payment therefor or (iii) any termination of this Agreement.

11. Termination.

(a) Cowen shall have the right by giving written notice as hereinafter specified at any time to terminate this Agreement if (i) any Material Adverse Effect, or any development that could reasonably be expected to result in a Material Adverse Effect has occurred that, in the reasonable judgment of Cowen, may materially impair the ability of Cowen to sell the Placement Shares hereunder, (ii) the Company shall have failed, refused or been unable to perform any agreement on its part to be performed hereunder; *provided, however*, in the case of any failure of the Company to deliver (or cause another person to deliver) any certification, opinion, or letter required under Sections 7(m), 7(n), or 7(o), Cowen's right to terminate shall not arise unless such failure to deliver (or cause to be delivered) continues for more than thirty (30) days from the date such delivery was required, (iii) any other condition of Cowen's obligations hereunder is not fulfilled or (iv), any suspension or limitation of trading in the Placement Shares or in securities generally on the NYSE shall have occurred. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g) (Expenses), Section 9 (Indemnification and Contribution), Section 10 (Representations and Agreements to Survive Delivery), Section 16 (Applicable Law; Consent to Jurisdiction) and Section 17 (Waiver of Jury Trial) hereof shall remain in full force and effect notwithstanding such termination. If Cowen elects to terminate this Agreement as provided in this Section 11(a), Cowen shall provide the required notice as specified in Section 12 (Notices).

(b) The Company shall have the right, by giving five (5) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(c) Cowen shall have the right, by giving five (5) days' notice as hereinafter specified to terminate this Agreement in its sole discretion at any time after the date of this Agreement. Any such termination shall be without liability of any party to any other party except that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(d) Unless earlier terminated pursuant to this Section 11, this Agreement shall automatically terminate upon the issuance and sale of all of the Placement Shares through Cowen on the terms and subject to the conditions set forth herein; *provided* that the provisions of Section 7(g), Section 9, Section 10, Section 16 and Section 17 hereof shall remain in full force and effect notwithstanding such termination.

(e) This Agreement shall remain in full force and effect unless terminated pursuant to Sections 11(a), (b), (c), or (d) above or otherwise by mutual agreement of the parties; *provided, however*, that any such termination by mutual agreement shall in all cases be deemed to provide that Section 7(g), Section 9, Section 10, Section 16 and Section 17 shall remain in full force and effect.

(f) Any termination of this Agreement shall be effective on the date specified in such notice of termination; *provided, however*, that such termination shall not be effective until the close of business on the date of receipt of such notice by Cowen or the Company, as the case may be. If such termination shall occur prior to the Settlement Date for any sale of Placement Shares, such Placement Shares shall settle in accordance with the provisions of this Agreement.

12. Notices. All notices or other communications required or permitted to be given by any party to any other party pursuant to the terms of this Agreement shall be in writing, unless otherwise specified in this Agreement, and if sent to Cowen, shall be delivered to Cowen at Cowen and Company, LLC, 599 Lexington Avenue, New York, NY 10022, fax no. 646-562-1124, Attention: General Counsel, with a copy to Cooley LLP, 1114 Avenue of the Americas, New York, NY 10036, fax no. (212) 479-6275, Attention: Daniel I. Goldberg; or if sent to the Company, shall be delivered to Invitae Corporation, 1400 16th Street, San Francisco, California 94103, fax no. (415) 276-4164, Attention: General Counsel, with a copy to Pillsbury Winthrop Shaw Pittman LLP, 2550 Hanover Street, Palo Alto, CA 94304, fax no. (650) 233-4545, Attention: Gabriella A. Lombardi. Each party to this Agreement may change such address for notices by sending to the parties to this Agreement written notice of a new address for such purpose. Each such notice or other communication shall be deemed given (i) when delivered personally or by verifiable facsimile transmission (with an original to follow) on or before 4:30 p.m., New York City time, on a Business Day (as defined below), or, if such day is not a Business Day on the next succeeding Business Day, (ii) on the next Business Day after timely delivery to a nationally-recognized overnight courier, (iii) on the Business Day actually received if deposited in the U.S. mail (certified or registered mail, return receipt requested, postage prepaid), and (iv) when delivered by electronic communication (“Electronic Notice”), at the time the party sending Electronic Notice receives verification of receipt by the receiving party, other than via auto reply. For purposes of this Agreement, “Business Day” shall mean any day on which the NYSE and commercial banks in the City of New York are open for business.

13. Successors and Assigns. This Agreement shall inure to the benefit of and be binding upon the Company and Cowen and their respective successors and the affiliates, controlling persons, officers and directors referred to in Section 9 hereof. References to any of the parties contained in this Agreement shall be deemed to include the successors and permitted assigns of such party. Nothing in this Agreement, express or implied, is intended to confer upon any party other than the parties hereto or their respective successors and permitted assigns any rights, remedies, obligations or liabilities under or by reason of this Agreement, except as expressly provided in this Agreement. Neither party may assign its rights or obligations under this Agreement without the prior written consent of the other party; *provided, however*, that Cowen may assign its rights and obligations hereunder to an affiliate of Cowen without obtaining the Company’s consent.

14. Adjustments for Share Splits. The parties acknowledge and agree that all share-related numbers contained in this Agreement shall be adjusted to take into account any share split, share dividend or similar event effected with respect to the Common Stock.

15. Entire Agreement; Amendment; Severability. This Agreement (including all schedules and exhibits attached hereto and Placement Notices issued pursuant hereto) constitutes the entire agreement and supersedes all other prior and contemporaneous agreements and undertakings, both written and oral, among the parties hereto with regard to the subject matter hereof. Neither this Agreement nor any term hereof may be amended except pursuant to a written instrument executed by the Company and Cowen. In the event that any one or more of the provisions contained herein, or the application thereof in any circumstance, is held invalid, illegal or unenforceable as written by a court of competent jurisdiction, then such provision shall be given full force and effect to the fullest possible extent that it is valid, legal and enforceable, and the remainder of the terms and provisions herein shall be construed as if such invalid, illegal or unenforceable term or provision was not contained herein, but only to the extent that giving effect to such provision and the remainder of the terms and provisions hereof shall be in accordance with the intent of the parties as reflected in this Agreement.

16. Applicable Law; Consent to Jurisdiction. This Agreement shall be governed by, and construed in accordance with, the internal laws of the State of New York without regard to the principles of conflicts of laws. Each party hereby irrevocably submits to the non-exclusive jurisdiction of the state and federal courts sitting in the City of New York, borough of Manhattan, for the adjudication of any dispute hereunder or in connection with any transaction contemplated hereby, and hereby irrevocably waives, and agrees not to assert in any suit, action or proceeding, any claim that it is not personally subject to the jurisdiction of any such court, that such suit, action or proceeding is brought in an inconvenient forum or that the venue of such suit, action or proceeding is improper. Each party hereby irrevocably waives personal service of process and consents to process being served in any such suit, action or proceeding by mailing a copy thereof (certified or registered mail, return receipt requested) to such party at the address in effect for notices to it under this Agreement and agrees that such service shall constitute good and sufficient service of process and notice thereof. Nothing contained herein shall be deemed to limit in any way any right to serve process in any manner permitted by law.

17. Waiver of Jury Trial. The Company and Cowen each hereby irrevocably waives any right it may have to a trial by jury in respect of any claim based upon or arising out of this Agreement or any transaction contemplated hereby.

18. Absence of Fiduciary Relationship. The Company acknowledges and agrees that:

(a) Cowen has been retained solely to act as sales agent in connection with the sale of the Placement Shares and that no fiduciary, advisory or agency relationship between the Company and Cowen has been created in respect of any of the transactions contemplated by this Agreement, irrespective of whether Cowen has advised or is advising the Company on other matters;

(b) the Company is capable of evaluating and understanding and understands and accepts the terms, risks and conditions of the transactions contemplated by this Agreement;

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(c) the Company has been advised that Cowen and its affiliates are engaged in a broad range of transactions which may involve interests that differ from those of the Company and that Cowen has no obligation to disclose such interests and transactions to the Company by virtue of any fiduciary, advisory or agency relationship; and

(d) the Company waives, to the fullest extent permitted by law, any claims it may have against Cowen, for breach of fiduciary duty or alleged breach of fiduciary duty in connection with the sale of the Placement Shares under this Agreement and agrees that Cowen shall have no liability (whether direct or indirect) to the Company in respect of such a fiduciary claim or to any person asserting a fiduciary duty claim on behalf of or in right of the Company, including stockholders, partners, employees or creditors of the Company.

19. Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument. Delivery of an executed Agreement by one party to the other may be made by Electronic Notice or facsimile transmission.

20. Definitions. As used in this Agreement, the following term has the meaning set forth below:

(a) “*Applicable Time*” means the date of this Agreement, each Representation Date, the date on which a Placement Notice is given, and any date on which Placement Shares are sold hereunder.

(b) “*Agent’s Information*” means, solely the following information in the Prospectus: the third sentence of the eighth paragraph under the caption “Plan of Distribution” in the Prospectus.

[Remainder of Page Intentionally Blank]

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If the foregoing correctly sets forth the understanding between the Company and Cowen, please so indicate in the space provided below for that purpose, whereupon this letter shall constitute a binding agreement between the Company and Cowen.

Very truly yours,

**COWEN AND COMPANY, LLC**

By: /s/ E. James Streater, III

Name: E. James Streater, III

Title: Managing Director

**ACCEPTED as of the date  
first-above written:**

**INVITAE CORPORATION**

By: /s/ Shelly D. Guyer

Name: Shelly D. Guyer

Title: CFO

*[Signature Page to Invitae Corporation Sales Agreement]*

**FORM OF PLACEMENT NOTICE**

From: [●]  
Cc: [●]  
To: [●]  
Date:

Subject: Cowen and Company, LLC – At the Market Offering – Placement Notice

Ladies and Gentlemen:

Pursuant to the terms and subject to the conditions contained in the Sales Agreement between Invitae Corporation (the “Company”), and Cowen and Company, LLC (“Cowen”) dated August 9, 2018 (the “Agreement”), I hereby request on behalf of the Company that Cowen sell up to [●] shares of the Company’s common stock, \$0.0001 par value per share, at a minimum market price of \$[●] per share. Sales should begin on the date of this Notice and shall continue until [DATE] [all shares are sold].

**Placement Notice Individuals**

The Company

Sean E. George

Shelly D. Guyer

Patty Dumond

Cowen and Company, LLC

Michael Murphy, Director

**Compensation**

Cowen shall be paid compensation equal to 3.0% of the gross proceeds from the sales of Common Stock pursuant to the terms of this Agreement.

**Schedule of Subsidiaries**

CombiMatrix Corporation, a Delaware corporation

**OFFICER CERTIFICATE**

The undersigned, the duly qualified and elected President and Chief Executive Officer of Invitae Corporation, a Delaware corporation (the “**Company**”), does hereby certify in such capacity and on behalf of the Company, pursuant to Section 7(m) of the Sales Agreement dated August 9, 2018 (the “**Sales Agreement**”) between the Company and Cowen and Company, LLC, that to the best of the knowledge of the undersigned:

(i) The representations and warranties of the Company in Section 6 of the Sales Agreement (A) to the extent such representations and warranties are subject to qualifications and exceptions contained therein relating to materiality or Material Adverse Effect, are true and correct on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof, except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date, and (B) to the extent such representations and warranties are not subject to any qualifications or exceptions, are true and correct in all material respects as of the date hereof as if made on and as of the date hereof with the same force and effect as if expressly made on and as of the date hereof except for those representations and warranties that speak solely as of a specific date and which were true and correct as of such date; and

(ii) The Company has complied with all agreements and satisfied all conditions on its part to be performed or satisfied pursuant to the Sales Agreement at or prior to the date hereof.

Capitalized terms used but not defined herein shall have the meanings ascribed to them in the Sales Agreement.

By: \_\_\_\_\_

Name:

Title:

Date: \_\_\_\_\_

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INVITAE CORPORATION

TO

[            ]

*Trustee*

---

Indenture

*Dated as of            , 20*

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**INVITAE CORPORATION**  
**Reconciliation and tie between Trust Indenture Act of 1939 and**  
**Indenture, dated as of \_\_\_\_\_, 20\_\_\_\_\_**

<u>Trust Indenture Act Section</u>	<u>Indenture Sections</u>
§ 310(a)(1)	609
(a)(2)	609
(a)(3)	Not Applicable
(a)(4)	Not Applicable
(a)(5)	609
(b)	608
	610
§ 311(a)	613(a)
(b)	613(b)
(b)(2)	703(a)(2)
	703(b)
§ 312(a)	701
	702(a)
(b)	702(b)
(c)	702(c)
§ 313(a)	703(a)
(b)	703(b)
(c)	703(a), 703(b)
(d)	703(c)
§ 314(a)	704, 1004
(b)	Not Applicable
(c)(1)	102
(c)(2)	102
(c)(3)	Not Applicable
(d)	Not Applicable
(e)	102
§ 315(a)	601(a)
(b)	602
	703(a)(7)
(c)	601(b)
(d)	601(c)
(d)(1)	601(a)(1)
(d)(2)	601(c)(2)
(d)(3)	601(c)(3)
(e)	514
§ 316(a)	101
(a)(1)(A)	502
	512
(a)(1)(B)	513
(a)(2)	Not Applicable
(b)	508
(c)	104(e)
§ 317(a)(1)	503
(a)(2)	504
(b)	1003
§ 318(a)	107

Note: This reconciliation and tie shall not, for any purpose, be deemed to be a part of the Indenture.

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INDENTURE, dated as of \_\_\_\_\_, 20\_\_\_\_, between INVITAE CORPORATION, a corporation duly organized and existing under the laws of Delaware (herein called the “*Company*”), having its principal office at 1400 16th Street, San Francisco, California, 94103, and [TRUSTEE] (herein called the “*Trustee*”).

#### R ECITALS O F T HE C OMPANY

The Company has duly authorized the execution and delivery of this Indenture to provide for the issuance from time to time of its unsecured debentures, notes or other evidences of indebtedness (each herein called a “*Security*” or, collectively, the “*Securities*”), in an unlimited aggregate principal amount to be issued in one or more series as in this Indenture provided.

All things necessary to make this Indenture a valid agreement of the Company, in accordance with its terms, have been done.

NOW, THEREFORE, THIS INDENTURE WITNESSETH:

For and in consideration of the premises and the purchase of the Securities by the Holders thereof, it is mutually covenanted and agreed, for the equal and proportionate benefit of all Holders of the Securities or of any series thereof, as follows:

### ARTICLE ONE

#### DEFINITIONS AND OTHER PROVISIONS OF GENERAL APPLICATION

SECTION 101. *Definitions*. For all purposes of this Indenture, except as otherwise expressly provided or unless the context otherwise requires;

(1) the terms defined in this Article have the meanings assigned to them in this Article and include the plural as well as the singular;

(2) all other terms used herein that are defined in the Trust Indenture Act, either directly or by reference therein, have the meanings assigned to them therein;

(3) all accounting terms not otherwise defined herein have the meanings assigned to them in accordance with generally accepted accounting principles, and, except as otherwise herein expressly provided, the term “*generally accepted accounting principles*” with respect to any computation required or permitted hereunder shall mean such accounting principles as are generally accepted in the United States at the date of such computation or, at the election of the Company from time to time, at the date of the execution and delivery of this Indenture;

(4) the word “or” is not exclusive; and

(5) the words “herein”, “hereof” and “hereunder” and other words of similar import refer to this Indenture as a whole and not to any particular Article, Section or other subdivision.

Certain terms, used principally in Article Six, are defined in that Article.

“*Act*”, when used with respect to any Holder, has the meaning specified in Section 104.

“*Affiliate*” of any specified Person means any other Person directly or indirectly controlling or controlled by or under direct or indirect common control with such specified Person. For the purposes of this definition, “control” when used with respect to any specified Person means the power to direct the management and policies of such Person, directly or indirectly, whether through the ownership of voting securities, by contract or otherwise; and the terms “controlling” and “controlled” have meanings correlative to the foregoing.

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“ **Authenticating Agent** ” means any Person authorized by the Trustee to act on behalf of the Trustee to authenticate Securities.

“ **Authorized Officer** ” means the Executive Chairman of the Board of Directors, the Chief Executive Officer, the President, any Vice President (whether or not designated by a number or numbers or word or words added before or after the title “Vice President”), the Chief Financial Officer, the Treasurer, the Secretary, any Assistant Treasurer or any Assistant Secretary of the Company.

“ **Board of Directors** ” means either the board of directors of the Company or any duly authorized committee of that board.

“ **Board Resolution** ” when used with reference to the Company means a copy of a resolution certified by the Secretary or an Assistant Secretary of the Company to have been duly adopted by the Board of Directors and to be in full force and effect on the date of such certification, and delivered to the Trustee.

“ **Business Day** ”, when used with respect to any Place of Payment or any other particular location specified in the Securities or this Indenture, means each Monday, Tuesday, Wednesday, Thursday and Friday that is not a day on which banking institutions in that Place of Payment, such other location or the city in which the Corporate Trust Office of the Trustee is located, are authorized or obligated by law to close, except as may be otherwise specified as contemplated by Section 301(b).

“ **Commission** ” means the Securities and Exchange Commission, as from time to time constituted, created under the Securities Exchange Act of 1934, or, if at any time after the execution of this indenture such Commission is not existing and performing the duties now assigned to it under the Trust Indenture Act, then the body performing such duties at such time.

“ **Company** ” means the Person named as the “Company” in the first paragraph of this instrument until a successor Person has become such pursuant to the applicable provisions of this Indenture, and thereafter “Company” shall mean such successor Person.

“ **Company Request** ” or “ **Company Order** ” means a written request or order signed in the name of the Company by an Authorized Officer and delivered to the Trustee.

“ **Corporate Trust Office** ” means the office of the Trustee at which at any particular time its corporate trust business shall be principally administered and which at the date hereof is located at ●.

“ **corporation** ” means a corporation, association, joint stock company, limited liability company or business trust.

“ **Defaulted Interest** ” has the meaning specified in Section 307.

“ **Depository** ” means, with respect to the Securities of any series issuable or issued in the form of a Global Security, the Person designated as Depository by the Company in Section 301(b) until a successor Depository shall have become such pursuant to the applicable provisions of this Indenture, and thereafter “Depository” shall mean or include each Person who is then a Depository hereunder, and if at any time there is more than one such Person, “Depository” as used with respect to the Securities of any such series shall mean the Depository with respect to the Securities of that series.

“ **Dollar** ” or “ **\$** ” means a dollar or other equivalent unit in such coin or currency of the United States of America that is legal tender for the payment of public and private debts at the time of payment.

“ **Eligible Obligations** ” means U.S. Government Obligations.

“ **Event of Default** ” has the meaning specified in Section 501.

“ **Global Security** ” means a Security, if any, issued to evidence all or a part of a series of Securities in accordance with Section 301.

“ **Hedging Obligations** ” means, with respect to any Person, the obligations of such Person under (i) interest rate swap agreements, interest rate cap agreements and interest rate collar agreements and (ii) other agreements or arrangements designed to protect such Person against fluctuations in interest rates.

“ **Holder** ” means, with respect to a Security, a Person in whose name such Security is registered in the Security Register.

“ **Indenture** ” means this instrument as originally executed and as it may from time to time be supplemented or amended by one or more indentures supplemental hereto entered into pursuant to the applicable provisions hereof and shall include the form and terms of particular series of Securities established as contemplated by Section 301.

“ **Indexed Security** ” means a Security the terms of which provide that the principal amount thereof payable at Stated Maturity may be more or less than the principal face amount thereof at original issuance.

“ **interest** ”, when used with respect to an Original Issue Discount Security that by its terms bears interest only after Maturity, means interest payable after Maturity.

“ **Interest Payment Date** ”, when used with respect to any Security, means the Stated Maturity of an installment of interest on such Security.

“ **Maturity** ”, when used with respect to any Security, means the date on which the principal of such Security or an installment of principal becomes due and payable as therein or herein provided, whether at the Stated Maturity or by declaration of acceleration, upon call for redemption, exercise of repayment option or otherwise.

“ **Officer’s Certificate** ” means a certificate signed by an Authorized Officer and delivered to the Trustee.

“ **Opinion of Counsel** ” means a written opinion of counsel, who may be an employee of, or counsel for, the Company or an Affiliate of the Company, and who shall be reasonably acceptable to the Trustee.

“ **Original Issue Discount Security** ” means any Security that provides for an amount less than the principal amount thereof to be due and payable upon a declaration of acceleration of the Maturity thereof pursuant to Section 502.

“ **Outstanding** ”, when used with respect to Securities of any series, means, as of the date of determination, all Securities theretofore authenticated and delivered under this Indenture, *except* :

(a) Securities theretofore cancelled by the Trustee or delivered to the Trustee for cancellation;

(b) Securities or portions thereof for whose payment or redemption money or Eligible Obligations (or any combination of money and Eligible Obligations) in the necessary amount has been theretofore deposited with the Trustee or any Paying Agent (other than the Company or any other obligor on such Security) in trust or set aside and segregated in trust by the Company or any other obligor on such Security (if the Company or any other obligor on such Security acts as its own Paying Agent) for the Holders of such Securities; *provided, however*, that if such Securities, or portions thereof, are to be redeemed prior to the Stated Maturity thereof, notice of such redemption has been duly given pursuant to this Indenture or provision therefor satisfactory to the Trustee has been made;

(c) Securities as to which the Company has effected defeasance as provided in Section 402;

(d) Securities that have been paid pursuant to Section 306 or in exchange for or in lieu of which other Securities have been authenticated and delivered pursuant to this Indenture, other than any such Securities in respect of which there have been presented to the Trustee proof satisfactory to it and the Company that such Securities are held by a bona fide purchaser in whose hands such Securities are valid obligations of the Company;

*provided, however*, that in determining whether the Holders of the requisite principal amount of the Outstanding Securities have given, made or taken any request, demand, authorization, direction, notice, consent, waiver or other action hereunder,

(i) Securities owned by the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor (unless the Company, such Affiliate or such obligor owns (x) all Securities Outstanding under this Indenture or (y) except for the purposes of actions to be taken by Holders of more than one series or Tranche voting as a class, all Outstanding Securities of each such series and each such Tranche, as the case may be, determined without regard to this clause) shall be disregarded and deemed not to be Outstanding, except that, in determining whether the Trustee shall be protected in relying upon any such request, demand, authorization, direction, notice, consent or waiver, only Securities that the Trustee knows to be so owned shall be so disregarded. Securities so owned that have been pledged in good faith may be regarded as Outstanding if the pledgee establishes to the satisfaction of the Trustee the pledgee's right so to act with respect to such Securities and that the pledgee is not the Company or any other obligor upon the Securities or any Affiliate of the Company or of such other obligor;

(ii) in determining whether the Holders of the requisite principal amount of Securities of any series or Tranche have concurred in any direction, waiver or consent, the principal amount of Original Issue Discount Securities that shall be deemed to be outstanding shall be the amount of the principal thereof that would be due and payable as of the date of such determination upon acceleration of the maturity thereof pursuant to Section 502; and

(iii) in the case of any Security the principal of that is payable from time to time without presentment or surrender, the principal amount of such Security that shall be deemed to be Outstanding at any time for all purposes of this Indenture shall be the original principal amount thereof less the aggregate amount of principal thereof theretofore paid.

“ **Paying Agent** ” means any Person, including the Company, authorized by the Company to pay the principal of (and premium, if any) or interest on any Securities on behalf of the Company.

“ **Periodic Offering** ” means an offering of Securities of a series from time to time any or all of the specific terms of which Securities, including without limitation the rate or rates of interest, if any, thereon, the Stated Maturity or Maturities thereof and the redemption provisions, if any, with respect thereto, are to be determined by the Company or its agents from time to time subsequent to the initial request for the authentication and delivery of such Securities by the Trustee, all as contemplated in Sections 301 and 303.

“ **Person** ” means any individual, corporation, partnership, joint venture, trust, unincorporated organization or government or any agency or political subdivision thereof.

“ **Place of Payment** ”, when used with respect to the Securities of any series, or any Tranche thereof, means the place or places where the principal of (and premium, if any) and interest, if any, on the Securities of that series or Tranche are payable as specified as contemplated by Section 301(b).

“ **Predecessor Security** ” of any particular Security means every previous Security evidencing all or a portion of the same debt as that evidenced by such particular Security, and, for the purposes of this definition, any Security authenticated and delivered under Section 306 in exchange for or in lieu of a mutilated, destroyed, lost or stolen Security shall be deemed to evidence the same debt as the mutilated, destroyed, lost or stolen Security.

“**Redemption Date**”, when used with respect to any Security to be redeemed, means the date fixed for such redemption by or pursuant to this Indenture.

“**Redemption Price**”, when used with respect to any Security to be redeemed, means the price at which it is to be redeemed pursuant to this Indenture, exclusive of accrued and unpaid interest, if any.

“**Regular Record Date**” for the interest payable on any Interest Payment Date on the Securities of any series means the date specified for that purpose as contemplated by Section 301(b).

“**Repayment Date**”, when used with respect to any Security of any series to be repaid or repurchased, means the date, if any, fixed for such repayment or for such repurchase (whether at the option of the Holders or otherwise) pursuant to this Indenture.

“**Repayment Price**”, when used with respect to any Security of any series to be repaid, means the price, if any, at which it is to be repaid pursuant to Section 301(b).

“**Responsible Officer**”, when used with respect to the Trustee, means any officer within the corporate trust department or any other successor group of the Trustee, including any vice president, assistant vice president, assistant secretary or any other officer of the Trustee customarily performing functions similar to those performed by any of the above designated officers and also means, with respect to a particular corporate trust matter, any other officer of the Trustee to whom such matter is referred because of his or her knowledge of and familiarity with the particular subject.

“**Security**” or “**Securities**” has the meaning stated in the first recital of this Indenture and, more particularly, means any Security or Securities authenticated and delivered under this Indenture.

“**Security Register**” and “**Security Registrar**” have the respective meanings specified in Section 305.

“**series**” or “**series of Securities**” means a series of Securities issued under this Indenture as determined by Board Resolution or as otherwise determined under this Indenture.

“**Special Record Date**” for the payment of any Defaulted Interest means a date fixed by the Company pursuant to Section 307.

“**Stated Maturity**”, when used with respect to a Security of a particular series or any installment of principal thereof or interest thereon, means the date specified in such Security or in a Board Resolution or in an indenture supplemental hereto with respect to such series as the fixed date on which the principal of such Security or such installment of principal or interest is due and payable.

“**Subsidiary**” of any Person means (a) any corporation, association or other business entity of which more than 50% of the outstanding total voting power ordinarily entitled (without regard to the occurrence of any contingency) to vote in the election of directors, managers, trustees or other voting members of the governing body thereof is at the time owned or controlled, directly or indirectly, by the Company or by one or more other Subsidiaries, or by the Company and one or more other Subsidiaries or (b) any partnership the sole general partner or the managing general partner of which is the Company or a Subsidiary of the Company or the only general partners of which are the Company or of one or more Subsidiaries of the Company (or any combination thereof).

“**Tranche**” means a group of Securities which (a) are of the same series and (b) have identical terms to other Tranches of such series except as to principal amount, date of issuance or first interest payment date, each of which may vary among Tranches of any one series.

“**Trustee**” means the Person named as the “Trustee” in the first paragraph of this instrument until a successor Trustee shall have been appointed with respect to one or more series of Securities pursuant to the applicable provisions of this Indenture, and thereafter “Trustee” shall mean or include each Person who is then a

Trustee hereunder, and if at any time there is more than one such Person, "Trustee" as used with respect to the Securities of any series shall mean the Trustee with respect to Securities of that series.

"**Trust Indenture Act**" means the Trust Indenture Act of 1939 as in force at the date as of which this instrument was executed, except as provided in Section 905.

"**U.S. Government Obligations**" means (x) any security that is (i) a direct obligation of the United States of America for the payment of which the full faith and credit of the United States of America are pledged or (ii) an obligation of a Person controlled or supervised by and acting as an agency or instrumentality of the United States of America the payment of which is unconditionally guaranteed as a full faith and credit obligation by the United States of America, and (y) any depositary receipt issued by a bank (as defined in Section 3(a)(2) of the Securities Act of 1933) as custodian with respect to any U.S. Government Obligation that is specified in clause (x) above and held by such bank for the account of the holder of such depositary receipt, or with respect to any specific payment of principal of or interest on any U.S. Government Obligation which is so specified and held, provided that (except as required by law) such custodian is not authorized to make any deduction from the amount payable to the holder of such depositary receipt from any amount received by the custodian in respect of the U.S. Government Obligation or the specific payment of principal of or interest on the U.S. Government Obligation evidenced by such depositary receipt.

"**Vice President**", when used with respect to the Company or the Trustee, means any vice president, whether or not designated by a number or a word or words added before or after the title "vice president".

SECTION 102. *Compliance Certificates and Opinions*. (a) Except as otherwise expressly provided in this Indenture, upon any application or request by the Company to the Trustee to take any action under any provision of this Indenture, the Company shall, if requested by the Trustee, furnish to the Trustee an Officer's Certificate stating that all conditions precedent, if any, provided for in this Indenture relating to the proposed action have been complied with and an Opinion of Counsel stating that in the opinion of such counsel all such conditions precedent, if any, have been complied with, except that in the case of any such application or request as to which the furnishing of such documents is specifically required by any provision of this Indenture relating to such particular application or request, no additional certificate or opinion need be furnished.

(b) Every certificate or opinion with respect to compliance with a condition or covenant provided for in this Indenture (except for certificates provided for in Section 1004) shall include:

- (1) a statement that each individual signing such certificate or opinion has read such covenant or condition and the definitions herein relating thereto;
- (2) a brief statement as to the nature and scope of the examination or investigation upon which the statements or opinions contained in such certificate or opinion are based;
- (3) a statement that, in the opinion of each such individual, he has made such examination or investigation as is necessary to enable him to express an informed opinion as to whether or not such covenant or condition has been complied with; and
- (4) a statement as to whether, in the opinion of each such individual, such condition or covenant has been complied with.

SECTION 103. *Form of Documents Delivered to Trustee*. (a) In any case where several matters are required to be certified by, or covered by an opinion of, any specified Person, it is not necessary that all such matters be certified by, or covered by the opinion of, only one such Person, or that they be so certified or covered by only one document, but one such Person may certify or give an opinion with respect to some matters and one or more other such Persons as to other matters, and any such Person may certify or give an opinion as to such matters in one or several documents.

(b) Any certificate, statement or opinion of an officer of the Company may be based, insofar as it relates to legal matters, upon a certificate or an Opinion of Counsel, or representations by counsel. Any such certificate, statement or Opinion of Counsel may be based, insofar as it relates to factual matters, upon a certificate, statement or opinion of, or representations by, an officer or officers of the Company stating that the information with respect to such factual matters is in the possession of the Company. Any certificate, statement or opinion of an officer of the Company or of counsel may be based, insofar as it relates to accounting matters, upon a certificate, statement or opinion of, or representations by, an accountant or firm of accountants in the employ of the Company. Any certificate, statement or opinion of, or representations by, any independent firm of public accountants filed with the Trustee shall contain a statement that such firm is independent.

(c) Where any Person is required to make, give or execute two or more applications, requests, consents, certificates, statements, opinions or other instruments under this Indenture, they may, but need not, be consolidated and form one instrument.

SECTION 104. *Acts of Holders* . (a) Any request, demand, authorization, direction, notice, consent, waiver or other action provided or permitted by this Indenture to be made, given or taken by Holders may be embodied in and evidenced by one or more instruments of substantially similar tenor signed by such Holders in person or by an agent duly appointed in writing; and, except as herein otherwise expressly provided, such action shall become effective when such instrument or instruments are delivered to the Trustee and, where it is hereby expressly required, to the Company. Such instrument or instruments (and the action embodied therein and evidenced thereby) are herein sometimes referred to as the “Act” of the Holders signing such instrument or instruments. Proof of execution of any such instrument or of a writing appointing any such agent shall be sufficient for any purpose of this Indenture and (subject to Section 601) conclusive in favor of the Trustee and the Company, if made in the manner provided in this Section.

(b) The fact and date of the execution by any Person of any such instrument or writing may be proved by the affidavit of a witness of such execution or by a certificate of a notary public or other officer authorized by law to take acknowledgments of deeds, certifying that the individual signing such instrument or writing acknowledged to him the execution thereof. Where such execution is by a signer acting in a capacity other than his individual capacity, such certificate or affidavit shall also constitute sufficient proof of his authority. The fact and date of the execution of any such instrument or writing, or the authority of the Person executing the same, may also be proved in any other manner acceptable to the Trustee.

(c) The principal amount (except as otherwise contemplated in clause (ii) of the proviso to the definition of “Outstanding”) and serial numbers of Securities held by any Person, and the date of holding the same, shall be proved by the Security Register.

(d) Any request, demand, authorization, direction, notice, consent, election, waiver or other Act of the Holder of any Security shall bind every future Holder of the same Security and the Holder of every Security issued upon the registration of transfer thereof or in exchange therefor or in lieu thereof in respect of anything done, omitted or suffered to be done by the Trustee or the Company in reliance thereon, whether or not notation of such action is made upon such Security.

(e) The Company may set a record date for purposes of determining the identity of Holders of any Outstanding Securities of any series entitled to vote or consent to any action by vote or consent authorized or permitted by Section 512 or 513. Such record date shall be not less than 10 nor more than 60 days prior to the first solicitation of such consent or the date of the most recent list of Holders of such Securities furnished to the Trustee pursuant to Section 701 prior to such solicitation.

(f) If the Company solicits from Holders any request, demand, authorization, direction, notice, consent, election, waiver or other Act, the Company may, at its option, fix in advance a record date for the determination of Holders entitled to give such request, demand, authorization, direction, notice, consent, election, waiver or other Act, but the Company shall have no obligation to do so. If such a record date is fixed, such request, demand, authorization, direction, notice, consent, election, waiver or other Act may be given before or after such record date, but only the Holders of record at the close of business on the record date shall be deemed to be Holders for the purposes of determining whether Holders of the requisite proportion of the Outstanding Securities have

authorized or agreed or consented to such request, demand, authorization, direction, notice, consent, election, waiver or other Act, and for that purpose the Outstanding Securities shall be computed as of the record date.

SECTION 105. *Notices, Etc. to Trustee and Company* . Except as otherwise provided herein, any request, demand, authorization, direction, notice, consent, election, waiver or Act of Holders or other document provided or permitted by this Indenture to be made upon, given or furnished to, or filed with,

(a) the Trustee by any Holder or by the Company shall be sufficient for every purpose hereunder if made, given, furnished or filed in writing to or with the Trustee at its Corporate Trust Office, Attention: ●, or

(b) the Company by the Trustee or by any Holder shall be sufficient for every purpose hereunder (unless otherwise herein expressly provided) if in writing and mailed, first-class postage prepaid, to the Company addressed to it at the address of its principal office specified in the first paragraph of this instrument or at any other address furnished in writing to the Trustee by the Company prior to such mailing.

SECTION 106. *Notice to Holders; Waiver* . (a) Except as otherwise expressly provided herein, where this Indenture provides for notice of any event or reports to Holders, such notice or report shall be sufficiently given if in writing and mailed, first-class postage prepaid or electronically in the case of Global Securities, to each Holder of Securities affected by such event, at the address of such Holder as it appears in the Security Register and to addresses filed with the Trustee or preserved on the Trustee's list pursuant to Section 702(a) for other Holders (and to such other addressees as may be required in the case of such notice or report under Section 313(c) of the Trust Indenture Act), not later than the latest date, and not earlier than the earliest date, prescribed for the giving of such notice or report.

(b) In any case where notice to Holders is given by mail, neither the failure to mail such notice, nor any defect in any notice so mailed, to any particular Holder shall affect the sufficiency of such notice with respect to other Holders.

(c) Where this Indenture provides for notice in any manner, such notice may be waived in writing by the Person entitled to receive such notice, either before or after the event, and such waiver shall be the equivalent of such notice. Waivers of notice by Holders shall be filed with the Trustee, but such filing shall not be a condition precedent to the validity of any action taken in reliance upon such waiver.

(d) Notwithstanding any other provision of this Indenture or any Security, where this Indenture or any Security provides for notice of any event (including any notice of redemption) to a holder of a Global Security (whether by mail or otherwise), such notice shall be sufficiently given if given to the Depository for such Security (or its designee) pursuant to the applicable procedures of the Depository.

SECTION 107. *Conflict With Trust Indenture Act* . If any provision hereof limits, qualifies or conflicts with a provision of the Trust Indenture Act that is required under the Trust Indenture Act to be a part of and govern this Indenture, the latter provision shall control. If any provision of this Indenture modifies or excludes any provision of the Trust Indenture Act that may be so modified or excluded, the latter provision shall be deemed to apply to this Indenture as so modified or to be excluded, as the case may be.

SECTION 108. *Effect of Headings and Table of Contents* . The Article and Section headings herein and the Table of Contents are for convenience only and shall not affect the construction hereof.

SECTION 109. *Successors and Assigns* . All covenants and agreements in this Indenture by the Company shall bind its successors and assigns, whether so expressed or not.

SECTION 110. *Separability Clause* . In case any provision in this Indenture or in the Securities is invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

SECTION 111. *Benefits of Indenture* . Nothing in this Indenture or in the Securities, express or implied, shall give to any Person, other than the parties hereto (including any Paying Agent appointed pursuant to Section 1002 and Authenticating Agent appointed pursuant to Section 614 to the extent provided herein) and their successors hereunder and the Holders, any benefit or any legal or equitable right, remedy or claim under this Indenture.

SECTION 112. *Governing Law* . This Indenture and the Securities shall be governed by and construed in accordance with the laws of the State of New York in the United States, but without giving effect to the conflicts of laws principles thereof.

SECTION 113. *Legal Holidays* . In any case where any Interest Payment Date, Redemption Date, Repayment Date or Stated Maturity of any Security is not a Business Day at any Place of Payment or the city in which the Corporate Trust Office of the Trustee is located, then (notwithstanding any other provision of this Indenture or of the Securities, other than a provision in Securities of any series, or in the Board Resolution, Supplemental Indenture or Officer's Certificate that establishes the terms of such Securities, that specifically states that such provision shall apply in lieu of this Section) payment of interest or principal (and premium, if any) need not be made at such Place of Payment on such date, but may be made on the next succeeding Business Day at such Place of Payment with the same force and effect as if made on the Interest Payment Date or Redemption Date, Repayment Date, or at the Stated Maturity, and such extension of time shall in such case be (1) excluded in the computation of interest, if any, accruing on such Security at a fixed rate and (2) included in the computation of interest, if any, accruing on such Security at a floating rate; *provided, however* , that if such extension would cause payment of interest at a floating rate to be made in the next following calendar month, such payment shall be made on the next preceding Business Day.

SECTION 114. *Rules by Trustee and Agents* . The Trustee may make reasonable rules for action by or at a meeting of Holders of one or more series. The Paying Agent or Security Registrar may make reasonable rules and set reasonable requirements for its functions.

SECTION 115. *No Recourse Against Others* . No past, present or future director, officer, stockholder or employee, as such, of the Company or any of its Affiliates or any successor corporation shall have any liability for any obligation, covenant or agreement of the Company under this Indenture or any indenture supplemental hereto, or in the Securities, or for any claim based on, in respect of or by reason of such obligations, covenants or agreements or their creation. Each Holder by accepting a Security waives and releases all such liability. The waiver and release are part of the consideration for the execution and delivery of this Indenture and the issue of the Securities.

## ARTICLE TWO

### SECURITY FORMS

SECTION 201. *Forms Generally* . (a) The Securities of each series shall be in substantially such form as shall be established by or pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental hereto, in each case with such appropriate insertions, omissions, substitutions and other variations as are required or permitted by this Indenture and may have such letters, numbers or other marks of identification and such legends or endorsements placed thereon as may be required to comply with law or with any rules or regulations pursuant thereto, or with any rules of any securities exchange or to conform with general usage, all as may, consistently herewith, be determined by the officers executing such Securities, as evidenced by their execution of the Securities. When the form of Securities of any series is established by action taken pursuant to a Board Resolution, a copy of an appropriate record of such action shall be delivered to the Trustee at or prior to the delivery of the Company Order contemplated by Section 303 for the authentication and delivery of such Securities.

(b) The definitive Securities shall be produced in such manner or combination of manners, all as determined by the officers executing such Securities, as evidenced by their execution of such Securities.

SECTION 202. *Form of Trustee 's Certificate of Authentication* . The Trustee's certificate of authentication shall be in substantially the following form:

This is one of the Securities of the series designated herein, referred to in the within-mentioned Indenture.

[            ]  
as Trustee

By \_\_\_\_\_  
Authorized Officer

### ARTICLE THREE

#### THE SECURITIES

SECTION 301. *Amount Unlimited; Issuable in Series* . (a) The aggregate principal amount of Securities that may be authenticated and delivered under this Indenture is unlimited.

(b) The Securities may be issued in one or more series. There shall be established in or pursuant to a Board Resolution, and set forth in an Officer's Certificate, or established in one or more indentures supplemental hereto, prior to the issuance of Securities of any series,

(1) the title of the Securities of such series (which shall distinguish the Securities of the series from all other Securities);

(2) any limit upon the aggregate principal amount of the Securities of such series that may be authenticated and delivered under this Indenture (except for Securities authenticated and delivered upon registration of transfer of, or in exchange for, or in lieu of, other Securities of such series pursuant to Section 304, 305, 306, 906, 1107 or 1204 and except for any Securities that, pursuant to Section 303, are deemed never to have been authenticated and delivered hereunder);

(3) the date or dates on which the principal and premium, if any, of the Securities of such series, or any Tranche thereof, is payable or any formula or other method or other means by which such date or dates shall be determined, by reference to an index or other fact or event ascertainable outside of this Indenture or otherwise (without regard to any provisions for redemption, prepayment, acceleration, purchase or extension);

(4) the rate or rates at which the Securities of such series, or any Tranche thereof, shall bear interest, if any (including the rate or rates at which overdue principal shall bear interest, if different from the rate or rates at which such Securities shall bear interest prior to Maturity, and, if applicable, the rate or rates at which overdue premium or interest shall bear interest, if any), or any formula or other method or other means by which such rate or rates shall be determined, by reference to an index or other fact or event ascertainable outside of this Indenture or otherwise; the date or dates from which such interest shall accrue; the Interest Payment Dates on which such interest shall be payable and the Regular Record Date, if any, for the interest payable on such Securities on any Interest Payment Date; the right of the Company, if any, to extend the interest payment periods and the duration of any such extension as contemplated by Section 312; and the basis of computation of interest, if other than as provided in Section 310;

(5) the place or places where the principal of and premium, if any, and interest, if any, on Securities of such series, or any Tranche thereof, shall be payable, where the Securities of such series, or

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any Tranche thereof, may be surrendered for registration of transferor for exchange, and where notices and demands to or upon the Company in respect of the Securities of such series, or any Tranche thereof, and this Indenture may be served and notices to Holders pursuant to Section 106 will be published; the Security Registrar and any Paying Agent or Agents for such series or Tranche; and if such is the case, that the principal of such Securities shall be payable without presentment or surrender thereof;

(6) if applicable, the period or periods within which, the price or prices at which and the terms and conditions upon which Securities of such series, or any Tranche thereof, may be redeemed, in whole or in part, at the option of the Company and, if other than by a Board Resolution, the manner in which any election by the Company to redeem such Securities shall be evidenced;

(7) the obligation, if any, of the Company to redeem or purchase Securities of such series, or any Tranche thereof, pursuant to any sinking fund or analogous provisions or at the option of the Holder thereof and the period or periods within which, the price or prices at which and the terms and conditions upon which Securities of such series, or any Tranche thereof, shall be redeemed or purchased, in whole or in part, pursuant to such obligation;

(8) the terms, if any, on which the Securities of such series will be subordinate in right and priority of payment to other debt of the Company;

(9) the denominations in which any Securities of such series shall be issuable, if other than denominations of \$1,000 and any integral multiple thereof;

(10) if other than the principal amount thereof, the portion of the principal amount of Securities of such series that shall be payable upon declaration of acceleration of the Maturity thereof pursuant to Section 502;

(11) if the principal of or any premium or interest on the Securities of such series is to be payable, or is to be payable at the election of the Company or a Holder thereof, in securities or other property, the type and amount of such securities or other property, or the manner of determining such amount shall be determined, and the period or periods within which, and the terms and conditions upon which, any such election may be made;

(12) the Person to whom any interest on any Security of such series shall be payable, if other than the Person in whose name that Security is registered at the close of business on the Regular Record Date for such interest, and the extent to which, or the manner in which, any interest payable on a temporary or permanent Global Security on an interest payment date will be paid;

(13) any addition to or change in the Events of Default, with respect to the Securities of such series, and any addition to or change in the covenants of the Company for the benefit of the Holders of the Securities of such series in addition to those set forth in Article Ten;

(14) the terms and conditions, if any, pursuant to which the Securities of such series may be converted into or exchanged for securities or other property of the Company or any other Person;

(15) the terms and conditions, if any, pursuant to which the Company's obligations under this Indenture may be terminated through the deposit of money or Eligible Instruments as provided in Article Four;

(16) any exceptions to Section 113, or variation in the definition of Business Day, with respect to the Securities of such series;

(17) any collateral security, assurance or guaranty for the Securities of such series;

(18) the non-applicability of Section 608 to the Securities of such series or any exceptions or modifications of Section 608 with respect to the Securities of such series;

(19) any rights or duties of another Person to assume the obligations of the Company with respect to the Securities of such series (whether as joint obligor, primary obligor, secondary obligor or substitute obligor) and any rights or duties to discharge and release any obligor with respect to the Securities of such series or this Indenture to the extent related to such series; and

(20) any other terms, conditions and rights of such series (which terms, conditions and rights shall not be inconsistent with the provisions of this Indenture, except as permitted by Section 901(a)(4)).

(c) All Securities of any one series (other than Securities offered in a Periodic Offering) shall be substantially identical except as to denomination and except as may otherwise be provided in or pursuant to such Board Resolution and set forth in such Officer's Certificate or in any such indenture supplemental hereto and as reasonably acceptable to the Trustee. Securities of different series may differ in any respect.

(d) If the terms and form or forms of any series of Securities are established by or pursuant to a Board Resolution, the Company shall deliver a copy of such Board Resolution to the Trustee at or prior to the issuance of such series with (1) the form or forms of Security that have been approved attached thereto, or (2) if such Board Resolution authorizes a specific officer or officers to approve the terms and form or forms of the Securities, a certificate of such officer or officers approving the terms and form or forms of Security with such form or forms of Securities attached thereto. Such Board Resolution or certificate may provide general terms or parameters for Securities of any series and may provide that the specific terms of particular Securities of a series may be determined in accordance with or pursuant to the Company Order referred to in Section 303.

(e) With respect to Securities of a series subject to a Periodic Offering, the indenture supplemental hereto or the Board Resolution that establishes such series, or the Officer's Certificate pursuant to such supplemental indenture or Board Resolution, as the case may be, may provide general terms or parameters for Securities of such series and provide either that the specific terms of Securities of such series shall be specified in a Company Order or that such terms shall be determined by the Company or its agents in accordance with procedures specified in a Company Order as contemplated by Section 303(c).

(f) Unless otherwise specified with respect to a series of Securities pursuant to paragraph (2) of Section 301(b), such series of Securities may be issued in one or more Tranches with various principal amounts without the consent of any Holders and additional Tranches of such series may be authenticated and delivered pursuant to Section 303.

SECTION 302. *Denominations* . The Securities of each series shall be issuable in registered form in such denominations as shall be specified as contemplated by Section 301(b). In the absence of any such provisions with respect to the Securities of any series, the Securities of such series shall be issuable in denominations of \$1,000 and any integral multiple thereof.

SECTION 303. *Execution, Authentication, Delivery and Dating* . (a) The Securities shall be signed on behalf of the Company by an Authorized Officer and attested by its Secretary or any Assistant Secretary. The signature of any of these officers on the Securities may be manual or facsimile. Typographical and other minor errors or defects in any such signature shall not affect the validity or enforceability of any Security that has been duly authenticated and delivered by the Trustee.

(b) Securities bearing the manual or facsimile signatures of individuals who were at any time the proper officers of the Company shall bind the Company notwithstanding that such individuals or any of them have ceased to hold such offices prior to the authentication and delivery of such Securities or did not hold such offices at the date of such Securities.

(c) At any time and from time to time after the execution and delivery of this Indenture, the Company may deliver Securities of any series (or any Tranche thereof) executed by the Company to the Trustee for

authentication, together with a Company Order for the authentication and delivery of such Securities (or such Tranche), and the Trustee in accordance with the Company Order shall authenticate and deliver such Securities (or such Tranche); *provided, however*, that with respect to Securities of a series subject to a Periodic Offering, (i) such Company Order may be delivered by the Company to the Trustee prior to the delivery to the Trustee of such Securities for authentication and delivery, (ii) the Trustee shall authenticate and deliver Securities of such series for original issue from time to time, in an aggregate principal amount not exceeding the aggregate principal amount established for such series, all pursuant to a Company Order or pursuant to such procedures acceptable to the Trustee as may be specified from time to time by a Company Order, (iii) the maturity date or dates, original issue date or dates, interest rate or rates and any other terms of Securities of such series shall be determined by Company Order or pursuant to such procedures and (iv) if provided for in such procedures, such Company Order may authorize authentication and delivery pursuant to oral or electronic instructions from the Company or its duly authorized agent or agents, which oral instructions shall be promptly confirmed in writing.

(d) In authenticating such Securities and accepting the additional responsibilities under this Indenture in relation to such Securities, the Trustee shall be entitled to receive, and (subject to Section 601) shall be fully protected in relying upon, an Opinion of Counsel stating:

(i) that such form of Securities has been established in conformity with the provisions of this Indenture;

(ii) that the terms of such Securities have been established in conformity with the provisions of this Indenture; and

(iii) that such Securities, when authenticated and delivered by the Trustee and issued by the Company in the manner and subject to any conditions specified in such Opinion of Counsel, will constitute valid and legally binding obligations of the Company, enforceable in accordance with their terms, subject to bankruptcy, insolvency, fraudulent transfer, reorganization, moratorium and similar laws of general applicability relating to or affecting creditors' rights generally and to general principles of equity.

(e) Notwithstanding the provisions of Section 301 and of the preceding paragraphs of Sections 303(c) and 303(d) in connection with a Periodic Offering, if all Securities of a series are not to be originally issued at one time, it shall not be necessary to deliver an Officer's Certificate or execute a supplemental indenture otherwise required pursuant to Section 301(b) or the Company Order and Opinion of Counsel otherwise required pursuant to such preceding paragraphs at or prior to the time of authentication of each Security of such series if such documents are delivered at or prior to the authentication upon original issuance of the first Security of such series to be issued.

(f) If such form or terms have been so established, the Trustee shall not be required to authenticate such Securities if the issuance of such Securities pursuant to this Indenture will affect the Trustee's own rights, duties or immunities under the Securities and this Indenture or otherwise in a manner that is not reasonably acceptable to the Trustee.

(g) No Security shall be entitled to any benefit under this Indenture or be valid or obligatory for any purpose unless there appears on such Security a certificate of authentication substantially in the form provided for herein executed by the Trustee by manual or facsimile signature, and such certificate upon any Security shall be conclusive evidence, and the only evidence, that such Security has been duly authenticated and delivered hereunder and is entitled to the benefits of this Indenture.

SECTION 304. *Temporary Securities*. (a) Until definitive Securities of any series (including Global Securities) are ready for delivery, the Company may execute, and upon Company Order the Trustee shall authenticate and deliver one or more temporary Securities that are produced in any authorized denomination, substantially of the tenor of the definitive Securities in lieu of which they are issued and with such appropriate insertions, omissions, substitutions and other variations as the officers executing such Securities may determine, as evidenced by their execution of such Securities.

(b) If temporary Securities of any series are issued, the Company will cause definitive Securities of that series to be prepared without unreasonable delay. After the preparation of definitive Securities of such series, the temporary Securities of such series shall be exchangeable for definitive Securities of such series upon surrender of the temporary Securities of such series at the office or agency of the Company in a Place of Payment for that series, without charge to the Holder. Upon surrender for cancellation of any one or more temporary Securities of any series the Company shall execute and the Trustee shall authenticate and deliver in exchange therefor a like principal amount of definitive Securities of the same series of authorized denominations. Until so exchanged the temporary Securities of any series shall in all respects be entitled to the same benefits under this Indenture as definitive Securities of such series.

SECTION 305. *Registration, Registration of Transfer and Exchange* . (a) The Company shall cause to be kept at the Corporate Trust Office of the Trustee a register (the register maintained in such office and in any other office or agency of the Company in a Place of Payment being herein sometimes collectively referred to as the “**Security Register**”) in which, subject to such reasonable regulations as it may prescribe, the Company shall provide for the registration of Securities and of transfers of Securities. The Trustee is hereby appointed “**Security Registrar**” for the purpose of registering Securities and transfers of Securities as herein provided.

(b) Except in the case of Securities issued in the form of a Global Security, upon surrender for registration of transfer of any Security of any series at the office or agency of the Company in a Place of Payment for that series, the Company shall execute, and the Trustee shall authenticate and deliver, in the name of the designated transferee or transferees, one or more new Securities of the same series, of any authorized denominations and of a like aggregate principal amount.

(c) All Securities issued upon any registration of transfer or exchange of Securities shall be the valid obligations of the Company, evidencing the same debt, and entitled to the same benefits under this Indenture, as the Securities surrendered upon such registration of transfer or exchange.

(d) Every Security presented or surrendered for registration of transfer or for exchange shall (if so required by the Company or the Trustee) be duly endorsed, or be accompanied by a written instrument of transfer in form satisfactory to the Company and the Security Registrar duly executed by the Holder thereof or such Holder’s attorney duly authorized in writing.

(e) Unless otherwise provided in a Board Resolution or an Officer’s Certificate pursuant to a Board Resolution, or in an indenture supplemental hereto, with respect to Securities of any series, no service charge shall be made to the Holder for any registration of transfer or exchange of Securities, but the Company may require payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in connection with any registration of transfer or exchange of Securities, other than exchanges pursuant to Section 304, 906, 1106 or 1204 not involving any transfer.

(f) The Company shall not be required (i) to issue, register the transfer of or exchange Securities of any series during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of Securities of that series selected for redemption under Section 1103 and ending at the close of business on the day of such mailing, or (ii) to register the transfer of or exchange any Security so selected for redemption in whole or in part, except the unredeemed portion of any Security being redeemed in part.

SECTION 306. *Mutilated, Destroyed, Lost and Stolen Securities* . (a) If any mutilated Security is surrendered to the Trustee, the Company shall execute and the Trustee shall authenticate and deliver in exchange therefor a replacement Security of the same series and of like tenor and principal amount and bearing a number not contemporaneously outstanding.

(b) If there has been delivered to the Company and the Trustee (i) evidence to their satisfaction of the destruction, loss or theft of any Security and (ii) such bond, security or indemnity as may be required by them to save each of them and any agent of either of them harmless, then, in the absence of actual notice to the Company or the Trustee that such Security has been acquired by a bona fide purchaser, the Company shall execute and upon its request the Trustee shall authenticate and deliver, a replacement Security of the same series

(and Tranche, if applicable) and of like tenor and principal amount and bearing a number not contemporaneously outstanding.

(c) In case any such mutilated, destroyed, lost or stolen Security has become or is about to become due and payable, the Company in its discretion may, instead of issuing a new Security, pay such Security.

(d) Upon the issuance of any new Security under this Section, the Company may require the payment of a sum sufficient to cover any tax or other governmental charge that may be imposed in relation thereto and any other expenses (including the fees and expenses of the Trustee) connected therewith.

(e) Every new Security of any series issued pursuant to this Section in lieu of any destroyed, lost or stolen Security shall constitute an original additional contractual obligation of the Company, whether or not the destroyed, lost or stolen Security is at any time enforceable by anyone, and shall be entitled to all the benefits of this Indenture equally and proportionately with any and all other Securities of that series duly issued hereunder.

(f) The provisions of this Section are exclusive and shall preclude (to the extent lawful) all other rights and remedies with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities.

SECTION 307. *Payment of Interest; Interest Rights Preserved* . (a) Unless otherwise provided as contemplated by Section 301(b) with respect to the Securities of any series, interest on any Security that is payable, and is punctually paid or duly provided for, on any Interest Payment Date shall be paid to the Person in whose name that Security (or one or more Predecessor Securities) is registered at the close of business on the Regular Record Date for such interest; *provided, however* , that interest payable at Maturity will be paid to the Person to whom principal is payable.

(b) Any interest on any Security of any series that is payable, but is not punctually paid or duly provided for, on any Interest Payment Date (herein called “*Defaulted Interest*”) shall forthwith cease to be payable to the Holder on the relevant Regular Record Date by virtue of having been such Holder, and such Defaulted Interest may be paid by the Company, at its election in each case, as provided in clause (i) or (ii) below:

(i) The Company may elect to make payment of any Defaulted Interest to the Persons in whose names the Securities of such series (or their respective Predecessor Securities) are registered at the close of business on a Special Record Date for the payment of such Defaulted Interest, which shall be fixed in the following manner. The Company shall notify the Trustee in writing of the amount of Defaulted Interest proposed to be paid on each Security of such series and the date of the proposed payment, and at the same time the Company shall deposit with the Trustee an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Trustee for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the Persons entitled to such Defaulted Interest as in this clause provided. Thereupon the Company shall fix a Special Record Date for the payment of such Defaulted Interest which shall be not more than 15 days and not less than 10 days prior to the date of the proposed payment and not less than 10 days after the receipt by the Trustee of the notice of the proposed payment. The Company shall promptly notify the Trustee of such Special Record Date and, in the name and at the expense of the Company, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first-class postage prepaid, to each Holder of Securities of such series at the address of such Holder as it appears in the Security Register, not less than 10 days prior to such Special Record Date. Notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor having been so mailed, such Defaulted Interest shall be paid to the Persons in whose names the Securities of such series (or their respective Predecessor Securities) are registered at the close of business on such Special Record Date and shall no longer be payable pursuant to the following clause (ii).

(ii) The Company may make payment of any Defaulted Interest on the Securities of any series in any other lawful manner not inconsistent with the requirements of any securities exchange on which such Securities may be listed, and upon such notice as may be required by such exchange, if, after

notice given by the Company to the Trustee of the proposed payment pursuant to this clause (ii), such manner of payment shall be deemed practicable by the Trustee.

(c) Subject to the foregoing provisions of this Section, each Security delivered under this Indenture upon registration of transfer of or in exchange for or in lieu of any other Security shall carry the rights to interest accrued and unpaid, and to accrue, which were carried by such other Security.

SECTION 308. *Persons Deemed Owners* . Prior to due presentment of a Security for registration of transfer, the Company, the Trustee and any agent of the Company or the Trustee may treat the Person in whose name such Security is registered as the owner of such Security for the purpose of receiving payment of principal of (and any premium) and (subject to Section 301 and Section 307) any interest on such Security and for all other purposes whatsoever, whether or not such Security be overdue, and neither the Company, the Trustee nor any agent of the Company or the Trustee shall be affected by notice to the contrary.

Ownership of Securities of a series shall be proved by the computerized book-entry system of the Depository in the case of Securities issued in the form of a Global Security.

None of the Company, the Trustee, any Paying Agent or the Security Registrar shall have any responsibility or liability for any aspect of the records relating to or payments made on account of beneficial ownership interests of a Global Security or for maintaining, supervising or reviewing any records relating to such beneficial ownership interests.

SECTION 309. *Cancellation* . Except as otherwise specified as contemplated by Section 301(b) for Securities of any series, all Securities surrendered for payment, redemption, registration of transfer or exchange or for credit against any sinking fund payment shall, if surrendered to any Person other than the Trustee, be delivered to the Trustee and, if not theretofore cancelled, shall be promptly cancelled by it. Except as otherwise specified as contemplated by Section 301(b) for Securities of any series, the Company may at any time deliver to the Trustee for cancellation any Securities previously authenticated and delivered hereunder that the Company may have acquired in any manner whatsoever or that the Company has not issued and sold, and all Securities so delivered shall be promptly cancelled by the Trustee. No Securities shall be authenticated in lieu of or in exchange for any Securities cancelled as provided in this Section, except as expressly permitted by this Indenture. Upon request of the Company, the Trustee shall provide it with a certificate of cancellation.

SECTION 310. *Computation of Interest* . Except as otherwise specified as contemplated by Section 301(b) for Securities of any series, interest on the Securities of each series shall be computed on the basis of a 360-day year of twelve 30-day months.

SECTION 311. *Global Securities; Exchanges; Registration and Registration of Transfer* . If specified as contemplated by Section 301(b) for Securities of any series, the Securities of such series may be issued in the form of one or more Global Securities, which shall be deposited with the Depository, and, unless otherwise specified in the form of Global Security adopted pursuant to Section 301, be registered in the name of the Depository's nominee.

Except as otherwise specified as contemplated by Section 301(b) for Securities of any series, any permanent Global Security shall be exchangeable only as provided in this paragraph. If the beneficial owners of interests in a permanent Global Security are entitled to exchange such interests for Securities of such series of like tenor and principal amount of another authorized form, as specified as contemplated by Section 301(b), then without unnecessary delay but in any event not later than the earliest date on which such interests may be so exchanged, the Company shall deliver to the Trustee definitive Securities of that series in aggregate principal amount equal to the principal amount of such permanent Global Security, executed by the Company. On or after the earliest date on which such interests may be so exchanged, such permanent Global Security shall be surrendered from time to time in accordance with instructions given to the Trustee and the Depository (which instructions shall be in writing but need not comply with Section 102 or be accompanied by an Opinion of Counsel) by the Depository or such other depository as shall be specified in the Company Order with respect thereto to the Trustee, as the Company's agent for such purpose, to be exchanged, in whole or in part, for definitive Securities of the same series without charge and the Trustee shall authenticate and deliver, in exchange for each portion of such permanent Global Security, a like

aggregate principal amount of definitive Securities of the same series of authorized denominations and of like tenor as the portion of such permanent Global Security to be exchanged, as shall be specified by the Depository; *provided, however*, that no such exchanges may occur during the periods specified by Section 305.

The Global Security may be transferred to another nominee of the Depository, or to a successor Depository selected by the Company, and upon surrender for registration of transfer of the Global Security to the Trustee, the Company shall execute, and the Trustee shall authenticate and deliver, in the name of the designated transferee, a new Global Security in the same aggregate principal amount. If at any time the Depository notifies the Company that it is unwilling or unable to continue as Depository and a successor Depository satisfactory to the Company is not appointed within 90 days after the Company receives such notice, the Company will execute, and the Trustee will authenticate and deliver, Securities in definitive form to the Depository in exchange for the Global Security. In addition, if at any time the Company determines that it is not in the best interest of the Company or the beneficial owners of Securities to continue to have a Global Security representing all of the Securities held by a Depository, the Company may, at its option, execute, and the Trustee will authenticate and deliver, Securities in definitive form to the Depository in exchange for all or a portion of the Global Security.

SECTION 312. *Extension of Interest Payment*. The Company shall have the right at any time, so long as the Company is not in default in the payment of interest on the Securities of any series hereunder, to extend interest payment periods on all Securities of one or more series, if so specified as contemplated by Section 301(b) with respect to such Securities and upon such terms as may be specified as contemplated by Section 301(b) with respect to such Securities. If the Company ever so extends any such interest payment period, the Company shall promptly notify the Trustee.

## ARTICLE FOUR

### SATISFACTION AND DISCHARGE; DEFEASANCE

SECTION 401. *Termination of Company's Obligations*. (a) This Indenture shall upon Company Request cease to be of further effect with respect to the Securities of any series (except as to any surviving rights of registration of transfer or exchange of Securities herein expressly provided for), and the Trustee, at the expense of the Company, shall execute instruments in form and substance satisfactory to the Trustee and the Company acknowledging termination of the Company's obligations under the Securities of such series and this Indenture, when

(1) either

(A) all Securities of such series previously authenticated and delivered (other than (i) Securities of such series that have been destroyed, lost or stolen and that have been replaced or paid as provided in Section 306 and (ii) Securities of such series that are deemed paid and discharged pursuant to Section 402) have been delivered to the Trustee for cancellation; or

(B) all such Securities of such series not previously delivered to the Trustee for cancellation

(i) have become due and payable (whether at Stated Maturity, early redemption or otherwise), or

(ii) will become due and payable at their Stated Maturity within one year, or

(iii) are to be called for redemption within one year under arrangements satisfactory to the Trustee for the giving of notice of redemption by the Trustee in the name, and at the expense, of the Company,

and the Company in the case of (i), (ii) or (iii) above has irrevocably deposited or caused to be deposited with the Trustee as funds in trust solely for the benefit of the Holders of the Securities of such series an amount in cash in Dollars, Eligible Obligations or any combination thereof, together (if necessary in the case of a series of Securities not bearing interest at a fixed rate) with any Hedging Obligation, so that such funds in each case are sufficient to pay principal of, and any premium and interest on, all Outstanding Securities of such series;

(2) the Company has paid or caused to be paid all other sums payable hereunder by the Company; and

(3) the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent herein provided for relating to the satisfaction and discharge of this Indenture have been complied with.

(b) Notwithstanding the satisfaction and discharge of this Indenture, the obligations of the Company to the Trustee under Section 607, the obligations of the Trustee to any Authenticating Agent under Section 614 and, if money has been deposited with the Trustee pursuant to subclause (B) of clause (1) of this Section, the obligations of the Trustee under Section 405 and Section 1003(e) shall survive.

(c) Upon satisfaction and discharge of this Indenture as provided in this Section 401, the Trustee shall assign, transfer and turn over to the Company, subject to the claim provided by Section 607, any and all money, securities and other property then held by the Trustee for the benefit of the Holders of the Securities.

The Company may elect, at its option at any time, to have Section 402 or Section 403 applied to the Outstanding Securities of any series in accordance with any applicable requirements provided pursuant to Section 301 and upon compliance with the conditions set forth below in this Article. Any such election shall be evidenced by a Board Resolution or in another manner specified as contemplated by Section 301(b) for such Securities.

**SECTION 402. *Defeasance and Discharge of Indenture*** . Upon the Company's exercise of its option (if any) to have this Section applied to all the Outstanding Securities of any series or Tranche, or any portion of the principal amount thereof, and subject to the conditions set forth in Section 404 being satisfied, the Company shall be deemed to have paid and discharged the entire indebtedness on such Outstanding Securities of such series or Tranche, and the provisions of this Indenture, as it relates to such Outstanding Securities of such series or Tranche, shall be satisfied and discharged and shall no longer be in effect (and the Trustee, at the expense of the Company, shall at Company Request execute proper instruments acknowledging the same), except as to:

(a) the rights of Holders of Securities of such series to receive, solely from the trust funds described in Section 405, (x) payment of the principal of (and premium, if any) and each installment of principal of (and premium, if any) or interest, if any, on the Outstanding Securities of such series, or portions thereof, on the Stated Maturity of such principal or installment of principal or interest to but excluding the Redemption Date designated by the Company pursuant to subparagraph (viii) of Section 404 and (y) the benefit of any mandatory sinking fund payments applicable to the Securities of such series or Tranche on the day on which such payments are due and payable in accordance with the terms of this Indenture and the Securities of such series or Tranche;

(b) the obligations of the Company and the Trustee with respect to such Securities of such series or Tranche under Sections 304, 305, 306, 614, 1002 and 1003 and, if the Company shall have designated a Redemption Date pursuant to subparagraph (x) of Section 404, Sections 1104 and 1106; and

(c) the Company's obligations with respect to the Trustee under Section 607.

**SECTION 403. *Defeasance of Certain Obligations*** . The Company may omit to comply with its obligations under the covenants contained in Sections 801, 1006 and 1007 with respect to any Security or Securities of any series (and in respect of any term, provision or condition set forth in the covenants or restrictions specified for

such Securities pursuant to Section 301(b), in any supplemental indenture, Board Resolution or Officer's Certificate establishing such Security), and the failure to comply with any such provisions shall not constitute a Default or Event of Default under Section 501(4), *provided* that the conditions set forth in Section 404 have been satisfied.

SECTION 404. *Conditions to Defeasance* . The following conditions shall be the conditions to the application of Section 402 and Section 403:

(i) the Company has deposited or caused to be deposited irrevocably with the Trustee as trust funds in trust, specifically pledged as security for, and dedicated solely to, the benefit of the Holders of the Securities of such series, (x) cash in Dollars in an amount sufficient, or (y) Eligible Obligations which through the payment of interest and principal in respect thereof in accordance with their terms will provide on or before the due date of any payment referred to in clause (1) or (2) of this subparagraph (i) money in an amount sufficient or (z) a combination of such cash and Eligible Obligations, together (if necessary in the case of a series of Securities not bearing interest at a fixed rate) with any Hedging Obligation so that such funds are sufficient, in the opinion of a nationally recognized firm of independent certified public accountants expressed in a written certification thereof delivered to the Trustee, to pay and discharge (1) the principal of (and premium, if any) and each installment of principal (and premium, if any) and interest, if any, on such Securities on the Stated Maturity of such principal or installment of principal or interest or to but excluding the Redemption Date designated by the Company in accordance with Section 404(a)(1)(B)(iii) and (2) any mandatory sinking fund payments applicable to the Securities of such series on the day on which such payments are due and payable in accordance with the terms of this Indenture and of the Securities of such series;

(ii) in the event of an election to have Section 402 apply, the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel to the effect that (x) the Company has received from, or there has been published by, the Internal Revenue Service a ruling or (y) there has been a change in law or regulation occurring after the date hereof, to the effect that Holders of the Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such deposit, defeasance and discharge and will be subject to federal income tax on the same amount and in the same manner and at the same times, as would have been the case if such deposit, defeasance and discharge had not occurred;

(iii) in the event of an election to have Section 403 apply, the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel to the effect that Holders of the Securities of such series will not recognize income, gain or loss for federal income tax purposes as a result of such deposit and defeasance and will be subject to federal income tax on the same amount and in the same manner and at the same times, as would have been the case if such deposit and defeasance had not occurred;

(iv) such deposit will not result in a breach or violation of, or constitute a default under, this Indenture or any other agreement or instrument to which the Company is a party or by which it is bound;

(v) such provision would not cause any Outstanding Securities of such series then listed on a securities exchange to be delisted as a result thereof;

(vi) no Event of Default or event that with notice or lapse of time would become an Event of Default with respect to the Securities of such series has occurred and is continuing on the date of such deposit;

(vii) the Company has delivered to the Trustee an Officer's Certificate stating that the deposit was not made by the Company with the intent of preferring the holders of the Securities of such series over any other creditors of the Company or with the intent of defeating, hindering, delaying or defrauding any other creditors of the Company;

(viii) such deposit shall not, as specified in an Opinion of Counsel, cause the Trustee with respect to the Securities of such series to have a conflicting interest as defined in Section 608 and for purposes of the Trust Indenture Act with respect to the Securities of such series;

(ix) the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that all conditions precedent provided for relating to the defeasance contemplated by this Section have been complied with; and

(x) if the Company has deposited or caused to be deposited money or Eligible Obligations to pay or discharge the principal of (and premium, if any) and interest on the Outstanding Securities of a series to but excluding a Redemption Date pursuant to clause (i) of this Section 404, such Redemption Date shall be irrevocably designated by a Board Resolution delivered to the Trustee on or prior to the date of deposit of such money or Eligible Obligations, and such Board Resolution shall be accompanied by an irrevocable Company Request that the Trustee give notice of such redemption in the name and at the expense of the Company not less than 30 nor more than 60 days prior to such Redemption Date in accordance with Section 1104.

SECTION 405. *Application of Trust Money* . (a) Neither the Eligible Obligations nor the funds deposited with the Trustee pursuant to Sections 401, 402 or 403, nor the principal or interest payments on any such Eligible Obligations, shall be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal of and premium, if any, and interest, if any, on the Securities or portions of principal amount thereof in respect of which such deposit was made, all subject, however, to the provisions of Section 606; *provided, however* , that, so long as no Event of Default has occurred and is continuing, any cash received from such principal or interest payments on such Eligible Obligations deposited with the Trustee, if not then needed for such purpose, shall, to the extent practicable, be invested in Eligible Obligations of the type described in Sections 401 and 402(d)(2)(A) maturing at such times and in such amounts as shall be sufficient to pay when due the principal of and any premium and interest due and to become due on such Securities or portions thereof on and prior to the Maturity thereof, and interest earned from such reinvestment shall be paid over to the Company as received by the Trustee, free and clear of any trust, lien or pledge under this Indenture except the claim provided by Section 607; and *provided, further* , that, so long as there shall not have occurred and be continuing an Event of Default, any moneys held by the Trustee in accordance with this Section on the Maturity of all such Securities in excess of the amount required to pay the principal of and premium, if any, and interest, if any, then due on such Securities shall be paid over to the Company free and clear of any trust, lien or pledge under this Indenture except the claim provided by Section 607.

(b) The Company shall pay and shall indemnify the Trustee against any tax, fee or other charge imposed on or assessed against Eligible Obligations deposited pursuant to Section 401, 402 or 403 or the principal and any premium and interest received in respect of such obligations other than any payable by or on behalf of Holders.

(c) The Trustee shall deliver or pay to the Company from time to time upon Company Request any Eligible Obligations or money held by it as provided in Section 401, 402 or 403 that, in the opinion of a nationally recognized firm of independent certified public accountants expressed in a written certification thereof delivered to the Trustee, are then in excess of the amount thereof that then would have been required to be deposited for the purpose for which such Eligible Obligations or money was deposited or received. This provision shall not authorize the sale by the Trustee of any Eligible Obligations held under this Indenture.

SECTION 406. *Reinstatement* . If the Trustee or the Paying Agent is unable to apply any money in accordance with this Article with respect to any Securities by reason of any order or judgment of any court or governmental authority enjoining, restraining or otherwise prohibiting such application, then the obligations under this Indenture and such Securities from which the Company has been discharged or released pursuant to Section 402 or Section 403 shall be revived and reinstated as though no deposit had occurred pursuant to this Article with respect to such Securities, until such time as the Trustee or Paying Agent is permitted to apply all money held in trust pursuant to Section 405 with respect to such Securities in accordance with this Article; *provided, however*, that if the Company makes any payment of principal of or any premium or interest on any such Security following such

reinstatement of its obligations, the Company shall be subrogated to the rights (if any) of the Holders of such Securities to receive such payment from the money so held in trust.

## ARTICLE FIVE

### REMEDIES

SECTION 501. *Events of Default*. “ **Event of Default** ”, wherever used herein with respect to Securities of any series, means any one of the following events, unless such event is either inapplicable to a particular series or it is specifically deleted or modified in the applicable Board Resolution or supplemental indenture under which such series of Securities is issued, as the case may be, as contemplated by Section 301:

(1) default in the payment of any interest upon any Security of that series when it becomes due and payable, and continuance of such default for a period of 30 days; *provided, however*, that a valid extension of the interest payment period by the Company as contemplated in Section 312 shall not constitute a failure to pay interest for this purpose; or

(2) default in the payment of the principal of (or premium, if any, on) any Security of that series at its Maturity and, in the case of technical or administrative difficulties, only if such default persists for a period of more than three Business Days; or

(3) default in the deposit of any sinking fund payment, when and as due by the terms of a Security of that series and continuance of such default for a period of 30 days; or

(4) default in the performance, or breach, of any covenant or warranty of the Company in this Indenture (other than a covenant or warranty a default in whose performance or whose breach is elsewhere in this Section specifically dealt with or which has expressly been included in this Indenture solely for the benefit of one or more series of Securities other than that series), and continuance of such default or breach for a period of 60 days after there has been given, by registered or certified mail, to the Company by the Trustee or to the Company and the Trustee by the Holders of at least 25% in aggregate principal amount of the Outstanding Securities of such series a written notice specifying such default or breach and requiring it to be remedied and stating that such notice is a “ **Notice of Default** ” hereunder; or

(5) the entry by a court having jurisdiction in the premises of (A) a decree or order for relief in respect of the Company in an involuntary case or proceeding under any applicable federal or state bankruptcy, insolvency, reorganization or other similar law or (B) a decree or order adjudging the Company a bankrupt or insolvent, or approving as properly filed a petition seeking reorganization, arrangement, adjustment or composition of or in respect of the Company under any applicable federal or state law, or appointing a custodian, receiver, liquidator, assignee, trustee, sequestrator or other similar official of the Company or of any substantial part of its property, or ordering the winding up or liquidation of its affairs, and the continuance of any such decree or order for relief or any such other decree or order unstayed and in effect for a period of 90 consecutive days; or

(6) the commencement by the Company of a voluntary case or proceeding under any applicable federal or state bankruptcy, insolvency, reorganization or other similar law or of any other case or proceeding to be adjudicated a bankrupt or insolvent, or the consent by it to the entry of a decree or order for relief in respect of the Company in an involuntary case or proceeding under any applicable federal or state bankruptcy, insolvency, reorganization or other similar law or to the commencement of any bankruptcy or insolvency case or proceeding against it, or the filing by it of a petition or answer or consent seeking reorganization or relief under any applicable federal or state law, or the consent by it to the filing of such petition or to the appointment of or taking possession by a custodian, receiver, liquidator, assignee, trustee, sequestrator or similar official of the Company or of any substantial part of its property, or the making by it of an assignment for the benefit of creditors, or the admission by it in writing of its inability to pay its debts generally as they become due, or the taking of corporate action by the Company in furtherance of any such action; or

(7) any other Event of Default provided with respect to Securities of such series pursuant to Section 301(b).

SECTION 502. *Acceleration of Maturity; Rescission and Annulment* . If an Event of Default with respect to Securities of any series at the time Outstanding occurs and is continuing, then in every such case the Trustee or the Holders of not less than 25% in aggregate principal amount of the Outstanding Securities of such series, by a notice in writing to the Company (and to the Trustee if given by such Holders), may declare the principal amount (or, if the Securities of such series are Original Issue Discount Securities or Indexed Securities, such portion of the principal amount of such Securities as may be specified in the terms thereof) to be due and payable immediately and upon any such declaration such principal amount (or specified amount) shall become immediately due and payable. If an Event of Default specified in Section 501(5) or (6) occurs, the principal of all the Securities then Outstanding (or if any such Securities are Original Issue Discount Securities or Indexed Securities, such portion of the principal amount of such Securities as may be specified in the terms thereof) shall automatically become and be immediately due and payable without any declaration or other act or notice on the part of the Trustee or any Holders of the Securities.

At any time after such a declaration of acceleration with respect to Securities of one or more series has been made and before a judgment or decree for payment of the money due has been obtained by the Trustee as hereinafter in this Article provided, the Event or Events of Default giving rise to such declaration of acceleration shall, without further act, be deemed to have been waived, and such declaration and its consequences shall, without further act, be deemed to have been rescinded and annulled, if

(1) the Company has paid or deposited irrevocably with the Trustee a sum sufficient to pay

(A) all overdue interest on all Securities of any such series,

(B) the principal of (and premium, if any, on) any Securities of such series that have become due otherwise than by such declaration of acceleration and interest thereon at the rate or rates prescribed therefor in such Securities,

(C) to the extent that payment of such interest is lawful, interest upon overdue interest at the rate or rates borne by such Securities, unless another rate is provided in such Securities, and

(D) all amounts due to the Trustee under Section 607;

and

(2) all Events of Default with respect to Securities of that series, other than the non-payment of the principal of Securities of that series that have become due solely by such declaration of acceleration, have been cured or waived as provided in Section 513.

No such rescission shall affect any subsequent Event of Default or impair any right consequent thereon.

SECTION 503. *Collection of Indebtedness and Suits for Enforcement by Trustee* . If an Event of Default described in clause (1) or (2) of Section 501 has occurred and is continuing, the Company shall, upon demand of the Trustee, pay to the Trustee, for the benefit of the Holders of the Securities of the series with respect to which such Event of Default has occurred, the whole amount then due and payable on such Securities for principal and any premium or interest and, to the extent that payment of such interest shall be legally enforceable, interest on any overdue principal and premium and on any overdue interest, at the rate or rates borne by such Securities, unless another rate is provided in such Securities, and, in addition thereto, such further amount as shall be sufficient to cover any amounts due to the Trustee under Section 607.

If an Event of Default with respect to Securities of any series occurs and is continuing, the Trustee may in its discretion proceed to protect and enforce its rights and the rights of the Holders of Securities of such series by such appropriate judicial proceedings as the Trustee deems most effectual to protect and enforce any such

rights, whether for the specific enforcement of any covenant or agreement in this Indenture or in aid of the exercise of any power granted herein, or to enforce any other proper remedy.

SECTION 504. *Trustee May File Proofs of Claim* . In case of the pendency of any receivership, insolvency, liquidation, bankruptcy, reorganization, arrangement, adjustment, composition or other judicial proceeding relative to the Company or any other obligor upon the Securities or the property of the Company or of such other obligor or their creditors, the Trustee (irrespective of whether the principal of the Securities shall then be due and payable as therein expressed or by declaration or otherwise and irrespective of whether the Trustee shall have made any demand on the Company for the payment of overdue principal or interest) shall be entitled and empowered, by intervention in such proceeding or otherwise,

(i) to file and prove a claim for the whole amount of principal and premium or interest owing and unpaid in respect of the Securities and to file such other papers or documents as may be necessary or advisable in order to have the claims of the Trustee (including any claim for amounts due to the Trustee under Section 607) and of the Holders allowed in such judicial proceeding, and

(ii) to collect and receive any moneys or other property payable or deliverable on any such claims and to distribute the same;

and any custodian, receiver, assignee, trustee, liquidator, sequestrator or other similar official in any such judicial proceeding is hereby authorized by each Holder to make such payments to the Trustee and, if the Trustee consents to the making of such payments directly to the Holders, to pay to the Trustee any amount due it under Section 607.

Nothing herein contained shall be deemed to authorize the Trustee to authorize or consent to or accept or adopt on behalf of any Holder any plan of reorganization, arrangement, adjustment or composition affecting the Securities or the rights of any Holder thereof or to authorize the Trustee to vote in respect of the claim of any Holder in any such proceeding.

SECTION 505. *Trustee May Enforce Claims Without Possession of Securities* . All rights of action and claims under this Indenture or the Securities may be prosecuted and enforced by the Trustee without the possession of any of the Securities or the production thereof in any proceeding relating thereto, and any such proceeding instituted by the Trustee shall be brought in its own name as trustee of an express trust, and any recovery of judgment shall, after provision for the payment of the amounts due to the Trustee under Section 607, be for the ratable benefit of the Holders of the Securities in respect of which such judgment has been recovered.

SECTION 506. *Application of Money Collected* . Any money collected by the Trustee pursuant to this Article shall be applied in the following order, at the date or dates fixed by the Trustee, and, in case of the distribution of such money on account of principal and any premium and interest, upon presentation of the Securities in respect of which or for the benefit of which such money shall have been collected and the notation thereon of the payment if only partially paid and upon surrender thereof if fully paid:

FIRST: To the payment of all amounts due the Trustee under Section 607;

SECOND: To the payment of the amounts then due and unpaid for principal of and any premium and interest on the Securities in respect of which or for the benefit of which such money has been collected, ratably, without preference or priority of any kind, according to the amounts due and payable on such Securities for principal and any premium and interest, respectively; and

THIRD: The balance, if any, to the Company.

The Trustee may fix a record date and payment date for any such payment to Holders of Securities.

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SECTION 507. *Limitation on Suits* . No Holder of any Security of any series shall have any right to institute any proceeding, judicial or otherwise, with respect to this Indenture or such Security, or for the appointment of a receiver or trustee, or for any other remedy hereunder, unless

- (1) such Holder has previously given written notice to the Trustee of a continuing Event of Default with respect to the Securities of that series;
- (2) the Holders of not less than 25% in aggregate principal amount of the Outstanding Securities of that series shall have made written request to the Trustee to institute proceedings in respect of such Event of Default in its own name as Trustee hereunder;
- (3) such Holder or Holders have offered to the Trustee indemnity against the reasonable costs, expenses and liabilities to be incurred in compliance with such request;
- (4) the Trustee for 60 days after its receipt of such notice, request and offer of indemnity has failed to institute any such proceeding; and
- (5) no direction inconsistent with such written request has been given to the Trustee during such 60-day period by the Holders of a majority in aggregate principal amount of the Outstanding Securities of that series;

it being understood and intended that no one or more of such Holders shall have any right in any manner whatever by virtue of, or by availing of, any provision of this Indenture to affect, disturb or prejudice the rights of any other of such Holders, or to obtain or to seek to obtain priority or preference over any other of such Holders or to enforce any right under this Indenture, except in the manner herein provided and for the equal and ratable benefit of all of such Holders.

SECTION 508. *Unconditional Right of Holders to Receive Principal, Premium and Interest* . Notwithstanding any other provision in this Indenture, the Holder of any Security shall have the right, which is absolute and unconditional, to receive payment of the principal of and premium and (subject to Section 307) interest on such Security on the Stated Maturity or Maturities expressed in such Security (or, in the case of redemption, on the Redemption Date, or, in the case of repayment at the option of the Holder, on the Repayment Date) and to institute suit for the enforcement of any such payment, and such rights shall not be impaired without the consent of such Holder.

SECTION 509. *Restoration of Rights and Remedies* . If the Trustee or any Holder has instituted any proceeding to enforce any right or remedy under this Indenture and such proceeding has been discontinued or abandoned for any reason, or has been determined adversely to the Trustee or to such Holder, then and in every such case, subject to any determination in such proceeding, the Company, the Trustee and such Holder shall be restored severally and respectively to their former positions hereunder and thereafter all rights and remedies of the Trustee and such Holder shall continue as though no such proceeding had been instituted.

SECTION 510. *Rights and Remedies Cumulative* . Except as otherwise provided with respect to the replacement or payment of mutilated, destroyed, lost or stolen Securities in the last paragraph of Section 306, no right or remedy herein conferred upon or reserved to the Trustee or to the Holders is intended to be exclusive of any other right or remedy, and every right and remedy shall, to the extent permitted by law, be cumulative and in addition to every other right and remedy given hereunder or now or hereafter existing at law or in equity or otherwise. The assertion or employment of any right or remedy hereunder, or otherwise, shall not prevent the concurrent assertion or employment of any other appropriate right or remedy.

SECTION 511. *Delay or Omission Not Waiver* . No delay or omission of the Trustee or of any Holder of any Securities to exercise any right or remedy accruing upon any Event of Default shall impair any such right or remedy or constitute a waiver of any such Event of Default or an acquiescence therein. Every right and remedy given by this Article or by law to the Trustee or to the Holders may be exercised from time to time, and as often as may be deemed expedient, by the Trustee or by the Holders, as the case may be.

SECTION 512. *Control by Holders* . If an Event of Default shall have occurred and be continuing in respect of a series of Securities, the Holders of a majority in aggregate principal amount of the Outstanding Securities of that series shall have the right to direct the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred on the Trustee, with respect to the Securities of such series or Tranche; *provided, however*, that if an Event of Default has occurred and is continuing with respect to more than one series of Securities of equal ranking, the Holders of a majority in aggregate principal amount of the Outstanding Securities of all such series of equal ranking, considered as one class, shall have the right to make such direction, and not the Holders of the Securities of any one of such series of equal ranking; *provided, further* that

- (1) such direction shall not be in conflict with any rule of law or with this Indenture, and
- (2) the Trustee may take any other action deemed proper by the Trustee which is not inconsistent with such direction.

SECTION 513. *Waiver of Past Defaults* . The Holders of not less than a majority in aggregate principal amount of the Outstanding Securities of any series may on behalf of the Holders of all the Securities of such series waive any past default hereunder with respect to such series and its consequences; *provided* that if any such past default has occurred with respect to more than one series of Securities of equal ranking, the Holders of a majority in aggregate principal amount of the Outstanding Securities of all such series of equal ranking, considered as one class, may make such waiver, and not the Holders of the Securities of any one of such series of equal ranking, in each case, except a default

- (1) in the payment of the principal of or premium or interest on any Security of such series, or
- (2) in respect of a covenant or provision hereof that under Section 902 cannot be modified or amended without the consent of the Holder of each Outstanding Security of such series affected.

Upon any such waiver, such default shall cease to exist, and any Event of Default arising therefrom shall be deemed to have been cured, for every purpose of this Indenture, but no such waiver shall extend to any subsequent or other default or impair any right consequent thereon.

SECTION 514. *Undertaking for Costs* . All parties to this Indenture agree, and each Holder of any Security by such Holder's acceptance thereof shall be deemed to have agreed, that any court may in its discretion require, in any suit for the enforcement of any right or remedy under this Indenture, or in any suit against the Trustee for any action taken, suffered or omitted by it as Trustee, the filing by any party litigant in such suit of an undertaking to pay the costs of such suit, and that such court may in its discretion assess reasonable costs, including reasonable attorneys' fees, against any party litigant in such suit, having due regard to the merits and good faith of the claims or defenses made by such party litigant; but the provisions of this Section shall not apply to any suit instituted by the Company, to any suit instituted by the Trustee, to any suit instituted by any Holder, or group of Holders, holding in the aggregate more than 10% in aggregate principal amount of the Outstanding Securities of all series in respect of which such suit may be brought, considered as one class, or to any suit instituted by any Holder for the enforcement of the payment of the principal of or any premium or interest on any Security on or after the Stated Maturity or Maturities expressed in such Security (or, in the case of redemption, on or after the Redemption Date, or, in the case of repayment at the option of the Holder, on or after the Repayment Date).

SECTION 515. *Waiver of Stay or Extension Laws* . The Company covenants (to the extent that it may lawfully do so) that it will not at any time insist upon, or plead, or in any manner whatsoever claim or take the benefit or advantage of, any stay or extension law wherever enacted, now or at any time hereafter in force, which may affect the covenants or the performance of this Indenture; and the Company (to the extent that it may lawfully do so) hereby expressly waives all benefit or advantage of any such law and covenants that it will not hinder, delay or impede the execution of any power herein granted to the Trustee, but will suffer and permit the execution of every such power as though no such law had been enacted.

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**ARTICLE SIX**

**THE TRUSTEE**

SECTION 601. *Certain Duties and Responsibilities* . (a) Except during the continuance of an Event of Default with respect to Securities of any series,

(1) the Trustee undertakes to perform, with respect to Securities of such series, such duties and only such duties as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee; and

(2) in the absence of bad faith on its part, the Trustee may, with respect to Securities of such series, conclusively rely, as to the truth of the statements and the correctness of the opinions expressed therein, upon certificates or opinions furnished to the Trustee and conforming to the requirements of this Indenture; but in the case of any such certificates or opinions which by any provision hereof are specifically required to be furnished to the Trustee, the Trustee shall be under a duty to examine the same to determine whether or not they conform to the requirements of this Indenture.

(b) If an Event of Default with respect to Securities of any series has occurred and is continuing, the Trustee shall exercise, with respect to Securities of such series, such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as a prudent man would exercise or use under the circumstances in the conduct of his own affairs.

(c) No provision of this Indenture shall be construed to relieve the Trustee from liability for its own negligent action, its own negligent failure to act, or its own willful misconduct, *except that*

(1) this subsection shall not be construed to limit the effect of sub-section (a) of this Section;

(2) the Trustee shall not be liable for any error of judgment made in good faith by a Responsible Officer, unless it shall be proved that the Trustee was negligent in ascertaining the pertinent facts;

(3) the Trustee shall not be liable with respect to any action taken or omitted to be taken by it in good faith in accordance with the direction of the Holders of a majority in aggregate principal amount of the Outstanding Securities of any one or more series, as provided herein, relating to the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, under this Indenture with respect to the Securities of such series; and

(4) no provision of this Indenture shall require the Trustee to expend or risk its own funds or otherwise incur any financial liability in the performance of any of its duties hereunder, or in the exercise of any of its rights or powers, if it has reasonable grounds for believing that repayment of such funds or adequate indemnity against such risk or liability is not reasonably assured to it.

(d) Whether or not therein expressly so provided, every provision of this Indenture relating to the conduct or affecting the liability of or affording protection to the Trustee shall be subject to the provisions of this Section.

SECTION 602. *Notice of Defaults* . Within 90 days after the occurrence of any default hereunder with respect to the Securities of any series, the Trustee shall transmit by mail to all Holders of Securities of such series entitled to receive reports pursuant to Section 704(3) notice of such default hereunder known to the Trustee, unless such default shall have been cured or waived; *provided, however*, that, except in the case of a default in the payment of the principal of or any premium or interest on any Security of such series or in the payment of any sinking fund installment with respect to Securities of such series, the Trustee shall be protected in withholding such

notice if and so long as the board of directors, the executive committee or a trust committee of directors or Responsible Officers of the Trustee in good faith determine that the withholding of such notice is in the interest of the Holders of Securities of such series; and *provided, further*, that in the case of any default of the character specified in Section 501(4) with respect to Securities of such series, no such notice to Holders shall be given until at least 75 days after the occurrence thereof. For the purpose of this Section, the term “ *default* ” means any event that is, or after notice or lapse of time or both would become, an Event of Default with respect to Securities of such series.

SECTION 603. *Certain Rights of Trustee* . Subject to the provisions of Section 601 and to the applicable provisions of the Trust Indenture Act:

(a) the Trustee may rely and shall be protected in acting or refraining from acting upon any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document reasonably believed by it to be genuine and to have been signed or presented by the proper party or parties;

(b) any request or direction of the Company mentioned herein shall be sufficiently evidenced by a Company Request or Company Order, or as otherwise expressly provided herein, and any resolution of the Board of Directors may be sufficiently evidenced by a Board Resolution;

(c) whenever in the administration of this Indenture the Trustee shall deem it desirable that a matter be proved or established prior to taking, suffering or omitting any action hereunder, the Trustee (unless other evidence be herein specifically prescribed) may, in the absence of bad faith on its part, rely upon an Officer’s Certificate and such Officer’s Certificate, in the absence of negligence or bad faith on the part of the Trustee, shall be full warrant to the Trustee for any action taken, suffered or omitted by it under the provisions of this Indenture upon the faith thereof;

(d) the Trustee may consult with counsel and the written advice of such counsel or any Opinion of Counsel shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon;

(e) the Trustee shall be under no obligation to exercise any of the rights or powers vested in it by this Indenture at the request or direction of any of the Holders pursuant to this Indenture, unless such Holders shall have offered to the Trustee reasonable security or indemnity against the costs, expenses and liabilities that might be incurred by it in compliance with such request or direction;

(f) the Trustee shall not be bound to make any investigation into the facts or matters stated in any resolution, certificate, statement, instrument, opinion, report, notice, request, direction, consent, order, bond, debenture, note, other evidence of indebtedness or other paper or document, but the Trustee, in its discretion, may make such further inquiry or investigation into such facts or matters as it may see fit; and

(g) the Trustee may execute any of the trusts or powers hereunder or perform any duties hereunder either directly or by or through agents or attorneys and the Trustee shall not be responsible for any misconduct or negligence on the part of any agent or attorney appointed with due care by it hereunder.

SECTION 604. *Not Responsible for Recitals or Issuance of Securities* . The recitals contained herein and in the Securities, except the Trustee’s certificate of authentication, shall be taken as the statements of the Company, and the Trustee or any Authenticating Agent assumes no responsibility for their correctness. The Trustee makes no representations as to the validity or sufficiency of this Indenture or of the Securities of any series. The Trustee or any Authenticating Agent shall not be accountable for the use or application by the Company of Securities or the proceeds thereof.

SECTION 605. *May Hold Securities* . The Trustee, any Authenticating Agent, any Paying Agent, any Security Registrar or any other agent of the Company or the Trustee, in its individual or any other capacity, may become the owner or pledgee of Securities and, subject to Sections 608 and 613, may otherwise deal

with the Company with the same rights it would have if it were not Trustee, Authenticating Agent, Paying Agent, Security Registrar or such other agent.

SECTION 606. *Money Held in Trust* . Money held by the Trustee or by any Paying Agent (other than the Company if the Company shall act as Paying Agent) in trust hereunder need not be segregated from other funds except to the extent required by law. Neither the Trustee nor any Paying Agent shall be liable for interest on any money received by it hereunder except as expressly provided herein or otherwise agreed with the Company.

SECTION 607. *Compensation and Reimbursement* . The Company agrees

(1) to pay to the Trustee from time to time reasonable compensation for all services rendered by it hereunder (which compensation shall not be limited by any provision of law in regard to the compensation of a trustee of an express trust);

(2) except as otherwise expressly provided herein, to reimburse the Trustee upon its request for all reasonable expenses, disbursements and advances incurred or made by the Trustee in accordance with any provision of this Indenture (including the reasonable compensation and the expenses and disbursements of its agents and counsel), except any such expense, disbursement or advance as may be attributable to its negligence, willful misconduct or bad faith; and

(3) to indemnify the Trustee for, and to hold it harmless against, any loss, liability or expense reasonably incurred without negligence, willful misconduct or bad faith on its part, arising out of or in connection with the acceptance or administration of the trust or trusts hereunder or performance of its duties hereunder, including the costs and expenses of defending itself against any claim or liability in connection with the exercise or performance of any of its powers or duties hereunder.

As security for the performance of the obligations of the Company under this Section, the Trustee shall have a claim prior to the Securities upon all property and funds held or collected by the Trustee as such, except property and funds held in trust for the payment of principal of and any premium and interest on particular Securities.

SECTION 608. *Disqualification; Conflicting Interests* . If the Trustee has or acquires any conflicting interest within the meaning of the Trust Indenture Act with respect to the Securities of any series, it shall either eliminate such conflicting interest or resign to the extent, in the manner and with the effect, and subject to the conditions, provided in the Trust Indenture Act and this Indenture. For purposes of Section 310(b)(1) of the Trust Indenture Act and to the extent permitted thereby, the Trustee, in its capacity as trustee in respect of the equally ranked and unsecured Securities of any series, shall not be deemed to have a conflicting interest arising from its capacity as trustee in respect of the equally ranked and unsecured Securities of any other series under this Indenture.

SECTION 609. *Corporate Trustee Required; Eligibility* . There shall at all times be a Trustee hereunder that shall be a Person that is eligible pursuant to the Trust Indenture Act to act as such, having a combined capital and surplus of at least \$50,000,000, subject to supervision or examination by federal or state authority and qualified and eligible under this Article, *provided* that, neither the Company nor any Affiliate of the Company or any obligor on the Securities may serve as Trustee of any Securities. If such corporation publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such corporation shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time the Trustee ceases to be eligible in accordance with the provisions of this Section, it shall resign immediately in the manner and with the effect hereinafter specified in this Article.

SECTION 610. *Resignation and Removal; Appointment of Successor* . (a) No resignation or removal of the Trustee and no appointment of a successor Trustee pursuant to this Article shall become effective until the acceptance of appointment by the successor Trustee in accordance with the applicable requirements of Section 611.

(b) The Trustee may resign at any time with respect to the Securities of one or more series by giving written notice thereof to the Company. If the instrument of acceptance by a successor Trustee required by Section 611 has not been delivered to the Trustee within 30 days after the giving of such notice of resignation, the resigning Trustee may petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(c) The Company may at any time by a Board Resolution remove the Trustee with respect to the Securities of any or all series.

(d) The Trustee may be removed at any time with respect to the Securities of any series by Act of the Holders of a majority in aggregate principal amount of the Outstanding Securities of such series, delivered to the Trustee and to the Company.

(e) If at any time:

(1) the Trustee fails to comply with Section 608 with respect to the Securities of any series, after written request therefor by the Company or by any Holder who has been a bona fide Holder of a Security of such series for at least six months, or

(2) the Trustee ceases to be eligible under Section 609 and fails to resign after written request therefor by the Company or by any such Holder, or

(3) the Trustee becomes incapable of acting or becomes adjudged a bankrupt or insolvent or a receiver of the Trustee or of its property is appointed or any public officer takes charge or control of the Trustee or of its property or affairs for the purpose of rehabilitation, conservation or liquidation,

then, in any such case, subject to Section 514, any Holder who has been a bona fide Holder of a Security for at least six months may, on behalf of himself and all others similarly situated, petition any court of competent jurisdiction for the removal of the Trustee with respect to all Securities and the appointment of a successor Trustee or Trustees.

(f) If the Trustee resigns, is removed or becomes incapable of acting, or if a vacancy shall occur in the office of Trustee for any cause, with respect to the Securities of one or more series, the Company, by a Board Resolution, shall promptly appoint a successor Trustee or Trustees with respect to the Securities of that or those series (it being understood that any such successor Trustee may be appointed with respect to the Securities of one or more or all of such series and that at any time there shall be only one Trustee with respect to the Securities of any particular series) and shall comply with the applicable requirements of Section 611. If, within one year after such resignation, removal or incapability, or the occurrence of such vacancy, a successor Trustee with respect to the Securities of any series is appointed by Act of the Holders of a majority in aggregate principal amount of the Outstanding Securities of such series delivered to the Company and the retiring Trustee, the successor Trustee so appointed shall, forthwith upon its acceptance of such appointment in accordance with the applicable requirements of Section 611, become the successor Trustee with respect to the Securities of such series and to that extent supersede the successor Trustee appointed by the Company. If no successor Trustee with respect to the Securities of any series has been so appointed by the Company or the Holders and accepted appointment in the manner required by Section 611, any Holder who has been a bona fide Holder of a Security of such series for at least six months may, subject to Section 514, on behalf of himself and all others similarly situated, petition any court of competent jurisdiction for the appointment of a successor Trustee with respect to the Securities of such series.

(g) The Company shall give notice of each resignation and each removal of the Trustee with respect to the Securities of any series and each appointment of a successor Trustee with respect to the Securities of any series by mailing written notice of such event by first-class mail, postage prepaid, to all Holders of Securities of such series entitled to receive reports pursuant to Section 704(3). Each notice shall include the name of the successor Trustee with respect to the Securities of such series and the address of its Corporate Trust Office.

(h) All provisions of this Section except subparagraph (d) and Section 611(b) (except for the last clause, after omitting the words “after deducting all amounts owed to the retiring Trustee pursuant to Section 607,” which shall apply) shall apply also to any Paying Agent located outside the United States and its possessions.

SECTION 611. *Acceptance of Appointment by Successor*. (a) In case of the appointment hereunder of a successor Trustee with respect to the Securities of all series, every such successor Trustee so appointed shall execute, acknowledge and deliver to the Company and to the retiring Trustee an instrument accepting such appointment, and thereupon the resignation or removal of the retiring Trustee shall become effective and such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee; but, on the request of the Company or the successor Trustee, such retiring Trustee shall, upon payment of its charges, execute and deliver an instrument transferring to such successor Trustee all the rights, powers and trusts of the retiring Trustee and shall duly assign, transfer and deliver to such successor Trustee all property and money held by such retiring Trustee hereunder.

(b) In case of the appointment hereunder of a successor Trustee with respect to the Securities of one or more (but not all) series, the Company, the retiring Trustee and each successor Trustee with respect to the Securities of one or more series shall execute and deliver an indenture supplemental hereto wherein each successor Trustee shall accept such appointment and which (1) shall contain such provisions as shall be necessary or desirable to transfer and confirm to, and to vest in, each successor Trustee all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates, (2) if the retiring Trustee is not retiring with respect to all Securities, shall contain such provisions as shall be deemed necessary or desirable to confirm that all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series as to which the retiring Trustee is not retiring shall continue to be vested in the retiring Trustee, and (3) shall add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, it being understood that nothing herein or in such supplemental indenture shall constitute such Trustees co-trustees of the same trust and that each such Trustee shall be trustee of a trust or trusts hereunder separate and apart from any trust or trusts hereunder administered by any other such Trustee; and upon the execution and delivery of such supplemental indenture the resignation or removal of the retiring Trustee shall become effective to the extent provided therein and each such successor Trustee, without any further act, deed or conveyance, shall become vested with all the rights, powers, trusts and duties of the retiring Trustee with respect to the Securities of that or those series to which the appointment of such successor Trustee relates; but, on request of the Company or any successor Trustee, such retiring Trustee shall duly assign, transfer and deliver to such successor Trustee, all property and money held by such retiring Trustee hereunder with respect to the Securities of that or those series to which the appointment of such successor Trustee relates.

(c) Upon request of any such successor Trustee, the Company shall execute any and all instruments for more fully and certainly vesting in and confirming to such successor Trustee all such rights, powers and trusts referred to in paragraph (a) or (b) of this Section, as the case may be.

(d) No successor Trustee shall accept its appointment unless at the time of such acceptance such successor Trustee shall be qualified and eligible under this Article.

SECTION 612. *Merger, Conversion, Consolidation or Succession to Business*. Any corporation into which the Trustee may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which the Trustee shall be a party, or any corporation succeeding to all or substantially all the corporate trust business of the Trustee, shall be the successor of the Trustee hereunder, *provided* such corporation shall be otherwise qualified and eligible under this Article, without the execution or filing of any paper or any further act on the part of any of the parties hereto. In case any Securities shall have been authenticated, but not delivered, by the Trustee then in office, any successor by merger, conversion or consolidation to such authenticating Trustee may adopt such authentication and deliver the Securities so authenticated with the same effect as if such successor Trustee had itself authenticated such Securities. In case any Securities shall not have been authenticated by such predecessor Trustee, any such successor Trustee may authenticate and deliver such Securities, in either its own name or that of its predecessor Trustee, with the full force and effect which this Indenture provides for the certificate of authentication of the Trustee.

SECTION 613. *Preferential Collection of Claims Against Company* . The Trustee shall comply with Trust Indenture Act § 311(a), excluding any creditor relationship listed in Trust Indenture Act § 311(b). A Trustee who has resigned or been removed shall be subject to Trust Indenture Act § 311(a) to the extent indicated therein.

SECTION 614. *Appointment of Authenticating Agent* . (a) At any time when any of the Securities remain Outstanding the Trustee may appoint an Authenticating Agent or Agents (which may include any Person that owns, directly or indirectly, all of the capital stock of the Trustee or a corporation that is a wholly-owned subsidiary of the Trustee or of such other Person) with respect to one or more series of Securities, or any Tranche thereof, that shall be authorized to act on behalf of the Trustee to authenticate Securities of such series or Tranche issued upon original issuance, exchange, registration of transfer or partial redemption thereof or pursuant to Section 306, and Securities so authenticated shall be entitled to the benefits of this Indenture and shall be valid and obligatory for all purposes as if authenticated by the Trustee hereunder. Wherever reference is made in this Indenture to the authentication and delivery of Securities by the Trustee or the Trustee's certificate of authentication, such reference shall be deemed to include authentication and delivery on behalf of the Trustee by an Authenticating Agent and a certificate of authentication executed on behalf of the Trustee by an Authenticating Agent. Each Authenticating Agent shall be acceptable to the Company and shall at all times be a corporation organized and doing business under the laws of the United States of America, any state thereof or the District of Columbia, authorized under such laws to act as Authenticating Agent, having a combined capital and surplus of not less than \$50,000,000 and subject to supervision or examination by federal or state authority in the United States. If such Authenticating Agent publishes reports of condition at least annually, pursuant to law or to the requirements of said supervising or examining authority, then for the purposes of this Section, the combined capital and surplus of such Authenticating Agent shall be deemed to be its combined capital and surplus as set forth in its most recent report of condition so published. If at any time an Authenticating Agent ceases to be eligible in accordance with the provisions of this Section, such Authenticating Agent shall resign immediately in the manner and with the effect specified in this Section.

(b) Any corporation into which an Authenticating Agent may be merged or converted or with which it may be consolidated, or any corporation resulting from any merger, conversion or consolidation to which such Authenticating Agent shall be a party, or any corporation succeeding to the corporate agency or corporate trust business of an Authenticating Agent, shall continue to be an Authenticating Agent, *provided* such corporation shall be otherwise eligible under this Section, without the execution or filing of any paper or any further act on the part of the Trustee or the Authenticating Agent.

(c) An Authenticating Agent may resign with respect to one or more series of Securities at any time by giving written notice thereof to the Trustee and to the Company. The Trustee may at any time terminate the agency of an Authenticating Agent with respect to one or more series of Securities by giving written notice thereof to such Authenticating Agent and to the Company. Upon receiving such a notice of resignation or upon such a termination, or in case at any time such Authenticating Agent ceases to be eligible in accordance with the provisions of this Section, the Trustee may appoint a successor Authenticating Agent that is acceptable to the Company and shall provide notice of such appointment to all Holders of Securities of the series or Tranche with respect to which such Authenticating Agent will serve, as provided in paragraph (a) of this Section. Any successor Authenticating Agent upon acceptance of its appointment hereunder shall become vested with all the rights, powers and duties of its predecessor hereunder, with like effect as if originally named as an Authenticating Agent. No successor Authenticating Agent shall be appointed unless eligible under the provisions of this Section. An Authenticating Agent appointed pursuant to this Section shall be entitled to rely on Sections 111, 308, 604 and 605 hereunder.

(d) The Trustee agrees to pay to each Authenticating Agent from time to time reasonable compensation for its services under this Section, and the Trustee shall be entitled to be reimbursed for such payments, subject to the provisions of Section 607.

(e) If an appointment with respect to the Securities of one or more series, or any Tranche thereof, is made pursuant to this Section, the Securities of such series or Tranche may have endorsed thereon, in addition to the Trustee's certificate of authentication, an alternate certificate of authentication in the following form:

This is one of the Securities of the series designated pursuant to and issued under the within-mentioned Indenture.

[            ]  
As Trustee

By \_\_\_\_\_  
As Authenticating Agent on behalf of the Trustee

By \_\_\_\_\_  
Authorized Officer of Authenticating Agent

Dated: \_\_\_\_\_

(f) If all of the Securities of a series may not be originally issued at one time, and if the Trustee does not have an office capable of authenticating Securities upon original issuance located in a Place of Payment where the Company wishes to have Securities of such series authenticated upon original issuance, the Trustee, if so requested by the Company in writing (which writing need not comply with Section 102 and need not be accompanied by an Opinion of Counsel), shall appoint, in accordance with this Section and in accordance with such procedures as shall be acceptable to the Trustee, an Authenticating Agent (which, if so requested by the Company, may be an Affiliate of the Company) having an office in a Place of Payment designated by the Company with respect to such series of Securities.

## ARTICLE SEVEN

### HOLDERS' LISTS AND REPORTS BY TRUSTEE AND COMPANY

SECTION 701. *Company to Furnish Trustee Names and Addresses of Holders* . The Company will furnish or cause to be furnished to the Trustee

(a) semi-annually, not later than the 15th day after each Regular Record Date for each series of Securities at the time Outstanding or on June 30 and December 31 of each year with respect to each series of Securities for which there are no Regular Record Dates, a list, in such form as the Trustee may reasonably require, containing all the information in the possession or control of the Company, or any of its Paying Agents other than the Trustee, of the names and addresses of the Holders of Securities of such series, including Holders of interests in Global Securities, as of such preceding Regular Record Date or on June 15 or December 15, as the case may be, or, in the case of a series of non-interest bearing Securities, on a date to be determined as contemplated pursuant to Section 301(b), and

(b) at such other times as the Trustee may request in writing, within 30 days after the receipt by the Company of any such request, a list of similar form and content as of a date not more than 15 days prior to the time such list is furnished;

*excluding* from any such list names and addresses received by the Trustee in its capacity as Security Registrar for Securities other than Global Securities.

SECTION 702. *Preservation of Information; Communications to Holders* . (a) The Trustee shall preserve, in as current a form as is reasonably practicable, the names and addresses of Holders of Securities contained in the most recent list furnished to the Trustee as provided in Section 701 and the names and addresses of Holders of Securities received by the Trustee in its capacity as Security Registrar or Paying Agent. The Trustee may destroy any list furnished to it as provided in Section 701 upon receipt of a new list so furnished.

(b) If three or more Holders (herein referred to as “applicants”) apply in writing to the Trustee, and furnish to the Trustee reasonable proof that each such applicant has owned a Security for a period of at least six months preceding the date of such application, and such application states that the applicants desire to communicate with other Holders with respect to their rights under this Indenture or under the Securities and is accompanied by a copy of the form of proxy or other communication that such applicants propose to transmit, then the Trustee shall, within five business days after the receipt of such application, at its election, either

(i) afford such applicants access to the information preserved at the time by the Trustee in accordance with Section 702(a), or

(ii) inform such applicants as to the approximate number of Holders whose names and addresses appear in the information preserved at the time by the Trustee in accordance with Section 702(a), and as to the approximate cost of mailing to such Holders the form of proxy or other communication, if any, specified in such application.

If the Trustee elects not to afford such applicants access to such information, the Trustee shall, upon the written request of such applicants, mail to each Holder whose name and address appear in the information preserved at the time by the Trustee in accordance with Section 702(a) a copy of the form of proxy or other communication that is specified in such request, with reasonable promptness after a tender to the Trustee by the applicants of the material to be mailed and of payment, or provision for the payment, of the reasonable expenses of mailing, unless within five days after such tender the Trustee shall mail to such applicants and file with the Commission, together with a copy of the material to be mailed, a written statement to the effect that, in the opinion of the Trustee, such mailing would be contrary to the best interest of the Holders or would be in violation of applicable law. Such written statement shall specify the basis of such opinion. If the Commission, after opportunity for a hearing upon the objections specified in the written statement so filed, enters an order refusing to sustain any of such objections or if, after the entry of an order sustaining one or more of such objections, the Commission finds, after notice and opportunity for hearing, that all the objections so sustained have been met and enters an order so declaring, the Trustee shall mail copies of such material to all such Holders with reasonable promptness after the entry of such order and the renewal of such tender by such applicants; otherwise the Trustee shall be relieved of any obligation or duty to such applicants respecting their application.

(c) Every Holder of Securities, by receiving and holding the same, agrees with the Company and the Trustee that neither the Company nor the Trustee nor any agent of either of them shall be held accountable by reason of the disclosure of any such information as to the names and addresses of the Holders in accordance with Section 702(b), regardless of the source from which such information was derived, and that the Trustee shall not be held accountable by reason of mailing any material pursuant to a request made under Section 702(b).

SECTION 703. *Reports by Trustee*. (a) The Trustee shall transmit to Holders such reports concerning the Trustee the Trustee and its actions under this Indenture as may be required pursuant to the Trust Indenture Act at the times and in the manner provided pursuant thereto.

(b) Reports so required to be transmitted at stated intervals of not more than 12 months shall be transmitted no later than July 1 in each calendar year, commencing with the first July 1 after the first issuance of Securities pursuant to this Indenture.

(c) A copy of each such report shall, at the time of such transmission to Holders, be filed by the Trustee with each securities exchange upon which any Securities are listed, with the Commission and with the Company. The Company will notify the Trustee in writing when any Securities are listed on any securities exchange.

SECTION 704. *Reports by Company*. The Company shall:

(1) file with the Trustee, within 15 days after the Company files the same with the Commission, copies of the annual reports and of the information, documents and other reports (or copies of such portions of any of the foregoing as the Commission may from time to time by rules and regulations

prescribe) that the Company may be required to file with the Commission pursuant to Section 13 or Section 15(d) of the U.S. Securities Exchange Act of 1934; or, if the Company is not required to file information, documents or reports pursuant to either of said Sections, then it shall file with the Trustee and the Commission, in accordance with rules and regulations prescribed from time to time by the Commission, such of the supplementary and periodic information, documents and reports that may be required pursuant to Section 13 of the U.S. Securities Exchange Act of 1934 in respect of a security listed and registered on a national securities exchange as may be prescribed from time to time in such rules and regulations; and provided, however, that so long as such filings by the Company are available on the Commission's Electronic Data Gathering, Analysis and Retrieval System (EDGAR) or any successor system, such filings shall be deemed to have been filed with the Trustee for purposes hereof without any further action required by the Company;

(2) file with the Trustee and the Commission, in accordance with rules and regulations prescribed by the Commission, such additional information, documents and reports with respect to compliance by the Company with the conditions and covenants of this Indenture as may be required from time to time by such rules and regulations; and

(3) transmit by mail to all Holders of Securities, as their names and addresses appear in the Security Register, and to each Holder whose name and address is then preserved on the Trustee's list pursuant to the first sentence of Section 702(a), within 30 days after the filing thereof with the Trustee, such summaries of any information, documents and reports required to be filed by the Company pursuant to paragraphs (1) and (2) of this Section as may be required by rules and regulations prescribed from time to time by the Commission.

## ARTICLE EIGHT

### CONSOLIDATION, MERGER, CONVEYANCE OR TRANSFER

SECTION 801. *Company May Consolidate, Etc. Only on Certain Terms* . The Company shall not consolidate with or merge with or into, or convey, transfer or lease all or substantially all of its properties and assets to any Person, unless:

(1) either (x) the Company shall be the continuing corporation or the successor corporation or (y) the Person formed by such consolidation or into which the Company is merged or the Person that acquires by conveyance, transfer or lease the properties and assets of the Company substantially as an entirety shall be a corporation organized and existing under the laws of the United States of America, any State thereof or the District of Columbia and shall expressly assume, by an indenture supplemental hereto, executed and delivered to the Trustee, in form satisfactory to the Trustee, the due and punctual payment of the principal of and any premium and interest on all the Outstanding Securities and the performance of every covenant of this Indenture on the part of the Company to be performed or observed;

(2) immediately after giving effect to such transaction, no Event of Default and no event that, after notice or lapse of time or both, would become an Event of Default, shall have occurred and be continuing; and

(3) the Company has delivered to the Trustee an Officer's Certificate and an Opinion of Counsel, each stating that such consolidation, merger, conveyance, transfer or lease and such supplemental indenture comply with this Article and that all conditions precedent herein provided for relating to such transaction have been met.

SECTION 802. *Successor Substituted for the Company* . Upon any consolidation or merger or any conveyance, transfer or lease of all or substantially all the properties and assets of the Company in accordance with Section 801, the successor Person formed by such consolidation or into which the Company is merged or to which such conveyance, transfer or lease is made shall succeed to, and be substituted for, and may exercise every right and power of, the Company under this Indenture with the same effect as if such successor Person had been

named as the Company herein and thereafter, in the case of a conveyance, transfer or lease of properties and assets of the Company substantially as an entirety, such conveyance, transfer or lease shall have the effect of releasing the Person named as the "Company" in the first paragraph of this instrument or any successor Person that shall theretofore have become such in the manner prescribed in this Article from its liability as obligor and maker on any of the Securities.

## ARTICLE NINE

### SUPPLEMENTAL INDENTURES

SECTION 901. *Supplemental Indentures Without Consent of Holders* . Without the consent of any Holders, the Company and the Trustee, at any time and from time to time, may enter into one or more indentures supplemental hereto, in form satisfactory to the Trustee, for any of the following purposes:

- (1) to evidence the succession of another Person to the Company and the assumption by any such successor of the covenants of the Company herein and in the Securities; or
- (2) to add to the covenants of the Company for the benefit of the Holders of all or any series of Securities (and if such covenants are to be for the benefit of less than all series of Securities, stating that such covenants are expressly being included solely for the benefit of such series), or to surrender any right or power herein conferred upon the Company; or
- (3) to add any additional Events of Default with respect to all or any series of Securities Outstanding hereunder; or
- (4) to change or eliminate any of the provisions of this Indenture, or to add any new provision to this Indenture, in respect of one or more series of Securities; *provided, however*, that any such change, elimination or addition (A) shall neither (i) apply to any Security Outstanding on the date of such indenture supplemental hereto nor (ii) modify the rights of the Holder of any such Security Outstanding with respect to such provision in effect prior to the date of such indenture supplemental hereto or (B) shall become effective only when no Security of such series remains Outstanding; or
- (5) to add guarantees or collateral security with respect to the Securities of any series; or
- (6) to establish for the issuance of and establish the form or terms and conditions of Securities of any series or Tranche thereof as permitted by Section 301(b), and to establish the form of any certificates required to be furnished pursuant to the terms of this Indenture or any series of Securities; or
- (7) to provide for uncertificated Securities in addition to or in place of all, or any series or Tranche of, certificated Securities; or
- (8) to evidence and provide for the acceptance of appointment hereunder by a separate or successor Trustee or co-trustee with respect to the Securities of one or more series and to add to or change any of the provisions of this Indenture as shall be necessary to provide for or facilitate the administration of the trusts hereunder by more than one Trustee, pursuant to the requirements of Section 611(b); or
- (9) to change any place or places where (a) the principal of or premium, if any, or interest, if any, on all or any series of Securities, or any Tranche thereof, shall be payable, (b) all or any series of Securities, or any Tranche thereof, may be surrendered for registration or transfer, (c) all or any series of Securities, or any Tranche thereof, may be surrendered for exchange and (d) notices and demands to or upon the Company in respect of all or any series of Securities, or any Tranche thereof, and this Indenture may be served;
- (10) to supplement any of the provisions of this Indenture to such extent as shall be necessary to permit or facilitate the defeasance and discharge of any series of Securities, or any Tranche thereof,

pursuant to Article Four, provided that any such action shall not adversely affect the interests of the Holders of Securities of such series or Tranche or any other series of Securities in any material respect;

(11) (i) to cure any ambiguity or to correct or supplement any provision contained herein or in any supplemental indenture that may be defective or inconsistent with any other provision contained herein or in any supplemental indenture or (ii) to conform the terms of any series of Securities, or Tranche thereof, to the description thereof in the prospectus and prospectus supplement (or similar offering document) offering such series of Securities, or Tranche thereof; or

(12) to make any other provisions with respect to matters or questions arising under this Indenture, *provided* such action shall not adversely affect the interests of the Holders of any Securities of any series or Tranche Outstanding on the date of such indenture supplemental hereto.

Without limiting the generality of the foregoing, if the Trust Indenture Act as in effect at the date of the execution and delivery of this Indenture or at any time thereafter becomes amended and

(x) if any such amendment requires one or more changes to any provisions hereof or the inclusion herein of any additional provisions, or by operation of law is deemed to effect such changes or incorporate such provisions by reference or otherwise, this Indenture shall be deemed to have been amended so as to conform to such amendment to the Trust Indenture Act, and the Company and the Trustee may, without the consent of any Holders, enter into an indenture supplemental hereto to effect or evidence such changes or additional provisions; or

(y) if any such amendment permits one or more changes to, or the elimination of, any provisions hereof that, at the date hereof or at any time thereafter, are required by the Trust Indenture Act to be contained herein (or if it is no longer required by the Trust Indenture Act for the Indenture to contain one or more provisions), this Indenture shall be deemed to have been amended to effect such changes or elimination, and the Company and the Trustee may, without the consent of any Holders, enter into an indenture supplemental hereto to evidence such amendment hereof; or

(z) if, by reason of any such amendment, it shall be no longer necessary for this Indenture to contain one or more provisions that, at the date of the execution and delivery hereof, are required by the Trust Indenture Act to be contained herein, the Company and the Trustee may, without the consent of any Holders, enter into an indenture supplemental hereto to effect the elimination of such provisions.

SECTION 902. *Supplemental Indentures With Consent of Holders* . (a) Except as set forth in paragraph (b) below, with the consent of the Holders of not less than a majority in aggregate principal amount of the Outstanding Securities of each series affected (voting as one class) by such supplemental indenture, by Act of said Holders delivered to the Company and the Trustee, the Company, when authorized by a resolution of its Board of Directors (which resolution may provide general terms or parameters for such action and may provide that the specific terms of such action may be determined in accordance with or pursuant to a Company Order), and the Trustee may, from time to time and at any time, enter into an indenture or indentures supplemental hereto for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of this Indenture or of any supplemental indenture or of modifying in any manner the rights of the Holders of the Securities of each such series or of modifying in any manner the rights of the Holders of Securities of such series under this Indenture; *provided, however*, that if there are Securities of more than one series of equal ranking Outstanding hereunder and if a proposed supplemental indenture shall directly affect the rights of the Holders of Securities of one or more, but less than all, of such series, then the consent only of the Holders of not less than a majority in aggregate principal amount of the Outstanding Securities of all series so directly affected, considered as one class, shall be required.

(b) No such supplemental indenture shall, without the consent of the Holder of each Outstanding Security affected thereby,

(1) change the Stated Maturity of the principal of, or any installment of principal of or interest on, any Security, or reduce the principal amount or premium, if any, thereof or the rate of interest thereon (or the amount of any installment of interest thereon) or any premium payable upon the redemption

thereof, or change the method of calculating the rate of interest thereon, or reduce the amount of the principal of an Original Issue Discount Security that would be due and payable upon a declaration of acceleration of the Maturity thereof pursuant to Section 502, or change the coin or currency (or other property) in which, any Security or any premium or the interest thereon is payable, or impair the right to institute suit for the enforcement of any such payment on or after the Stated Maturity thereof (or, in the case of redemption, on or after the Redemption Date, or, in the case of repayment at the option of the Holders, on or after the Repayment Date), or modify any provisions of this Indenture with respect to the conversion or exchange of the Securities into Securities of another series or into any other debt or equity securities in a manner adverse to the Holders, or

(2) reduce the percentage in principal amount of the Outstanding Securities of any series, the consent of whose Holders is required for any such supplemental indenture, or the consent of whose Holders is required for any waiver of compliance with certain provisions of this Indenture or certain defaults hereunder and their consequences provided for in this Indenture, or

(3) modify any of the provisions of this Section, Section 513 or Section 1008, except to increase any such percentage or to provide that certain other provisions of this Indenture cannot be modified or waived without the consent of the Holder of each Outstanding Security affected thereby, *provided, however*, that this clause shall not be deemed to require the consent of any Holder with respect to changes in the references to “the Trustee” and concomitant changes in this Section and Section 1008, or the deletion of this proviso, in accordance with the requirements of Sections 611(b) and 901(8).

A supplemental indenture that changes or eliminates any covenant or other provision of this Indenture that has expressly been included solely for the benefit of one or more particular series of Securities, or that modifies the rights of the Holders of Securities of such series with respect to such covenant or other provision, shall be deemed not to affect the rights under this Indenture of the Holders of Securities of any other series.

It shall not be necessary for any Act of Holders under this Section to approve the particular form of any proposed supplemental indenture, but it shall be sufficient if such Act shall approve the substance thereof. A waiver by a Holder of such Holder’s rights to consent under this Section shall be deemed to be a consent of such Holder.

SECTION 903. *Execution of Supplemental Indentures*. In executing, or accepting the additional trusts created by, any supplemental indenture permitted by this Article or the modifications thereby of the trusts created by this Indenture, the Trustee shall be entitled to receive, and (subject to Section 601) shall be fully protected in relying upon, an Opinion of Counsel stating that the execution of such supplemental indenture is authorized or permitted by this Indenture. The Trustee may, but shall not be obligated to, enter into any such supplemental indenture that affects the Trustee’s own rights, duties or immunities under this Indenture or otherwise.

SECTION 904. *Effect of Supplemental Indentures*. Upon the execution of any supplemental indenture under this Article, this Indenture shall be modified in accordance therewith, and such supplemental indenture shall form a part of this Indenture for all purposes; and every Holder of Securities theretofore or thereafter authenticated and delivered hereunder shall be bound thereby. Any supplemental indenture permitted by this Article may restate this Indenture in its entirety, and, upon the execution and delivery thereof, any such restatement shall supersede this Indenture as theretofore in effect for all purposes.

SECTION 905. *Conformity With Trust Indenture Act*. Every supplemental indenture executed pursuant to this Article shall conform to the requirements of the Trust Indenture Act as then in effect.

SECTION 906. *Reference in Securities to Supplemental Indentures*. Securities of any series, or any Tranche thereof, authenticated and delivered after the execution of any supplemental indenture pursuant to this Article may, and shall if required by the Trustee, bear a notation in form approved by the Trustee as to any matter provided for in such supplemental indenture. If the Company so determines, new Securities of any series, or any Tranche thereof, so modified as to conform, in the opinion of the Trustee and the Company, to any such supplemental indenture may be prepared and executed by the Company and authenticated and delivered by the Trustee in exchange for Outstanding Securities of such series or Tranche.

SECTION 907. *Revocation and Effect of Consents* . Until an amendment or waiver becomes effective, a consent to it by a Holder of a Security is a continuing consent by the Holder and every subsequent Holder of a Security or portion of a Security that evidences the same debt as the consenting Holder's Security, even if notation of the consent is not made on any Security. However, any such Holder or subsequent Holder may revoke the consent as to his Security or portion of a Security if the Trustee receives the notice of revocation before the date on which the Trustee receives an Officer's Certificate certifying that the Holders of the requisite principal amount of Securities have consented to the amendment or waiver. After an amendment or waiver becomes effective, it shall bind every Holder of each series of Securities affected by such amendment or waiver.

The Company may, but shall not be obligated to, fix a record date for the purpose of determining the Holders entitled to consent to any amendment or waiver. If a record date is fixed, then notwithstanding the provisions of the immediately preceding paragraph, those persons who were Holders at such record date (or their duly designated proxies), and only those persons, shall be entitled to consent to such amendment or waiver or to revoke any consent previously given, whether or not such persons continue to be Holders after such record date.

After an amendment or waiver becomes effective it shall bind every Holder, unless it is of the type described in any of clauses (1) through (3) of Section 902(c). In such case, the amendment or waiver shall bind each Holder of a Security who has consented to it and every subsequent Holder of a Security that evidences the same debt as the consenting Holder's Security.

SECTION 908. *Modification Without Supplemental Indenture* . If the terms of any particular series of Securities have been established in a Board Resolution or an Officer's Certificate as contemplated by Section 301, and not in an indenture supplemental hereto, additions to, changes in or the elimination of any of such terms may be effected by means of a supplemental Board Resolution or Officer's Certificate, as the case may be, delivered to, and accepted by, the Trustee; *provided, however* , that such supplemental Board Resolution or Officer's Certificate shall not be accepted by the Trustee or otherwise be effective unless all conditions set forth in this Indenture that would be required to be satisfied if such additions, changes or elimination were contained in a supplemental indenture shall have been appropriately satisfied. Upon the acceptance thereof by the Trustee, any such supplemental Board Resolution or Officer's Certificate shall be deemed to be a "supplemental indenture" for purposes of Sections 904 and 906.

## ARTICLE TEN

### COVENANTS

SECTION 1001. *Payment of Principal, Premium and Interest* . (a) Subject to the following provisions, the Company will pay to the Trustee the amounts, in such coin or currency as is at the time legal tender for the payment of public or private debt, in the manner, at the times and for the purposes set forth herein and in the text of the Securities for each series, and the Company hereby authorizes and directs the Trustee from funds so paid to it to make or cause to be made payment of the principal of and any premium and interest on the Securities of each series as set forth herein and in the text of such Securities. Unless otherwise provided in the Securities of a series, the Trustee will arrange directly with any Paying Agents for the payment, or the Trustee will make payment, from funds furnished by the Company, of the principal of and any premium and interest, on the Securities of each series by check or draft.

(b) Unless otherwise provided in the Securities of a series, interest, if any, on Securities of a series shall be paid by check or draft on each Interest Payment Date for such series to the Holder thereof at the close of business on the Regular Record Date specified in the Securities of such series; *provided, however* , that interest payable at Maturity will be paid to the Person to whom principal is payable. The Company may pay such interest by check or draft mailed to such Holder's address as it appears on the register for Securities of such series. Unless otherwise provided in the Securities of a series, principal of Securities shall be payable by check or draft and only against presentation and surrender of such Securities at the office of the Paying Agent, unless the Company shall have otherwise instructed the Trustee in writing.

(c) At the election of the Company, any payments by the Company provided for in this Indenture or in any of the Securities may be made by electronic funds transfer.

SECTION 1002. *Maintenance of Office or Agency*. (a) The Company will maintain in each Place of Payment for any series of Securities, or any Tranche thereof, an office or agency where Securities, or any Tranche thereof, of that series may be surrendered for registration of transfer or exchange and a Place of Payment where (subject to Sections 305 and 307) Securities may be presented for payment or exchange and where notices and demands to or upon the Company in respect of the Securities of that series and this Indenture may be served. Unless otherwise specified pursuant to Section 301(b) with respect to any such series, the Company shall maintain such offices or agencies in connection with each series in the Borough of Manhattan, The City of New York, State of New York. The Security Registrar shall keep a register with respect to each series of Securities and to their transfer and exchange. The Company may appoint one or more co-Security Registrars acceptable to the Trustee and one or more additional Paying Agents for each series of Securities, and the Company may terminate the appointment of any co-Security Registrar or Paying Agent at any time upon written notice. The term "Security Registrar" includes any co-Security Registrar. The term "Paying Agent" includes any additional Paying Agent. The Company shall notify the Trustee of the name and address of any Agent not a party to this Indenture. Subject to Section 305, if the Company fails to maintain a Security Registrar or Paying Agent, the Trustee shall act as such. The Company will give prompt written notice to the Trustee of the location, and any change in the location, of such office or agency. If at any time the Company fails to maintain any such required office or agency or fails to furnish the Trustee with the address thereof, such presentations, surrenders, notices and demands may be made or served at the Corporate Trust Office of the Trustee, and the Company hereby appoints the Trustee as its agent to receive all such presentations, surrenders, notices and demands.

(b) The Company may also from time to time designate one or more other offices or agencies where the Securities of one or more series may be presented or surrendered for any or all such purposes and may from time to time rescind such designations; *provided, however*, that no such designation or rescission shall in any manner relieve the Company of its obligation to maintain an office or agency in each Place of Payment for Securities of any series for such purposes. The Company will give prompt written notice to the Trustee of any such designation or rescission and of any change in the location of any such other office or agency.

(c) Anything herein to the contrary notwithstanding, any office or agency required by this Section may be maintained at any office of the Company in which event the Company shall perform all functions to be performed at such office or agency.

SECTION 1003. *Money for Securities Payments to Be Held in Trust*. (a) If the Company at any time acts as its own Paying Agent with respect to any series of Securities, or any Tranche thereof, it will, on or before each due date of the principal of or any premium or interest on any of such Securities, segregate and hold in trust for the benefit of the Persons entitled thereto a sum sufficient to pay the principal (and premium, if any) or interest so becoming due until such sums are paid to such Persons or otherwise disposed of as herein provided and will promptly notify the Trustee of its action or failure so to act.

(b) Whenever the Company has one or more Paying Agents for any series of Securities, it will, on or prior to (and if on, then before 11:00 a.m. (New York City time)) each due date of the principal of and any premium or interest on such Securities, deposit with a Paying Agent a sum sufficient (in immediately available funds, if payment is made on the due date) to pay the principal and any premium and interest so becoming due, such sum to be held in trust for the benefit of the Persons entitled to such principal, premium or interest as provided in the Trust Indenture Act and (unless such Paying Agent is the Trustee) the Company will promptly notify the Trustee of its action or failure so to act.

(c) The Company will cause each Paying Agent for any series of Securities, or any Tranche thereof, other than the Trustee, to execute and deliver to the Trustee an instrument in which such Paying Agent shall agree with the Trustee, subject to the provisions of this Section, that such Paying Agent will:

(i) comply with the provisions of the Trust Indenture Act applicable to it as a Paying Agent and

(ii) during the continuance of any default by the Company (or any other obligor upon the Securities of that series) in the making of any payment in respect of the Securities of that series, upon the written request of the Trustee, forthwith pay to the Trustee all sums held in trust by such Paying Agent for payment in respect of the Securities of that series

(d) The Company may at any time, for the purpose of obtaining the satisfaction and discharge of this Indenture or for any other purpose, pay, or by Company Order direct any Paying Agent to pay, to the Trustee all sums held in trust by the Company or such Paying Agent, such sums to be held by the Trustee upon the same trusts as those upon which such sums were held by the Company or such Paying Agent; and, upon such payment by any Paying Agent to the Trustee, such Paying Agent shall be released from all further liability with respect to such money.

(e) Any money deposited with the Trustee or any Paying Agent, or received by the Trustee in respect of Eligible Obligations deposited with the Trustee pursuant to Section 401 or 404, or then held by the Company, in trust for the payment of the principal of and any premium or interest on any Security of any series and remaining unclaimed for two years (or such shorter period for the return of such funds to the Company under applicable abandoned property laws) after such principal, premium or interest has become due and payable shall be paid to the Company on Company Request, or (if then held by the Company) shall be discharged from such trust; and the Holder of such Security shall thereafter, as an unsecured general creditor, look only to the Company for payment thereof, and all liability of the Trustee or such Paying Agent with respect to such trust money, and all liability of the Company as trustee thereof, shall thereupon cease.

SECTION 1004. *Statement as to Compliance* . The Company will deliver to the Trustee, within 120 days after the end of each fiscal year of the Company ending after the date hereof, a written statement, which need not comply with Section 102, signed by the principal executive officer, the principal financial officer or the principal accounting officer of the Company stating, as to each signer thereof stating whether or not to the knowledge of the signers thereof it is in default in the performance and observance of any of the terms, provisions, and conditions of this Indenture (without regard to any period of grace or requirement of notice provided hereunder) and, if it is in default, specifying all such defaults and the nature and status thereof of which they may have knowledge.

SECTION 1005. *Corporate Existence* . Subject to Article Eight, the Company will do or cause to be done all things necessary to preserve and keep in full force and effect its corporate existence, rights (charter and statutory) and franchises; *provided, however* , that the Company shall not be required to preserve any such right or franchise if, in the judgment of the Company, the preservation thereof is no longer desirable in the conduct of the business of the Company.

SECTION 1006. *Waiver of Certain Covenants* . Except as otherwise specified as contemplated by Section 301 for Securities of such series, the Company may, with respect to the Securities of any series, omit in any particular instance to comply with any term, provision or condition set forth in (i) any additional covenants or restrictions specified with respect to the Securities of any series as contemplated by Section 301 if before the time for such compliance the Holders of not less than a majority in aggregate principal amount (or such larger proportion as may be required in respect of waiving a past default of any such additional covenant or restriction) of the Outstanding Securities of all series of equal ranking with respect to which such covenant or restriction was so specified, considered as one class, by Act of such Holders, either waive such compliance in such instance or generally waive compliance with such term, provision or condition and (ii) Sections 1002 and 1004 and Article Eight if before the time for such compliance the Holders of at least a majority in principal amount of Securities of all series of equal ranking Outstanding under this Indenture by Act of such Holders, either waive such compliance in such instance or generally waive compliance with such term, provision or condition; but, in the case of clause (i) or (ii) of this Section, no such waiver shall extend to or affect such term, provision or condition except to the extent so expressly waived, and, until such waiver becomes effective, the obligations of the Company and the duties of the Trustee in respect of any such term, provision or condition shall remain in full force and effect.

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**ARTICLE ELEVEN**

**REDEMPTION OF SECURITIES**

SECTION 1101. *Applicability of Article* . Securities of any series that are redeemable before their Stated Maturity (or, if the principal of the Securities of any series is payable in installments, the Stated Maturity of the final installment of the principal thereof) shall be redeemable in accordance with their terms and (except as otherwise specified as contemplated by Section 301(b) for Securities of any series) in accordance with this Article.

SECTION 1102. *Election to Redeem; Notice to Trustee* . The election of the Company to redeem any Securities shall be evidenced by a Board Resolution or an Officer's Certificate. In case of any redemption at the election of the Company of less than all the Securities of any series, the Company shall, at least 45 days prior to the Redemption Date fixed by the Company (unless a shorter notice is satisfactory to the Trustee in its sole discretion), notify the Trustee of such Redemption Date and of the principal amount of Securities of such series to be redeemed. In the case of any redemption of Securities (a) prior to the expiration of any restriction on such redemption provided in the terms of such Securities or elsewhere in this Indenture, or (b) pursuant to an election of the Company that is subject to a condition specified in the terms of such Securities the Company shall furnish the Trustee with an Officer's Certificate evidencing compliance with such restriction.

SECTION 1103. *Selection by Trustee of Securities to Be Redeemed* . If less than all the Securities of any series are to be redeemed, unless the procedures of the Depository provide otherwise, the particular Securities to be redeemed shall be selected by the Trustee, from the Outstanding Securities of such series not previously called for redemption, by such method as is provided for any particular series, or, in the absence of any such provision, pro rata, by lot, or by such method as the Trustee deems fair and appropriate and which may provide for the selection for redemption of portions (equal to the minimum authorized denomination for Securities of that series or any integral multiple thereof) of the principal amount of Securities of such series of a denomination larger than the minimum authorized denomination for Securities of that series.

The Trustee shall promptly notify the Company and the Security Registrar in writing of the Securities selected for redemption and, in the case of any Securities selected for partial redemption, the principal amount thereof to be redeemed and the method it has chosen for the selection of such Securities.

For all purposes of this Indenture, unless the context otherwise requires, all provisions relating to the redemption of Securities shall relate, in the case of any Securities redeemed or to be redeemed only in part, to the portion of the principal amount of such Securities that has been or is to be redeemed.

SECTION 1104. *Notice of Redemption* . Unless otherwise specified as contemplated by Section 301 with respect to any series of Securities, notice of redemption shall be given by electronic transmission or first-class mail, postage prepaid, mailed not less than 30 nor more than 60 days prior to the Redemption Date, to each Holder of Securities to be redeemed, at such Holder's address appearing in the Security Register.

All notices of redemption shall state:

- (1) the Redemption Date,
- (2) the Redemption Price, or the formula pursuant to which the Redemption Price is to be determined if the Redemption Price cannot be determined at the time notice is given,
- (3) if less than all the Outstanding Securities of any series are to be redeemed, the identification (and, in the case of partial redemption, the principal amounts) of the particular Securities to be redeemed, and the portion of the principal amount of any Security to be redeemed in part and, in the case of any such Security of such series to be redeemed in part, that, on and after the Redemption Date, upon surrender of such Security, a new Security or Securities of such series in principal amount equal to the remaining unpaid principal amount thereof will be issued as provided in Section 1106,

(4) that on the Redemption Date the Redemption Price will become due and payable upon each such Security to be redeemed and, if applicable, that interest thereon will cease to accrue on and after said date,

(5) the place or places where such Securities are to be surrendered for payment of the Redemption Price and accrued interest, if any,

(6) that the redemption is for a sinking fund, if such is the case,

(7) the CUSIP, "ISIN" or similar number(s), if any, assigned to such Securities; *provided however*, that such notice may state that no representation is made as to the correctness of CUSIP, "ISIN" or similar number(s), and the redemption of such Securities shall not be affected by any defect in or omission of such number(s), and

(8) such other matters as the Company shall deem desirable or appropriate.

Unless otherwise specified with respect to any Securities in accordance with Section 301, with respect to any notice of redemption of Securities at the election of the Company, unless, upon the giving of such notice, such Securities are deemed to have been paid in accordance with Section 401, such notice may state that such redemption shall be conditional upon the receipt by the Paying Agent or Agents for such Securities, on or prior to the date fixed for such redemption, of money sufficient to pay the principal of and premium, if any, and interest, if any, on such Securities and that if such money has not been so received such notice shall be of no force or effect and the Company shall not be required to redeem such Securities. In the event that such notice of redemption contains such a condition and such money is not so received, the redemption shall not be made and within a reasonable time thereafter notice shall be given, in the manner in which the notice of redemption was given, that such money was not so received and such redemption was not required to be made, and the Paying Agent or Agents for the Securities otherwise to have been redeemed shall promptly return to the Holders thereof any of such Securities that had been surrendered for payment upon such redemption.

Notice of redemption of Securities to be redeemed at the election of the Company, and any notice of non-satisfaction of a condition for redemption as aforesaid, shall be given by the Company or, at the Company's request, by the Security Registrar in the name and at the expense of the Company. Notice of mandatory redemption of Securities shall be given by the Security Registrar in the name and at the expense of the Company.

SECTION 1105. *Securities Payable on Redemption Date*. (a) Notice of redemption having been given as aforesaid, and the conditions, if any, set forth in such notice having been satisfied, the Securities or portions thereof so to be redeemed shall, on the Redemption Date, become due and payable at the Redemption Price therein specified, and from and after such date (unless the Company defaults in the payment of the Redemption Price and accrued interest, if any) such Securities, or portions thereof, if interest-bearing, shall cease to bear interest. Upon surrender of any such Security for redemption in accordance with said notice, such Security or portion thereof, if any, shall be paid by the Company at the Redemption Price, together with accrued interest, if any, to the Redemption Date; *provided, however*, that installments of interest whose Stated Maturity is on or prior to the Redemption Date shall be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Regular Record Dates according to their terms and the provisions of Section 307.

(b) If any Security called for redemption shall not be so paid upon surrender thereof for redemption, the principal and any premium shall, until paid, bear interest from the Redemption Date at the rate prescribed therefor in the Security.

SECTION 1106. *Securities Redeemed in Part*. Any physical Security that is to be redeemed only in part shall be surrendered at a Place of Payment therefor (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or his or her attorney duly authorized in writing), and the Company shall execute, and the Trustee shall authenticate and deliver to the Holder of such Security without service charge, a new Security or Securities of the same series, of any authorized denomination as requested by such Holder, and of like tenor and

in aggregate principal amount equal to and in exchange for the unredeemed portion of the principal of the Security so surrendered.

## ARTICLE TWELVE

### REPAYMENT OF SECURITIES AT OPTION OF HOLDERS

SECTION 1201. *Applicability of Article* . Securities of any series that are repayable before their Stated Maturity at the option of the Holders shall be repayable in accordance with their terms and (except as otherwise specified as contemplated by Section 301 for Securities of any series) in accordance with this Article.

SECTION 1202. *Notice of Repayment Date* . Notice of any Repayment Date with respect to Securities of any series shall be given by the Company not less than 30 nor more than 45 days prior to such Repayment Date (or at such other times as may be specified for such repayment or repurchase pursuant to Section 301) to each Holder of Securities of such series in accordance with Section 106 (except as otherwise specified as contemplated by Section 301 for Securities of any series).

The notice as to the Repayment Date shall state (unless otherwise specified for such repayment or repurchase pursuant to Section 301):

- (1) the Repayment Date;
- (2) the principal amount of the Securities required to be repaid or repurchased and the Repayment Price (or the formula pursuant to which the Repayment Price is to be determined if the Repayment Price cannot be determined at the time the notice is given);
- (3) the place or places where such Securities are to be surrendered for payment of the Repayment Price, and accrued interest, if any, and the date by which Securities must be so surrendered in order to be repaid or repurchased;
- (4) that any Security not tendered or accepted for payment shall continue to accrue interest;
- (5) that, unless the Company defaults in making such payment or the Paying Agent is prohibited from paying such money to the Holders on that date pursuant to the terms of this Indenture, Securities accepted for payment pursuant to any such offer of repayment or repurchase shall cease to accrue interest after the Repayment Date;
- (6) that Holders electing to have a Security repaid or purchased pursuant to such offer may elect to have all or any portion of such Security purchased;
- (7) that Holders electing to have a Security repaid or repurchased pursuant to any such offer shall be required to surrender the Security, with such customary documents of surrender and transfer as the Company may reasonably request, duly completed, or transfer by book-entry transfer, to the Company or the Paying Agent at the address specified in the notice at least two Business Days prior to the Repayment Date;
- (8) that Holders shall be entitled to withdraw their election if the Company or the Paying Agent, as the case may be, receives, not later than the expiration of the offer to repay or repurchase, a telegram, facsimile transmission or letter setting forth the name of the Holder, the principal amount of the Security the Holder delivered for purchase and a statement that such Holder is withdrawing its election to have such Security purchased;
- (9) that, in the case of a repayment or repurchase of less than all Outstanding Securities of a series, the method of selection of Securities to be repaid or repurchased to be applied by the Trustee if the

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principal amount of properly tendered Securities exceeds the principal amount of the Securities to be repaid or repurchased;

(10) that Holders whose Securities are purchased only in part shall be issued new Securities of the same series equal in principal amount to the unpurchased portion of the Securities surrendered (or transferred by book-entry transfer); and

(11) the CUSIP or other identification number, if any, printed on the Securities being repurchased and that no representation is made as to the correctness or accuracy of the CUSIP or other identification number, if any, listed in such notice or printed on the Securities.

SECTION 1203. *Securities Payable on Repayment Date* . The form of option to elect repurchase or repayment having been delivered as specified in the form of Security for such series, the Securities of such series so to be repaid (after application of the method of selection described pursuant to clause (9) of Section 1202, if the principal amount of properly tendered Securities exceeds the principal amount of the Securities to be repaid or repurchased) shall, on the Repayment Date, become due and payable at the Repayment Price applicable thereto and from and after such date (unless the Company defaults in the payment of the Repayment Price and accrued interest) such Securities shall cease to bear interest. Upon surrender of any such Security for repayment in accordance with said notice, such Security shall be paid by the Company at the Repayment Price together with accrued interest, if any, to but excluding the Repayment Date; *provided, however* , that if a Security is repaid or repurchased on or after a Regular Record Date but on or prior to the Stated Maturity of any installments of interest, then any accrued and unpaid interest due on such Stated Maturity shall be payable to the Holders of such Securities, or one or more Predecessor Securities, registered as such at the close of business on the relevant Regular Record Dates according to their terms and the provisions of Section 307.

If any Security is not paid upon surrender thereof for repayment, the principal (and premium, if any) shall, until paid, bear interest from the Repayment Date at the rate prescribed therefor in such Security.

SECTION 1204. *Securities Repaid in Part* . Any Security that by its terms may be repaid in part at the option of the Holder and that is to be repaid only in part shall be surrendered at any office or agency of the Company designated for that purpose pursuant to Section 1002 (with, if the Company or the Trustee so requires, due endorsement by, or a written instrument of transfer in form satisfactory to the Company and the Trustee duly executed by, the Holder thereof or his or her attorney duly authorized in writing), and the Company shall execute, and the Trustee shall authenticate and deliver to the Holder of such Security without service charge, a new Security or Securities of the same series, as provided in Section 305 , of any authorized denomination as requested by such Holder, in aggregate principal amount equal to and in exchange for the unrepaid portion of the principal of the Security so surrendered.

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This instrument may be executed in any number of counterparts, each of which so executed shall be deemed to be an original, but all such counterparts shall together constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have caused this Indenture to be duly executed as of the date first above written.

INVITAE CORPORATION

By \_\_\_\_\_  
Name:  
Title:

[TRUSTEE]

By \_\_\_\_\_  
Name:  
Title:

PILLSBURY WINTHROP SHAW PITTMAN LLP  
2550 Hanover Street  
Palo Alto, CA 94304-1115

August 9, 2018

Invitae Corporation  
1400 16th Street  
San Francisco, CA 94103

Re: Registration Statement on Form S-3

Ladies and Gentlemen:

We are acting as counsel for Invitae Corporation, a Delaware corporation (the "Company"), in connection with the Registration Statement on Form S-3 relating to the registration under the Securities Act of 1933 (the "Act") of the following securities of the Company having an aggregate initial public offering price of up to \$250,000,000: (a) senior or subordinated debt securities ("Debt Securities"), (b) shares of common stock, \$0.0001 par value per share ("Common Stock"), (c) shares of preferred stock, \$0.0001 par value per share ("Preferred Stock"), in one or more series, (d) depositary shares evidenced by depositary receipts, each representing fractional interests in Preferred Stock ("Depositary Shares"), (e) warrants to purchase Debt Securities, Preferred Stock, Common Stock, Depositary Shares or any combination thereof ("Warrants") and (f) rights ("Rights") to purchase Common Stock or Preferred Stock. The Common Stock, Preferred Stock, Depositary Shares, Debt Securities, Warrants and Rights are collectively referred to herein as the "Securities." The Securities shall include any additional amounts of such securities the offer and sale of which are registered pursuant to a registration statement filed pursuant to Rule 462(b) under the Act in connection with one or more offerings contemplated by such Registration Statement. Such Registration Statement, as amended, and including any registration statement related thereto and filed pursuant to Rule 462(b) under the Act, is herein referred to as the "Registration Statement."

The Debt Securities will be issued under an Indenture in substantially the form of Exhibit 4.1 to the Registration Statement to be entered into between the Company and a trustee to be identified in the Indenture (the "Trustee"), together with the board resolutions, an Officer's Certificate or a Supplemental Indenture in the form to be filed or incorporated by reference as an exhibit to the Registration Statement setting forth the terms of a specific series of the Debt Securities (such Indenture, as so modified or supplemented, the "Indenture").

We have reviewed the Registration Statement and such other agreements, documents, records, certificates and other materials, and have reviewed and are familiar with such corporate proceedings and satisfied ourselves as to such other matters, as we have considered relevant or necessary as a basis for the opinions expressed in this letter. In such review, we have assumed the accuracy and completeness of all agreements, documents, records, certificates and other materials submitted to us, the conformity with the originals of all such materials submitted to us as copies (whether or not certified and including facsimiles), the authenticity of the originals of such materials and all materials submitted to us as originals, the genuineness of all signatures and the legal capacity of all natural persons.

On the basis of the assumptions and subject to the qualifications and limitations set forth herein, we are of the opinion that:

1. With respect to any of the Debt Securities, when (a) the Indenture has been duly authorized, executed and delivered by the Company and duly qualified under the Trust Indenture Act of 1939, (b) the Board has taken all necessary corporate action to approve the issuance and establish the terms of such Debt Securities, the terms of the offering and related matters, (c) such Debt Securities have been duly executed and authenticated in accordance with the terms of the Indenture, and (d) such Debt Securities have been issued and sold in the manner contemplated by the Registration Statement and in accordance with the Indenture, such Debt Securities (including any Debt Securities duly issued upon conversion, exchange or exercise of any other Security in accordance with the terms of such other Security or the instrument governing such other Security providing for such conversion, exchange or exercise as approved by the Board) will constitute the valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.
2. With respect to the Common Stock, when the Board of Directors of the Company or a duly authorized committee of such Board (such Board of Directors or committee being referred to herein as the “Board”) has taken all necessary corporate action to approve the issuance and establish the terms of the offering of shares of the Common Stock and related matters and when such shares have been issued and sold by the Company in the manner contemplated by the Registration Statement and in accordance with such Board action, such shares of Common Stock (including any Common Stock duly issued upon conversion, exchange or exercise of any other Security in accordance with the terms of such other Security or the instrument governing such other Security providing for such conversion, exchange or exercise as approved by the Board) will be duly authorized, validly issued, fully paid and nonassessable.
3. With respect to the Preferred Stock, when the Board has taken all necessary corporate action to approve the issuance and establish the terms of any particular series of Preferred Stock, the offering thereof and related matters, including the filing of a certificate of designations conforming to the General Corporation Law of the State of Delaware regarding such series of Preferred Stock with the Secretary of State of the State of Delaware, and when shares of such series of Preferred Stock have been issued and sold by the Company in the manner contemplated by the Registration Statement and in accordance with such Board action, such shares of such series of Preferred Stock (including any shares of such series of Preferred Stock duly issued upon conversion, exchange or exercise of any other Security in accordance with the terms of such other Security or the instrument governing such other Security providing for such conversion, exchange or exercise as approved by the Board) will be duly authorized, legally issued, fully paid and nonassessable.
4. With respect to any of the Depositary Shares, when (a) the Board has taken all necessary corporate action to approve the issuance and establish the terms of the series of Preferred Stock to be issued in connection therewith, the offering of such Depositary Shares in such series of Preferred Stock, and related matters, including the filing of a certificate of designations conforming to the General Corporation Law of the State of Delaware regarding the Preferred Stock with the Secretary of State of the State of Delaware, <sup>9</sup> (b) a deposit agreement has been duly authorized, executed and delivered by the Company and a bank or trust company to be selected by the Company, as depositary (a “Deposit Agreement”), which Deposit Agreement establishes the terms of the Depositary Shares and their issuance and sale, (c) the shares of such series of Preferred Stock have been deposited with such depositary in accordance with such Deposit Agreement, (d) such shares of such series of

Preferred Stock have been issued and sold in the manner contemplated by the Registration Statement and in accordance with such Board action, and (e) receipts ("Receipts") evidencing Depositary Shares are duly issued against the deposit of such series of Preferred Stock in accordance with such Deposit Agreement, such Depositary Shares will be duly authorized, validly issued, fully paid and nonassessable and such Receipts will be duly authorized and validly issued and entitle the holders thereof to the rights specified in such Deposit Agreement.

5. With respect to any of the Warrants, when (a) one or more agreements incorporating the terms and other provisions thereof has been duly executed and delivered by the Company and a warrant agent (a "Warrant Agreement"), (b) the Board has taken all necessary corporate action to approve the issuance and establish the terms of such Warrants, the terms of the offering of such Warrants, and related matters, (c) the Warrant certificates have been duly executed and authenticated or countersigned in accordance with the terms of such Warrant Agreement, and (d) such Warrants have been issued and sold in the manner contemplated by the Registration Statement and in accordance with such Warrant Agreement, such Warrants will constitute the valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.
6. With respect to any of the Rights, when (a) one or more agreements incorporating the terms and other provisions thereof has been duly executed and delivered by the Company and a rights agent (a "Rights Agreement"), (b) the Board has taken all necessary corporate action to approve the issuance and establish the terms of such Rights, the terms of the offering of such Rights, and related matters, (c) such Rights have been duly executed and authenticated in accordance with the terms of such Rights Agreement, and (d) such Rights have been issued and sold in the manner contemplated by the Registration Statement and in accordance with such Rights Agreement, such Rights will constitute the valid and legally binding obligations of the Company, enforceable against the Company in accordance with their terms.

Our opinions set forth in paragraphs 1, 5 and 6 above are subject to and limited by the effect of (a) applicable bankruptcy, insolvency, fraudulent conveyance and transfer, receivership, conservatorship, arrangement, moratorium and other similar laws affecting or relating to the rights of creditors generally, (b) general equitable principles (whether considered in a proceeding in equity or at law) and (c) requirements of reasonableness, good faith, materiality and fair dealing and the discretion of the court before which any matter may be brought.

In connection with the opinions expressed above, we have assumed that (a) at or prior to the time of the delivery of any of the Securities the Registration Statement, including any amendments thereto, will have been declared effective under the Act and a supplement to the Prospectus forming a part of the Registration Statement applicable to the offer and sale of such Securities will have been prepared and filed with the Securities and Exchange Commission pursuant to Rule 424(b) under the Act, (b) at or prior to the time of the issuance of any of the Securities, the Board shall not have rescinded or otherwise modified the authorization of such Securities, (c) in the case of the issuance of shares of the Common Stock or the Preferred Stock, the Company will have a sufficient number of authorized but unissued shares thereof under the Restated Certificate of Incorporation of the Company at the time of such issuance, and (d) neither the establishment of any terms of any of the Securities after the date hereof nor the issuance and delivery of, or the performance of the Company's obligations under, such Securities will require any authorization, consent, approval or license of or exemption from, or registration or filing with, or report or notice to, any governmental unit, agency, commission, department or other authority (a "Governmental Approval") or violate or conflict with, result in a breach of, or constitute a default under, (i) any agreement or instrument

to which the Company or any of its affiliates is a party or by which the Company or any of its affiliates or any of their respective properties may be bound, (ii) any Governmental Approval that may be applicable to the Company or any of its affiliates or any of their respective properties, (iii) any order, decision, judgment or decree that may be applicable to the Company or any of its affiliates or any of their respective properties or (iv) any applicable law (other than the General Corporation Law of the State of Delaware and the law of the State of New York in each case as in effect on the date hereof).

The opinions set forth in this letter are limited to the General Corporation Law of the State of Delaware and the law of the State of New York, in each case as in effect on the date hereof.

We hereby consent to the filing of this opinion letter as Exhibit 5.1 to the Registration Statement and to the use of our name under the caption "Legal Matters" in the Registration Statement and in the Prospectus forming a part thereof and any supplement thereto. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Pillsbury Winthrop Shaw Pittman LLP

PILLSBURY WINTHROP SHAW PITTMAN LLP  
2550 Hanover Street  
Palo Alto, CA 94304-1115

August 9, 2018

Invitae Corporation  
1400 16th Street  
San Francisco, CA 94103

Ladies and Gentlemen:

We are acting as counsel for Invitae Corporation, a Delaware corporation (the “Company”), in connection with the issuance and sale of shares (the “Shares”) of common stock, \$0.0001 par value per share (the “Common Stock”), of the Company having an aggregate offering price of up to \$75,000,000, all of which are authorized but heretofore unissued shares to be offered and sold by the Company, pursuant to (i) the Registration Statement on Form S-3 (the “Registration Statement”), filed by the Company with the Securities and Exchange Commission (the “Commission”) under the Securities Act of 1933 (the “Act”) on August 9, 2018, (ii) the related prospectus, as supplemented by the prospectus supplement relating to the offer and sale of the Shares (as so supplemented, the “Prospectus”), and (iii) the Sales Agreement dated as of August 9, 2018, between the Company and Cowen & Company, LLC. (the “Agreement”).

We have reviewed and are familiar with such documents, corporate proceedings and other matters as we have considered relevant or necessary as a basis for the opinions in this letter. Based on the foregoing, we are of the opinion that the Shares have been duly authorized and, when issued and sold by the Company in the manner described in the Registration Statement and the Prospectus and in accordance with terms of the Agreement, will be validly issued, fully paid and nonassessable.

The opinions set forth in this letter are limited to the General Corporation Law of the State of Delaware, as in effect on the date hereof.

We hereby consent to the filing of this opinion letter as Exhibit 5.2 to the Registration Statement and to the use of our name under the caption “Legal Matters” in the Prospectus. In giving this consent, we do not thereby admit that we are within the category of persons whose consent is required under Section 7 of the Act or the rules and regulations of the Commission promulgated thereunder.

Very truly yours,

/s/ Pillsbury Winthrop Shaw Pittman LLP

## INVITAE CORPORATION

STATEMENT REGARDING COMPUTATION OF RATIOS  
(in thousands)

	For the years ended December 31,					For the six months ended June 30,
	2013	2014	2015	2016	2017	2018
<b>Earnings (deficiency):</b>						
Net loss before provision for income taxes	\$ (24,838)	\$ (47,492)	\$ (89,782)	\$ (100,256)	\$ (125,236)	\$ (67,791)
Fixed charges, as calculated below	262	330	779	2,512	6,977	4,795
Earnings (deficiency)	<u>\$ (24,576)</u>	<u>\$ (47,162)</u>	<u>\$ (89,003)</u>	<u>\$ (97,744)</u>	<u>\$ (118,259)</u>	<u>\$ (62,996)</u>
<b>Fixed charges:</b>						
Interest expense	\$ 56	\$ 61	\$ 207	\$ 412	\$ 3,165	\$ 2,654
Amortization of debt issuance cost	—	—	4	9	489	429
Estimated interest portion of rental expense	206	269	568	2,091	3,323	1,712
Total fixed charges	<u>\$ 262</u>	<u>\$ 330</u>	<u>\$ 779</u>	<u>\$ 2,512</u>	<u>\$ 6,977</u>	<u>\$ 4,795</u>
Ratio of earnings to fixed charges (1)	—	—	—	—	—	—

- (1) Earnings were inadequate to cover fixed charges for the years ended December 31, 2013, 2014, 2015, 2016 and 2017 and the six months ended June 30, 2018 by \$24.8 million, \$47.5 million, \$89.8 million, \$100.3 million, \$125.2 million and \$67.8 million, respectively.

For the periods presented above, we had no outstanding shares of preferred stock with required dividend payments. Therefore, the ratios of earnings to combined fixed charges and preferred stock dividends are identical to the ratios presented in the table above.

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the reference to our firm under the caption “Experts” in the Registration Statement (Form S-3) and the related Prospectus and Prospectus Supplement of Invitae Corporation for the registration of Invitae Corporation’s debt securities, common stock, preferred stock, depositary shares, warrants and/or rights, and to the incorporation by reference therein of our report dated March 5, 2018, with respect to the consolidated financial statements of Invitae Corporation, included in its Annual Report (Form 10-K) for the year ended December 31, 2017, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

Redwood City, California

August 9, 2018

**CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM**

We consent to the reference to our firm under the caption “Experts” in this Registration Statement (Form S-3) and the related Prospectus and Prospectus Supplement of Invitae Corporation for the registration of Invitae Corporation’s debt securities, common stock, preferred stock, depositary shares, warrants and/or rights, and to the incorporation by reference therein of our report dated March 3, 2017, relating to our audit of the consolidated financial statements of CombiMatrix Corporation, included in its Annual Report on Form 10-K for the year ended December 31, 2016.

/s/ Haskell & White LLP

Irvine, California

August 9, 2018