ANALYSIS OF THE REGIONAL MARKET FOR CRUSHED STONE IMPORTED INTO THE UNITED STATES FROM THE WHITES POINT QUARRY, NOVA SCOTIA

Prepared For:

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MINERAL
VALUATION &
CAPITAL, INC.

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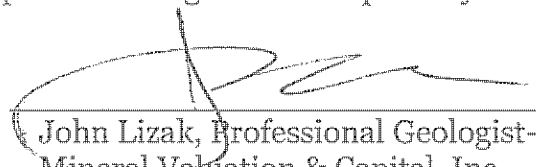
CERTIFICATION

I certify that to the best of my knowledge and belief:

- The statements of fact contained in this report are true and correct.
- The reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions and are my personal, impartial, unbiased professional analyses, opinions, and conclusions.
- I have no present or prospective interest in the property that is the subject of this report and I have no personal interest with respect to the parties involved.
- I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
- My engagement in this assignment was not contingent upon developing or reporting predetermined results.
- My compensation is not contingent on an action or event resulting from the analysis, opinions and conclusions in this report or from its use.
- My compensation for completing this assignment is not contingent upon the development or reporting of predetermined assignment results or assignment results that favor the cause of the client, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this report.

[redacted]

- No one provided significant review or other professional assistance to the person signing this report.
- The author has the training, knowledge, and experience to complete the assignment competently and/or has taken all steps necessary (as disclosed herein where appropriate) to complete the assignment competently.



John Lizak, Professional Geologist–IL, IN, KY, PA
Mineral Valuation & Capital, Inc.
Industrial Minerals & Construction Materials Group

GLOSSARY

Aggregate – Any combination of sand, gravel, and crushed stone in their natural or processed state.

Bedrock – A general term for the rock, usually solid, that underlies soil or other unconsolidated, superficial material.

Bituminous Concrete – Bituminous concrete also known as asphalt, asphalt concrete, hot mix asphalt, blacktop, or pavement is a composite material commonly used to surface roads, parking lots, driveways and airports. It consists of mineral aggregate bound together with asphalt, laid in layers, and compacted.

Coarse aggregate – Crushed stone or gravel predominantly retained on a 3/8-inch (9.5-mm) sieve essentially all of which is retained on the No. 4 (4.75-mm) sieve.

Construction aggregate – Any combination of sand, gravel, and crushed stone in their natural or processed state used for construction.

Crushed stone – The product resulting from the artificial crushing of rock, boulders, or large cobblestones, substantially all faces of which have resulted from the crushing operation.

Fine aggregate – Aggregate passing the 3/8-inch (9.5-mm) sieve essentially all of which passes the No. 4 (4.75-mm) sieve and is predominantly retained on the No.200 sieve.

Metric ton – A unit of weight equal to 1,000 kilograms (2,205 lb). It is also called a long ton or tonne.

Natural aggregate – Rock fragments that are used in their natural state or are used after mechanical processing such as crushing, washing, and sizing. Quarry stone is crushed and processed to produce aggregate. In this report, the term natural aggregate (or aggregate) includes mined or quarried stone that has been crushed, washed, and sized, as well as sand and gravel.

NSDNR – Nova Scotia Department of Natural Resources.

Portland Cement Concrete (PCC) – A mixture of paste and aggregates. The paste, composed of Portland cement and water, coats the surface of fine and coarse aggregates.

Through a chemical reaction called hydration, the paste hardens and gains strength to form the rock-like mass known as concrete, ready-mix concrete, or redi-mix concrete.

Prices – All prices are reported in U.S. dollars unless otherwise noted.

Sand and gravel – Any clean unconsolidated mixture of fine and/or coarse aggregate material found in a natural deposit. Most sand and gravel deposits are formed by deposition in water.

Short ton – A unit of weight equal to 2,000 pounds (907.18474 kg) that is most commonly used in the United States where it is known simply as a ton.

Tidewater quarry – A quarry located near tidewater (water effected by the flow and ebb of the tide) or the seacoast

USGS – United States Geological Survey

Volume – All volumes in this report are reported in short tons (2,000 pounds) unless otherwise noted.

Whites Point Project – A quarry and a marine facility proposed to be constructed and operated by Bilcon at Whites Point in Digby Neck, Nova Scotia.

INTRODUCTION

The Whites Point project involves a quarry and a marine facility proposed to be constructed and operated by Bilcon of Delaware, Inc. (Bilcon) at Whites Point in Digby Neck, Nova Scotia. In the *merits phase* of the arbitration under the North American Free Trade Agreement (NAFTA) between Bilcon of Delaware, Inc. (the "Investors") and the Government of Canada (the "Respondent"), the Arbitral Tribunal held that Bilcon established breaches of NAFTA related to its Whites Point project (see Award on Jurisdiction and Liability, March 17, 2015). Barring a settlement, the Tribunal directed

Bilcon and Canada to submit evidence and argument to the Tribunal in the forthcoming *damages phase* of the arbitration concerning the amount of money payable to Bilcon for loss or damage and the allocation of the costs of the arbitration.

Nash Johnston LLP retained Mineral Valuation and Capital, Inc. (MVC) to provide a witness statement and expert report to the Tribunal in the *damages phase* of the arbitration. More specifically, I was asked to (1) provide an expert report on the regional market in the United States for the construction aggregate produced from the Whites Point site, and (2) provide facts pertaining to Bilcon's assessment and ranking of the Whites Point property and other tidewater quarry sites located in the Canadian Maritime Provinces.

This report includes several sections. The first part of the report consists of an overview of the general uses, specifications, modes of transport, and market drivers for construction aggregate. The next part includes a discussion of the evolution of the market for stone imported into the United States with a focus on the Atlantic Coast and Gulf Coast markets. The next section includes a review of the criteria and methodology employed by Bilcon in the assessment and ranking of the Whites Point property and other Canadian quarry sites, followed by an analysis of the geotechnical characteristics of Whites Point resource that impact its marketability. [redacted]

As previously noted, the focus of this report will be the regional United States market for the crushed stone produced at Whites Point. [redacted]

The intended user of this report is Nash Johnston LLP. I understand that this report may also be shared with the NAFTA Tribunal and the attorneys for Canada. This report is not intended for use by any other party or for any other purpose without the expressed written consent of Mineral Valuation and Capital, Inc.

This report is based on the information that was available to me as of the date of this report. I understand that Canada and Bilcon may provide additional information in the future. Accordingly, I may revise, supplement, or expand my opinions based on further review and analysis of information and opinions provided to me subsequent to the filing of this report.

Summary of Conclusions

For the reasons explained in more detail below in this report, I conclude as follows with respect to the regional marketability of the Whites Point construction aggregate:

[redacted]

5. Crushed stone producers in Nova Scotia were early participants in the United States import market. Nova Scotia exported stone via bulk ocean carrier to ports in the United States in the 1970s. [redacted]

[redacted]

continued to promote its crushed stone exports throughout the 1990s and beyond in publications and Provincial/international forums.

6. The market for crushed stone imported in the Atlantic and Gulf Coasts grew significantly during the 1990s and 2000s. [redacted]

7. Canadian stone exporters shared in the growth of the Atlantic and Gulf Coast stone market. Canadian producers shipped significant quantities of crushed stone to ports such as Baltimore, Maryland; Norfolk, Virginia; Charleston, South Carolina; Savannah, Georgia; Tampa, Florida; Mobile, Alabama; New Orleans, Louisiana; and Port Arthur, Texas. Over three million tons of crushed stone were shipped from Canada to the subject market in some years. [redacted]

[redacted]

QUALIFICATIONS

John Lizak graduated with a B.Sc. degree in Fundamental Sciences from Lehigh University with a specialty in geology and geotechnical engineering. He received a

M.Sc. degree in geology from Purdue University. Mr. Lizak also has considerable post-graduate study in mineral economics, mining engineering, corporate finance, and the valuation of minerals and mineral extraction companies. He is a Licensed Professional Geologist in Pennsylvania, Illinois, Indiana, and Kentucky and a mineral valuation expert.

John Lizak has been involved in mineral valuation, acquisition and development for over thirty five years with "Fortune 100" and private companies. He has held leadership positions with several large public and private companies. He worked as a exploration and development geologist with Exxon Coal & Minerals, Inc. and served as a senior manager with British Petroleum's coal acquisition and development group where he was directly involved in closing transactions valued in excess of $1.2 billion in the 1980s. Mr. Lizak was also the President of Diversified Mineral & Land Company, an energy mineral exploration and development company, and a co-owner of Coalbed Methane Development, Inc., a company specializing in the development of unconventional gas resources. He was the Manager of Business Development with Eastern Industries and served as Chief Geologist and Manager of Business Development for the Millington Group of Companies (currently an affiliate of the global construction materials conglomerate CRH-Oldcastle one of the largest producers of construction materials in the world). John Lizak was also General Manager of Delta Carbonate, a producer of crushed stone, sand and gravel, and ground calcium carbonate.

Mr. Lizak has been specializing in the valuation, development, acquisition, and divestiture of energy mineral, industrial mineral and construction material companies, and properties for over 25 years. During this period he successfully developed and implemented business development strategies for public and privately held companies. Mr. Lizak has been directly involved in closing numerous energy mineral, industrial mineral, and construction material company transactions. He has also evaluated over 500 domestic and international mineral ventures and markets. He was directly involved in implementing growth and diversification strategies including acquisitions, divestitures, mergers, joint ventures, mineral importing and exporting ventures, and start-ups.

Mr. Lizak is a principal in MINERAL VALUATION & CAPITAL, INC. (MVC), a consulting company specializing in the valuation of minerals and mineral extraction companies, mineral development, mergers and acquisitions, divestitures, capital sourcing, market studies, strategic formulation and implementation, bank workouts, and turnaround management. The firm is a respected advisor as evinced by the fact that MVC's clients include respected law firms, appraisal companies, institutional investment companies, mineral and royalty trusts, accounting firms, banks, governments and regulators, international conservation groups, and international and

domestic mining and construction material companies. Mr. Lizak is primarily responsible for MVC's industrial mineral and construction materials practice, and specializes in the crushed stone, sand and gravel, cement, Portland cement and bituminous concrete, ground calcium carbonate, and lime industries. He has been directly involved in numerous asset sales, company and mineral property valuations, and market studies with MVC. His mineral valuations and consultations have been used in connection with litigation, shareholder disputes, tax appeals and filings, conservation easements, workout and repositioning strategies, mergers and acquisitions, arbitration, divestitures, financing, feasibility studies, estate and gift tax planning, anti-trust and bankruptcy proceedings, contract disputes, succession planning, marital dissolutions, and portfolio valuations.

John Lizak has also negotiated, acquired, sold, valued, and/or managed over 100 mineral lease contracts. He has personally owned, acquired, and sold royalty interests.

John Lizak is also a principal in LIZAK GEOSCIENCE & ENGINEERING, INC. (LGE) a geological, mining, and environmental consulting company. The firm is a respected advisor on mineral extraction, geology and environmental issues. Mr. Lizak has been involved in numerous mining, geology, hydrogeology, and environmental projects in the U.S. and overseas with LGE.

Mr. Lizak has given expert testimony on mineral valuation, resource extraction, and geoscience issues in numerous public forums. He has provided expert testimony and/or litigation consulting in numerous federal and/or state courts in California, Illinois, Indiana, Louisiana, New Jersey, Ohio, Oklahoma, Pennsylvania, etc. and in international tribunals such as the North American Free Trade Agreement (NAFTA) Tribunal on behalf of individuals, governments, and companies. He has been retained as an expert witness on behalf of the U.S. Department of Justice in high profile mineral valuation cases associated with Hurricane Katrina, Tribal Trust claims, etc. Mr. Lizak has also been appointed as a court master, an arbitrator, and a mediator to resolve disputes concerning minerals and construction materials.

Mr. Lizak is a member of the Society of Mining & Exploration (SME) Valuation Standards Committee and the past Chairman of the Mineral Management Resource Committee. He is the former President of the Indiana-Kentucky Geological Society. He is also member of the American Association of Petroleum Geologists and was a member candidate of the American Society of Appraisers.

John Lizak has written and presented numerous papers. He was the 2011 recipient of the American Institute of Mineral Appraisers (AIMA) Cartwright Award which is presented annually for the best mineral valuation paper presented at the joint AIMA-

SME mineral valuation session. He was also chosen as a SME 2011-2012 Henry Krumb Distinguished Lecturer for his presentation titled *Discount Rates in Mineral Company and Mineral Property Valuation*. The Henry Krumb Distinguished Lecture series was established in 1966 "so that local SME sections could hear prominent minerals professionals speak on subjects in which they have recognized expertise." He has also presented other mineral valuation papers such as "*A Dose of Reality – What Companies Are Actually Paying for Construction Material Acquisitions*" and "*What's The Current Market Value of an Industrial Mineral Company?*"

Mr. Lizak was also an Adjunct Professor at several universities including the University of Evansville (Mineral Land Management Program) and Raritan Valley College. Several of his professional presentations are utilized in continuing education and graduate courses that focus on mineral property and mineral company valuation that are offered by the South Dakota School of Mines, the Colorado School of Mines, the University of Arizona, AIMA, etc. He is a widely followed valuation analyst, commentator and speaker on mineral issues. Mr. Lizak has been a guest lecturer at the Museum of Natural History in New York, the Smithsonian Institute, the Morris Museum, etc.

OVERVIEW

[redacted]

Aggregate Uses and Specifications

Crushed stone and sand and gravel are the main types of natural aggregate used in the United States. Construction aggregate is defined as any combination of sand, gravel, and crushed stone in their natural or processed state that is used primarily for construction.

Construction aggregate is used with or without a binder. The main uses with a binder are in bituminous concrete also called hot mix asphalt or blacktop, and in Portland cement concrete also known as ready-mix concrete, which are used in the construction and repair of roads, buildings, etc. Construction aggregate is also used without a binder as railroad ballast, road base, fill, unpaved road surfacing, riprap, anti-skid, decorative stone, etc. Aggregate is used in nearly all residential, commercial, and industrial

building construction and in most public works projects such as roads and highways, bridges, railroad beds, dams, airports, water and sewer systems, and tunnels.

Aggregate quality varies widely because of the variability in the physical and chemical characteristics of the source rocks. [redacted]

[redacted] The final use of the aggregate determines the specific properties sought. Generally, specifications for aggregate used in cement concrete or bituminous mixes are more stringent than are those for other construction-related uses.

Aggregates are usually sorted to size by passing the aggregate particles over various sizes of screens (sieving) that separate and size the various size particles. In general, aggregate for Portland cement concrete should be well graded throughout the sand and gravel range of particle sizes, although gap grading (aggregate with specific particle sizes missing) may be used and may be necessary for some products. Specifications for bituminous mixes are dependent on the pavement design, and therefore no general statement can be made regarding the sizes of the aggregates that are used.

Particle shape affects the grading limits, workability, and the strength of the aggregate used in bituminous and Portland cement concrete. [redacted]

Physical soundness is the ability of aggregate to resist weathering, particularly freezing-thawing and wetting-drying cycles. Generally, aggregate that contains weak, easily broken, absorptive, or swelling particles is not suitable. Specifications for physical soundness are similar for use in cement concrete and bituminous mixes.

[redacted]

Specifications for hardness and strength of aggregate are similar for use in cement concrete and bituminous mixes.

Ideally aggregate is an inert filler and it should not change chemically once in place. However, some aggregate contains minerals that chemically react with or otherwise adversely affect the concrete or bituminous mixes. In ready-mix concrete, these chemical processes are reactions between the aggregate and the cement, solution of soluble materials, or the oxidation of constituents. In bituminous mixes, chemical factors may influence oxidation of the asphalt or strip the bituminous film from the aggregate.

Aggregate is primarily sold processed versus unprocessed (raw, bank run, pile run) depending upon the final use and the properties or the product that is sought. Processing of mined or quarried rock requires primary and possibly secondary crushing, depending on the sizes of aggregate mined and needed. After crushing, crushed stone and sand and gravel are usually sorted to size by passing the aggregate particles over various sizes of screens (sieving) that separate and size the various size particles. The processing can be done with water (wet processing) or without water (dry processing). Classifying tanks, cyclones, and rotating screws are sometimes used in wet processing. Aggregate washing is used to separate the large particles and remove the unusable finer sized particles that are typically pumped to large settling ponds where the fine particles accumulate as sediment or slurry.

[redacted] The Geological Source Report must describe the characteristics of the aggregate to be excavated and the products to be furnished for NYSDOT use. [redacted] Those portions of the Report that relate to the geology of the source must be prepared by a qualified geologist.

Modes of Transporting Aggregate

[redacted] Because aggregate is a high bulk, low-cost commodity the transportation

cost is a significant part of the total delivered cost at the ultimate location. [redacted]

The three modes of transporting aggregate are road, rail, and water. [redacted] Each mode of transportation has a particular role to play in moving aggregate.

Transport by truck is the most common method. [redacted]

[redacted] Thus, construction aggregate is becoming a more fungible commodity.

If quarries have access to railroads, rail delivery may be more economical than truck delivery. [redacted]

[redacted]

Bulk ocean/lake carriers have become an extremely efficient means to transport aggregate. [redacted]

[redacted]

[redacted]

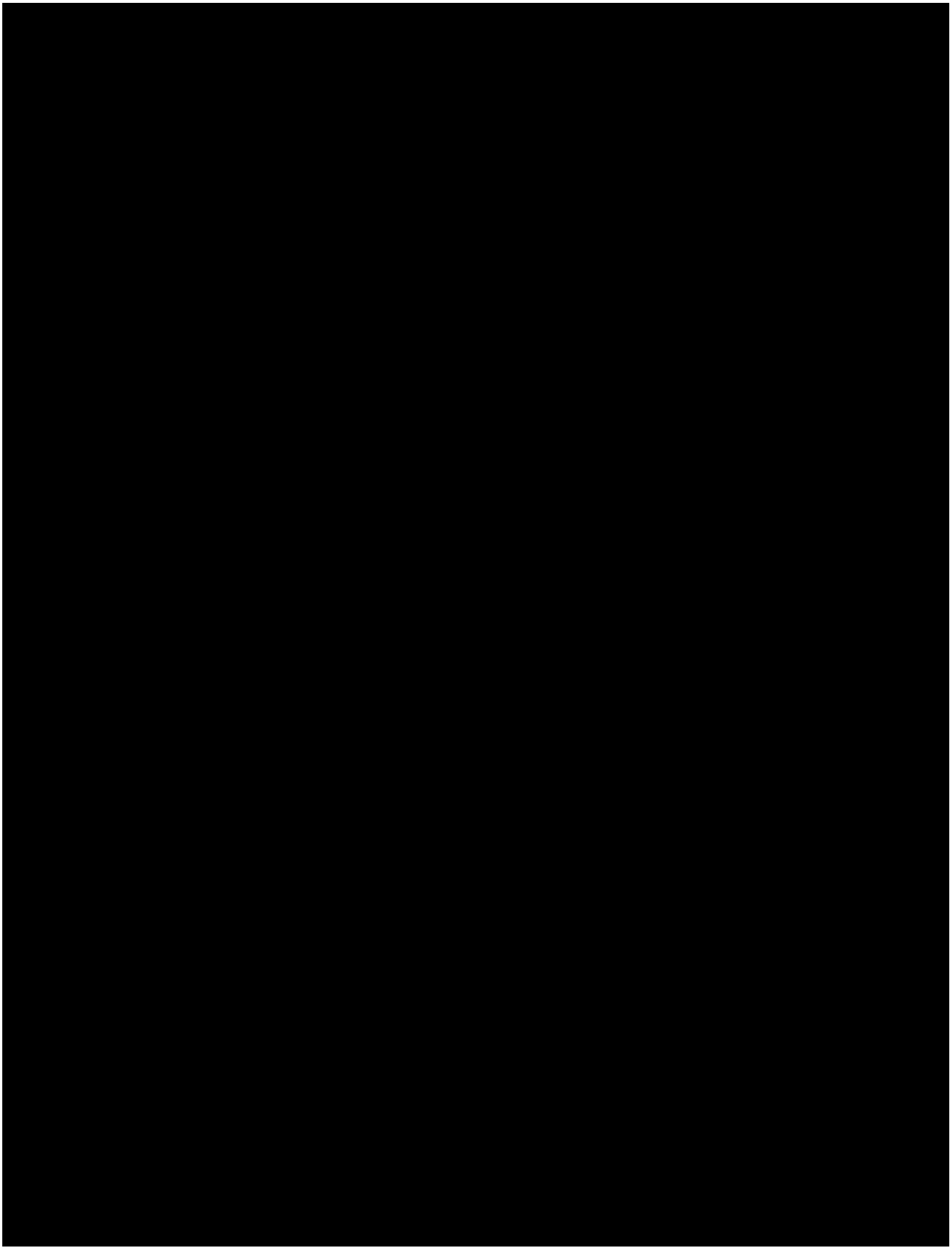
The previous discussion shows that transportation adds significantly to the cost of aggregate because it is a high-bulk, low-value commodity. [redacted]

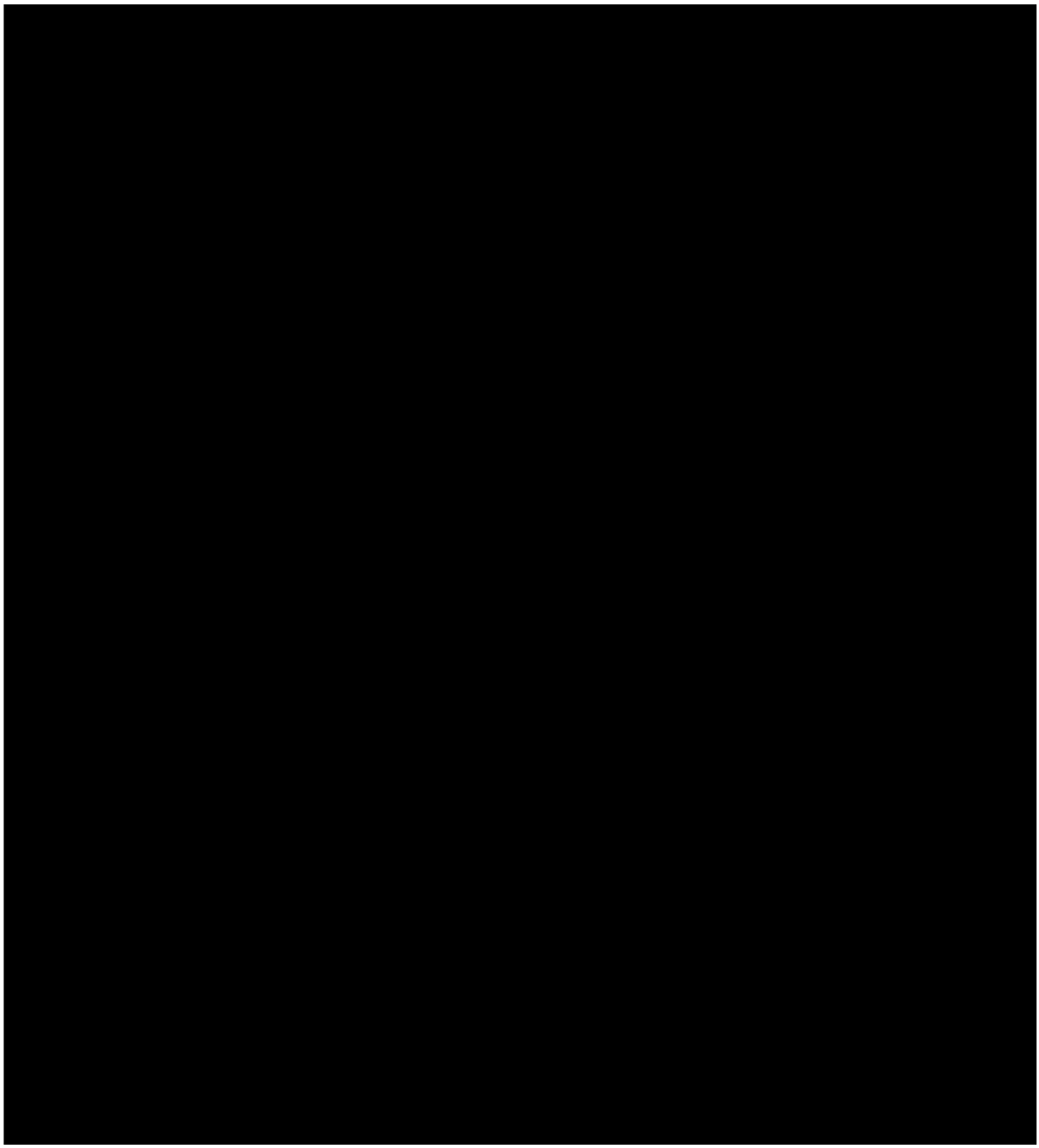
General Crushed Stone Market and Demand Drivers

Demand for construction aggregate is primarily driven by construction. [redacted]

Other factors that contribute to the demand for construction materials include population, employment, gross state and county product, etc.

[redacted]





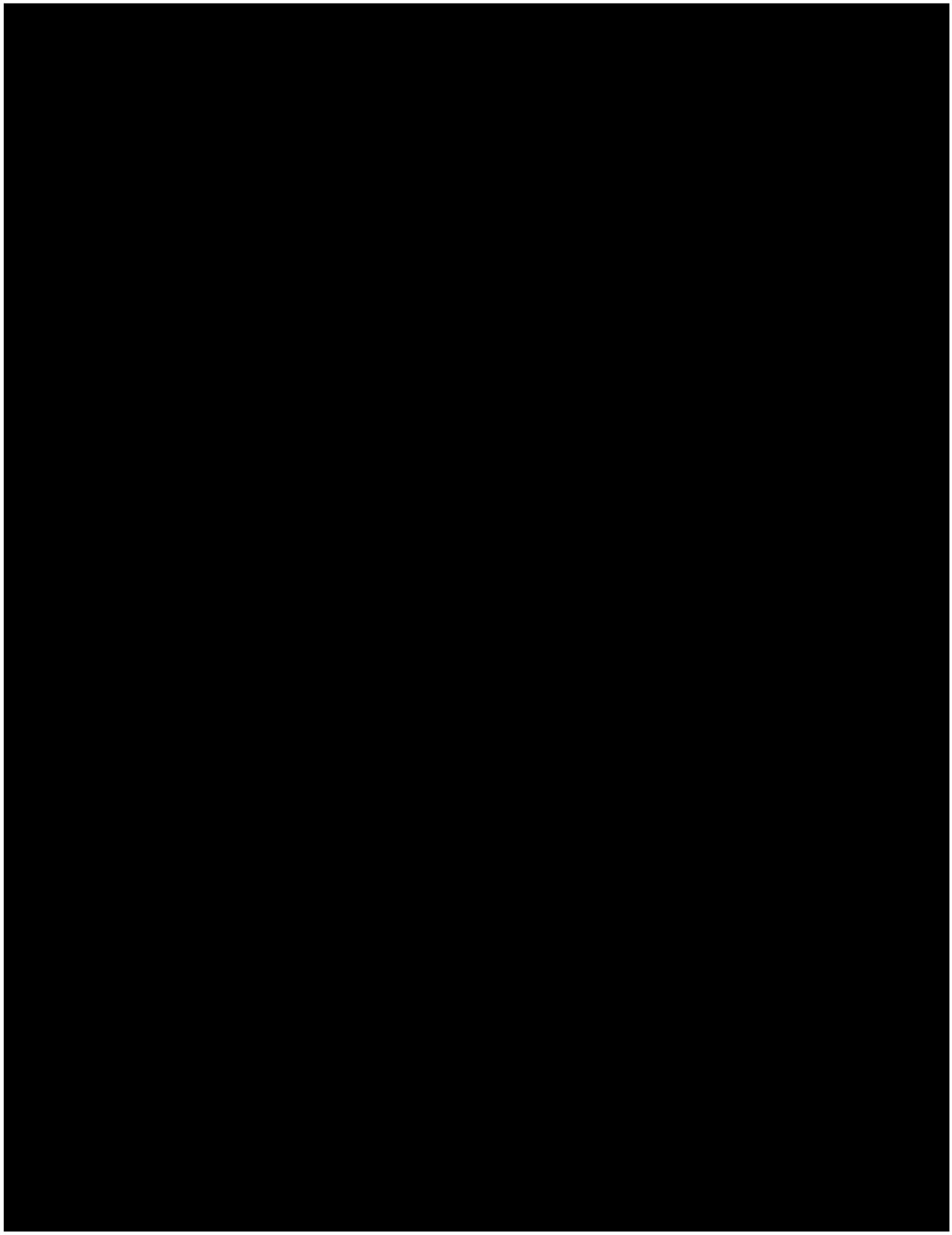
EVOLUTION OF THE MARKET FOR IMPORTED CRUSHED STONE

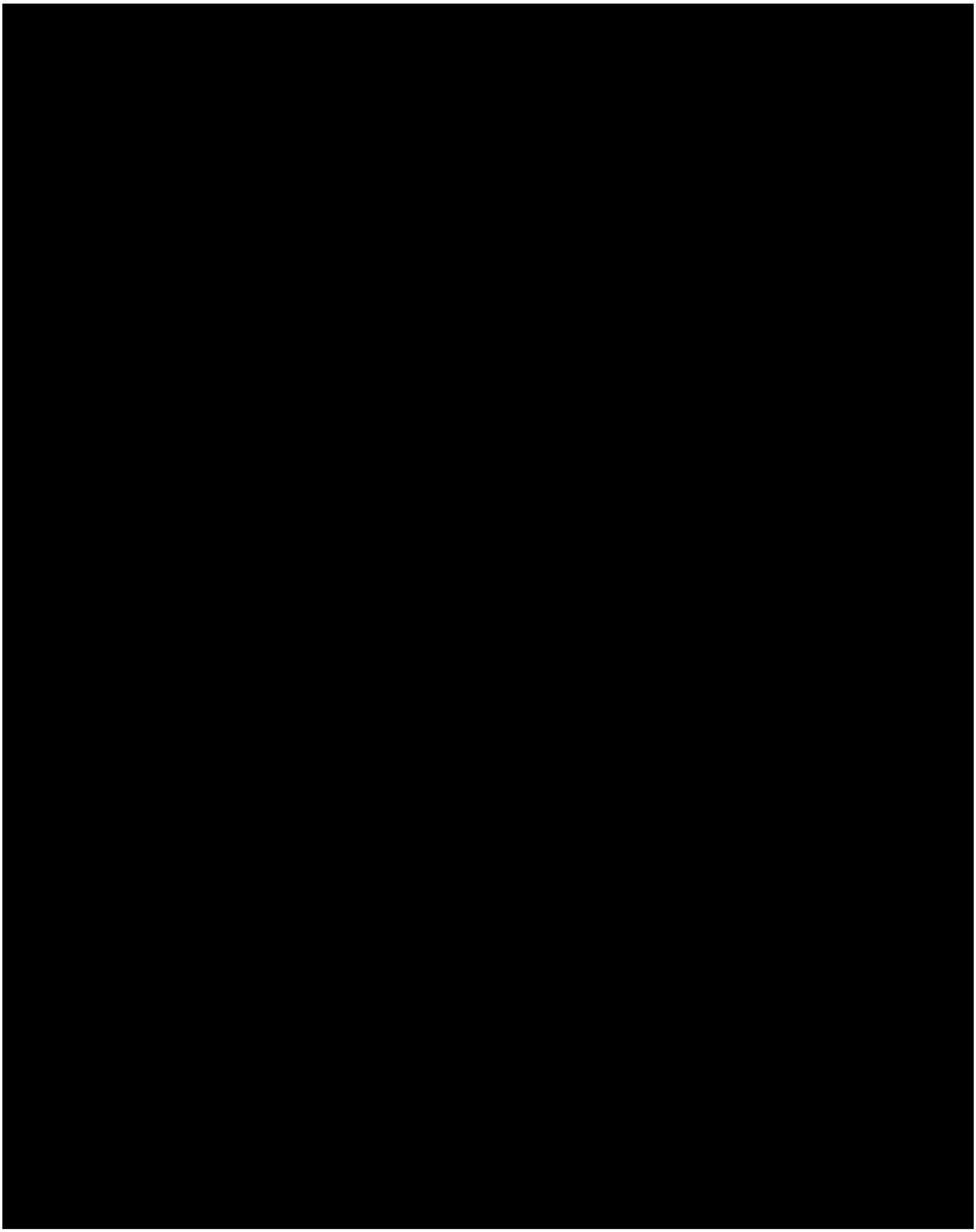
The total market for crushed stone imported into the United States will be examined first. The evolution of the Atlantic Coast and Gulf Coast markets, which are the focus of this report, will then be discussed followed by an analysis of the crushed stone that is imported from Nova Scotia, Canada.

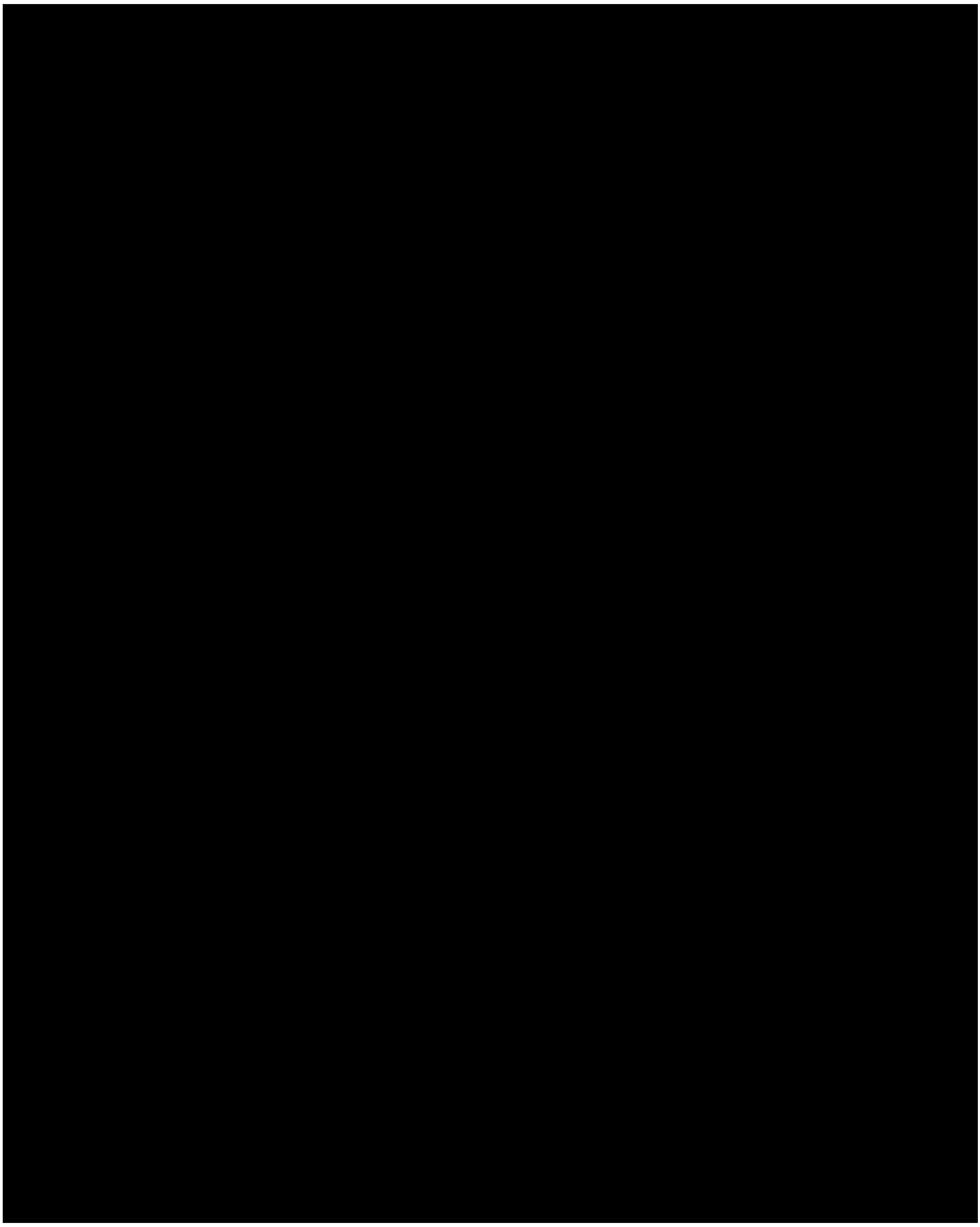
The Market for Crushed Stone Imported in the United States

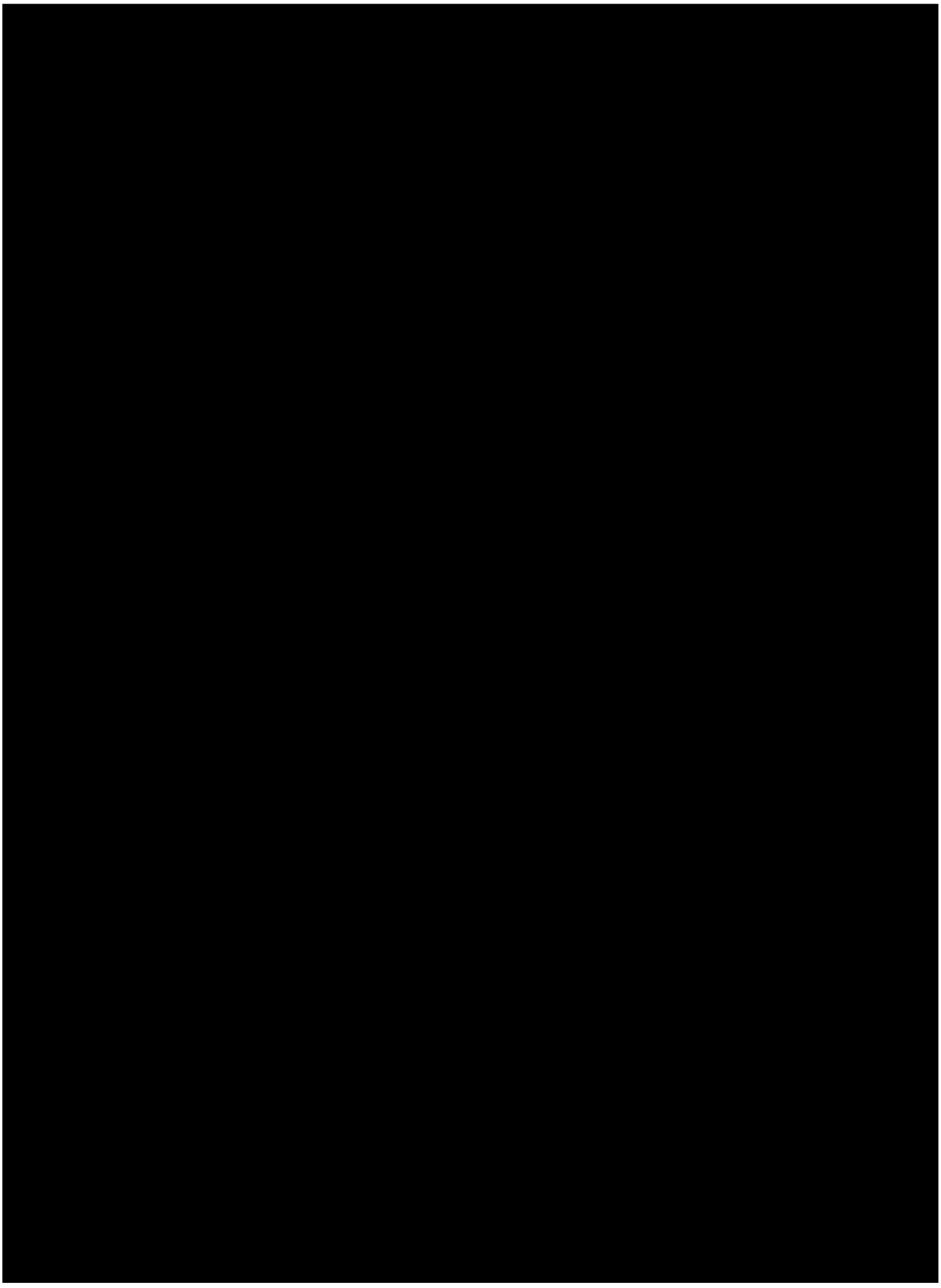
The Market for Crushed Stone Imported into the Atlantic and Gulf Coasts

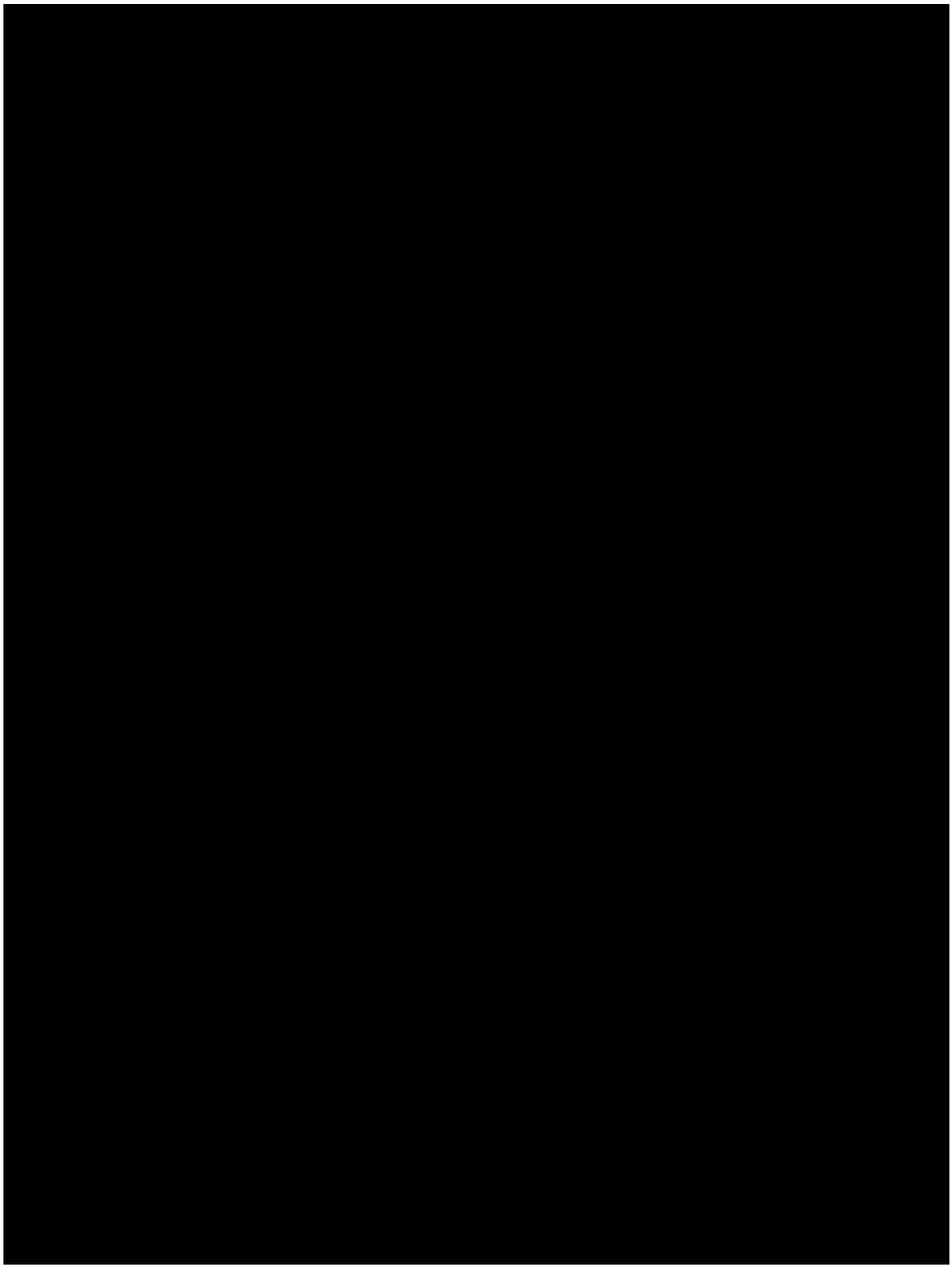
The market for crushed stone imported into the Atlantic Coast and Gulf Coast of the United States began to develop in the 1970s. The development of this market has largely been driven by the following factors:











The multi-national aggregate producer Vulcan Materials Company also conducted a quarry search. Vulcan's search culminated in 2016 with the announcement that it had received Canadian approval to begin producing stone for export to the United States at a stone quarry located at Black Point, Nova Scotia. Vulcan recently reported that production at Black Point will begin as early as 2018 and that:

> *The anticipated average annual production rate will exceed 1.0 MT with a peak production rate of 7.5 MT per year, which is roughly 5.0 MT of product sales…The Project is…expected to have 50+ year lifespan…The purpose of the Black Point Quarry Project is to supply construction aggregate to markets predominantly on the eastern and Gulf coasts of the United States…*

[redacted]

[redacted]

SELECTION OF THE WHITES POINT QUARRY SITE

[redacted]

The ability to profitably import crushed stone is a function of numerous factors. [redacted]

[redacted]

The search for a suitable quarry site was a collaborative effort with Canadian experts at the Nova Scotia Department of Natural Resources Minerals and Energy Branch, the New Brunswick Department of Natural Resources and Energy Minerals and Energy Division, etc. Canada's experts provided local expertise and contacts; technical and regulatory information and guidance; land use and ownership information; etc. They often accompanied and assisted Bilcon's experts, including the author, on site investigations. [redacted]

Based on a comprehensive analysis of the salient selection criteria and a collaborative effort with the NSDNR, I ultimately identified Whites Point as the premier site to develop a quarry [redacted]

WHITES POINT RESOURCE, QUALITY, AND USES

Mercator's findings evince the following salient facts:

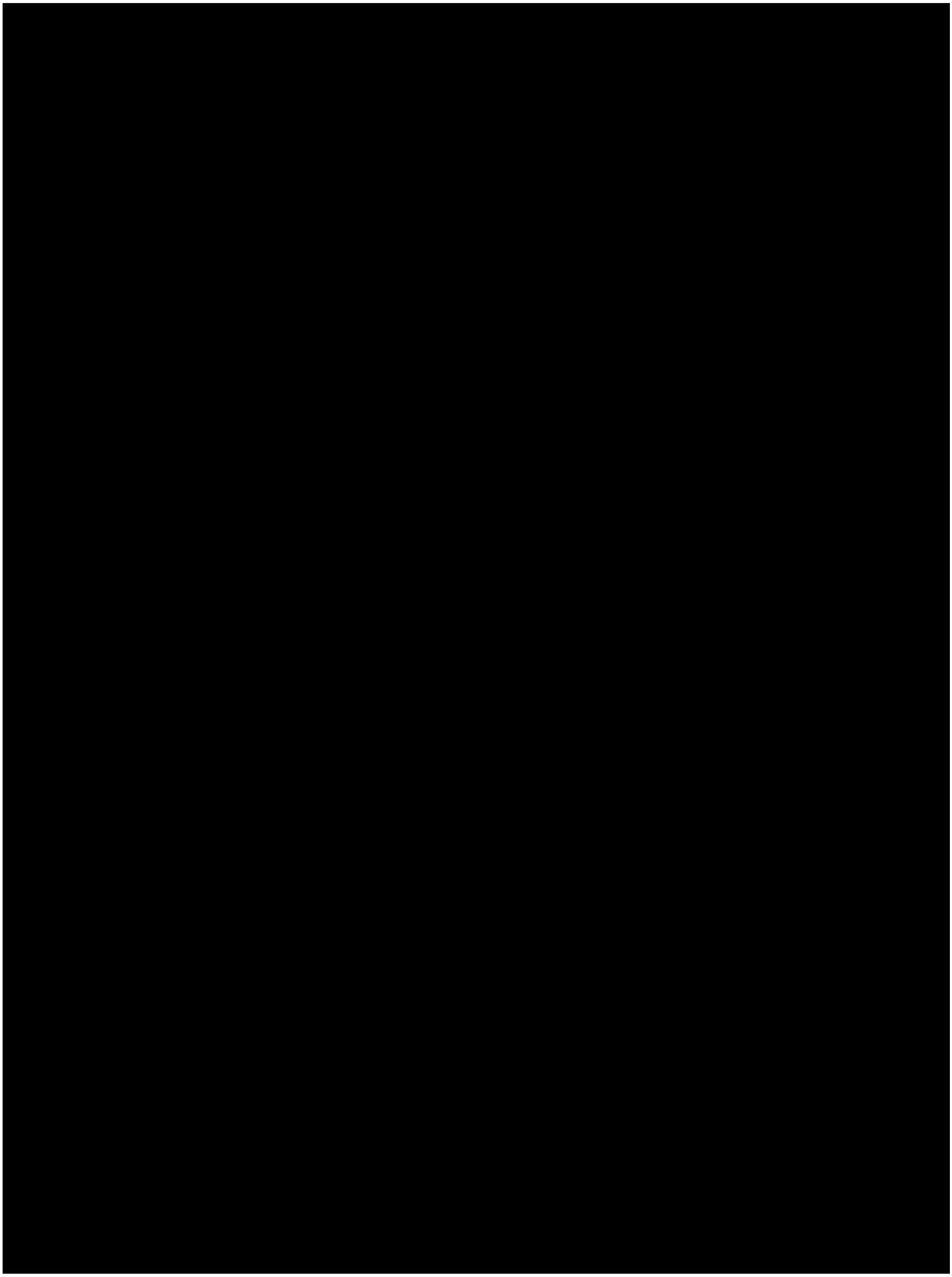
MARKET DRIVERS AND SALES FORECAST FOR WHITES POINT QUARRY

[redacted]

Regional Atlantic Coast and Gulf Coast Crushed Stone Market

[redacted] This section of the report will evince the potential market for the crushed stone produced from the Whites Point site and shipped to Atlantic and Gulf Coast ports [redacted]

Crushed stone shipments from Nova Scotia to ports along the Atlantic and Gulf Coasts began in the 1970s. [redacted]



[redacted]

A base case hindcast and forecast were generated for crushed stone imported from the Whites Point quarry into the subject market. [redacted] The following assumptions underpin the base case forecast:

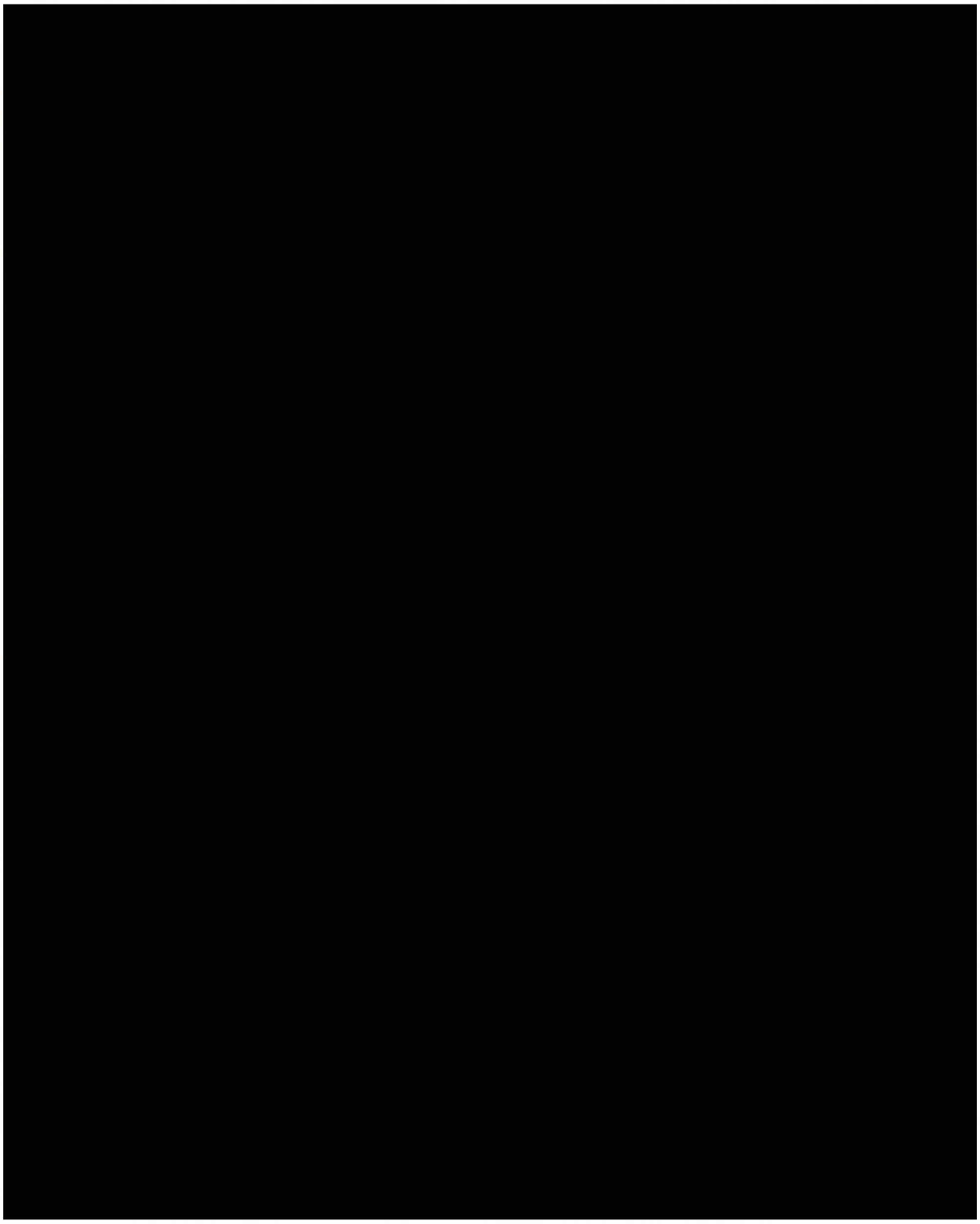
[redacted]

After considering and analyzing the aforementioned factors, the following conclusions are drawn:

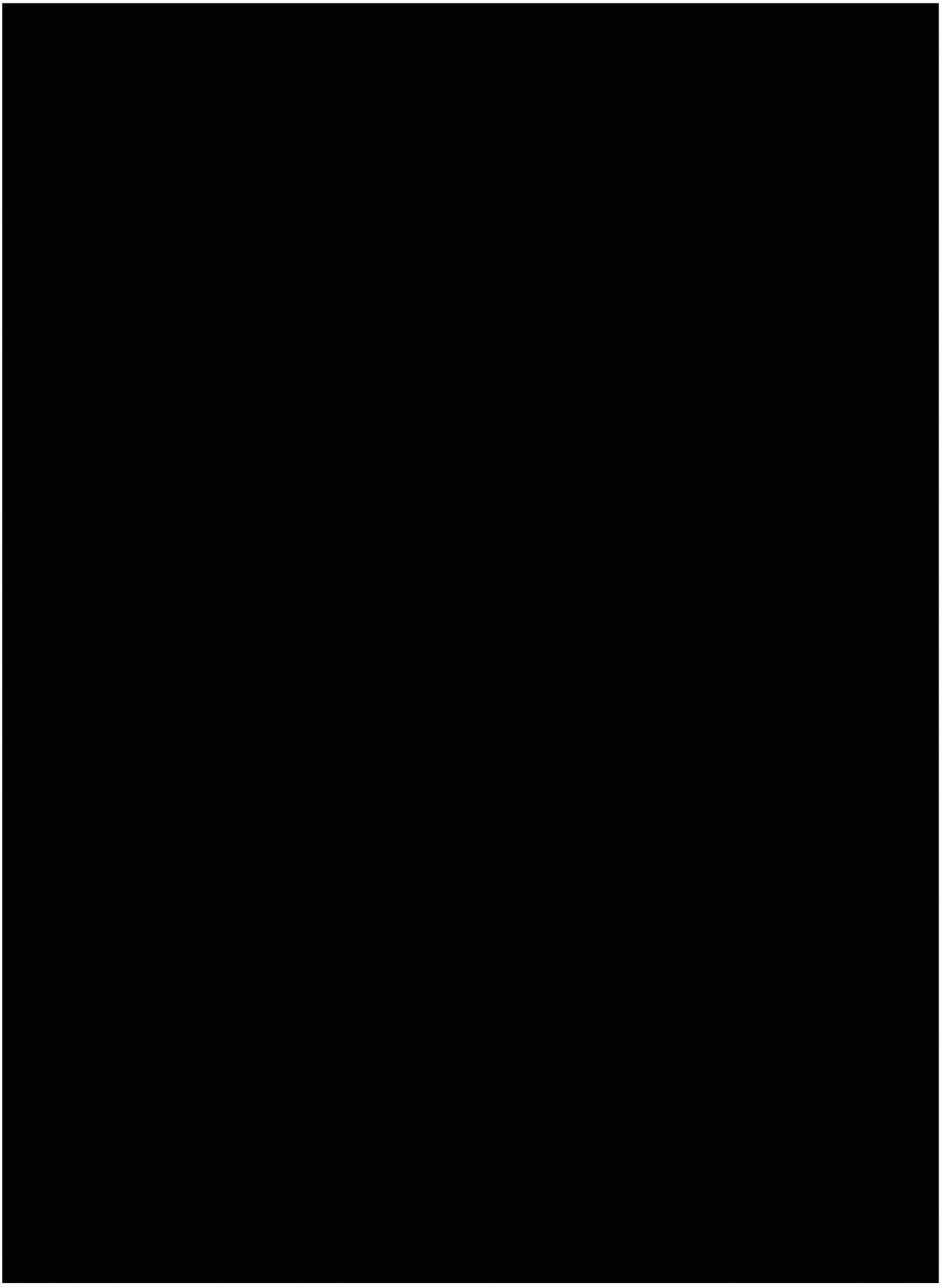
[redacted]

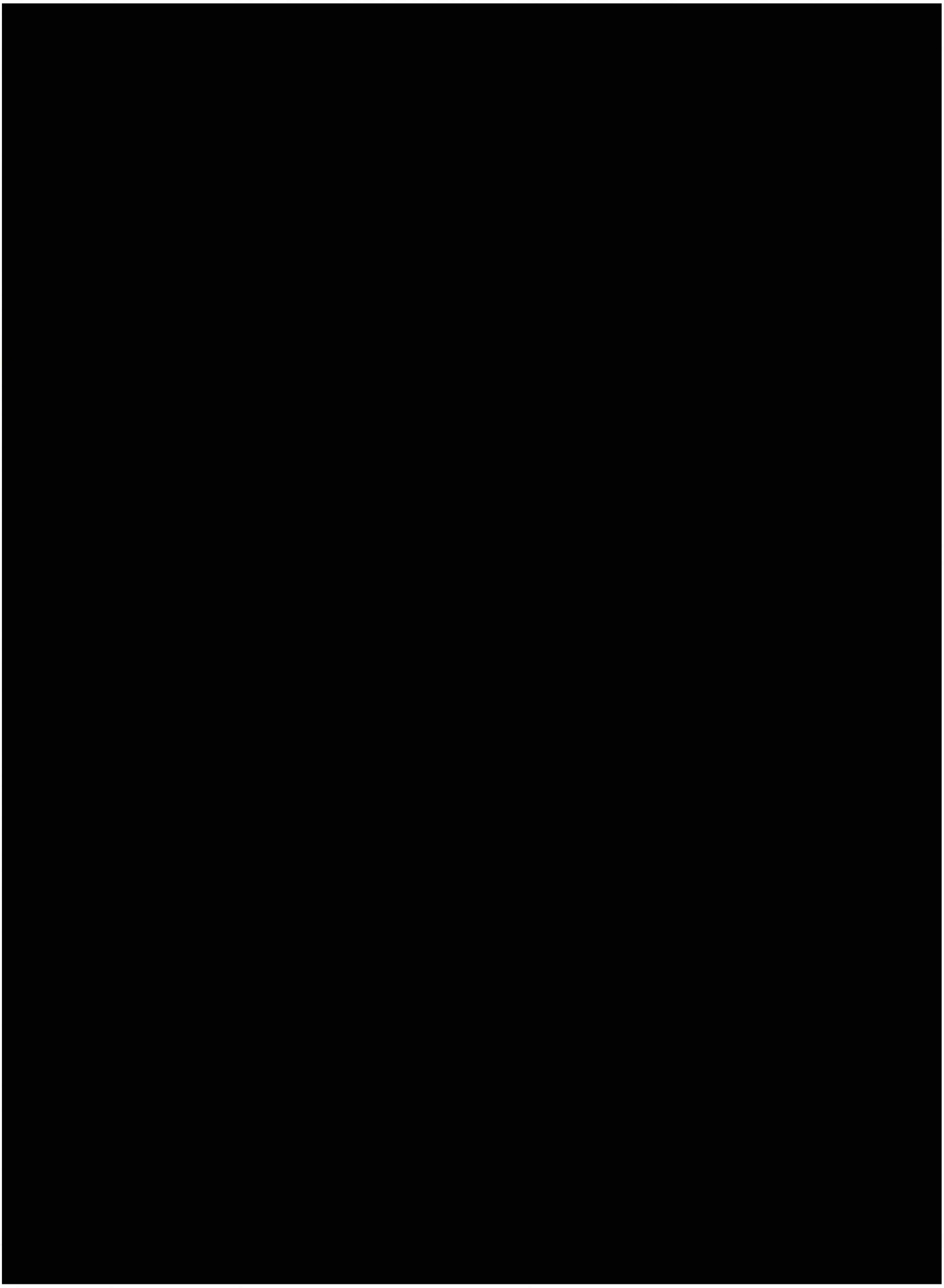
The base case market forecast is conservative when compared with the market forecasts compiled by other aggregate exporters operating in Nova Scotia. [redacted]

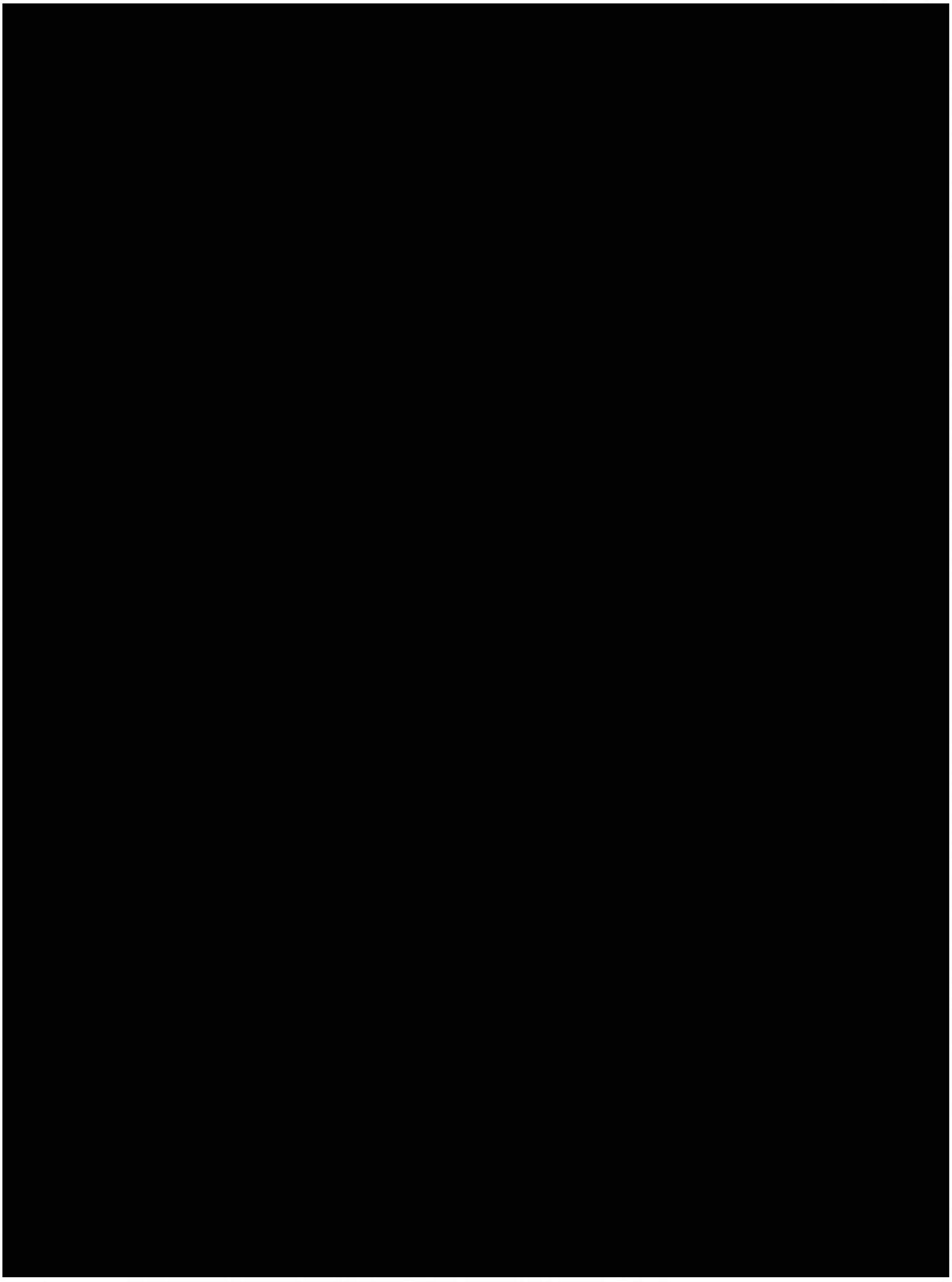
PRIMARY SOURCES OF INFORMATION

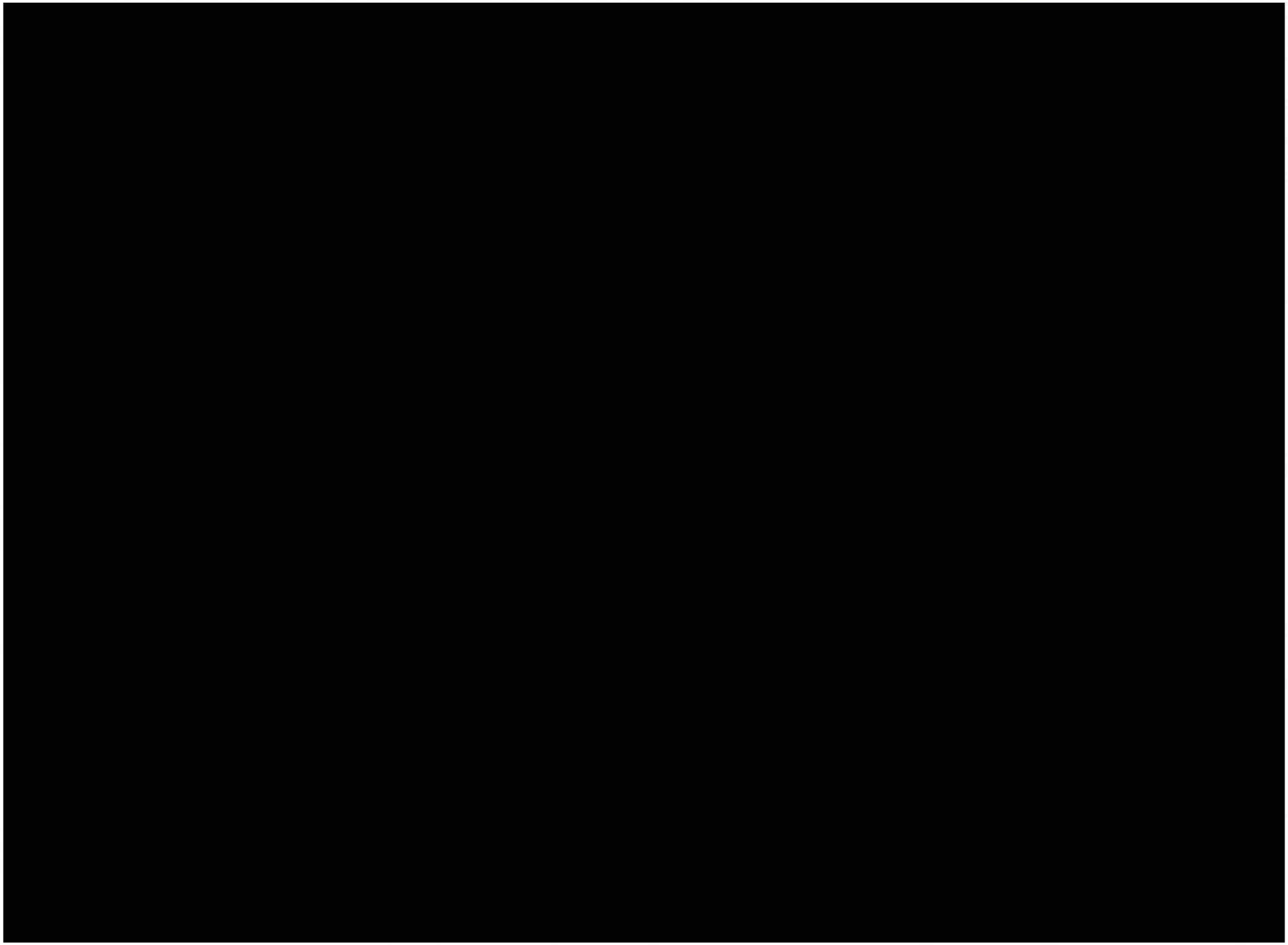


FIGURES









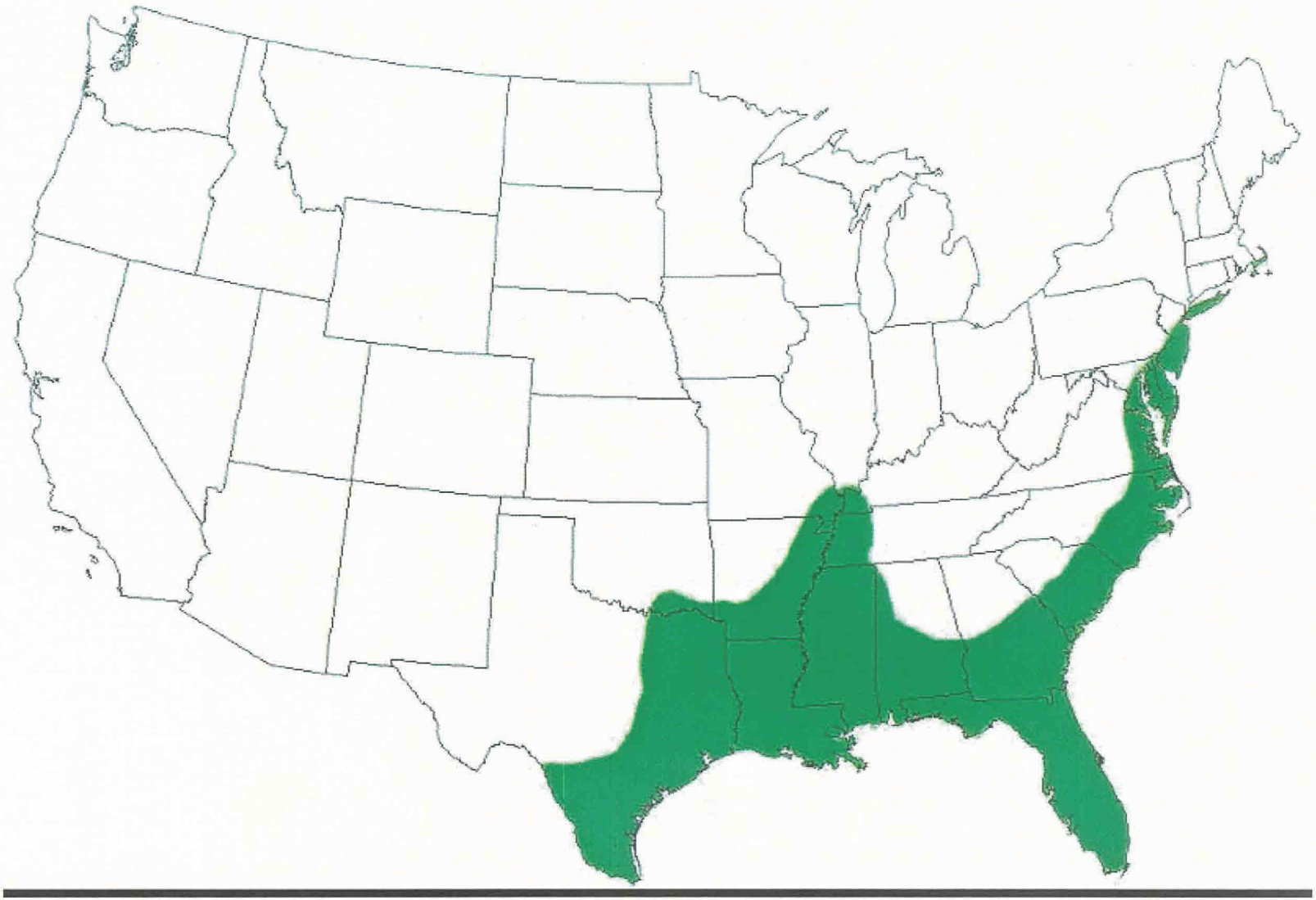
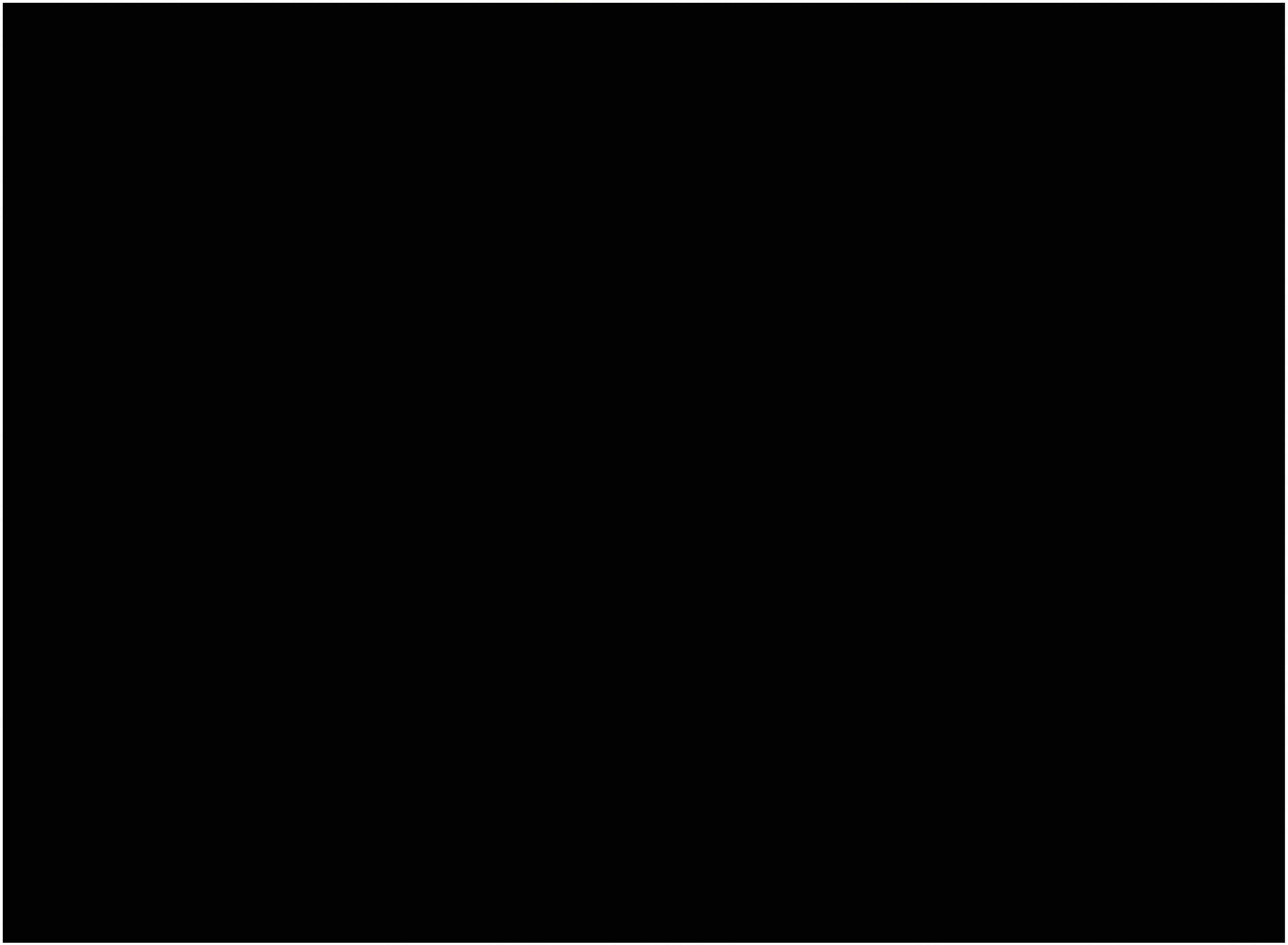
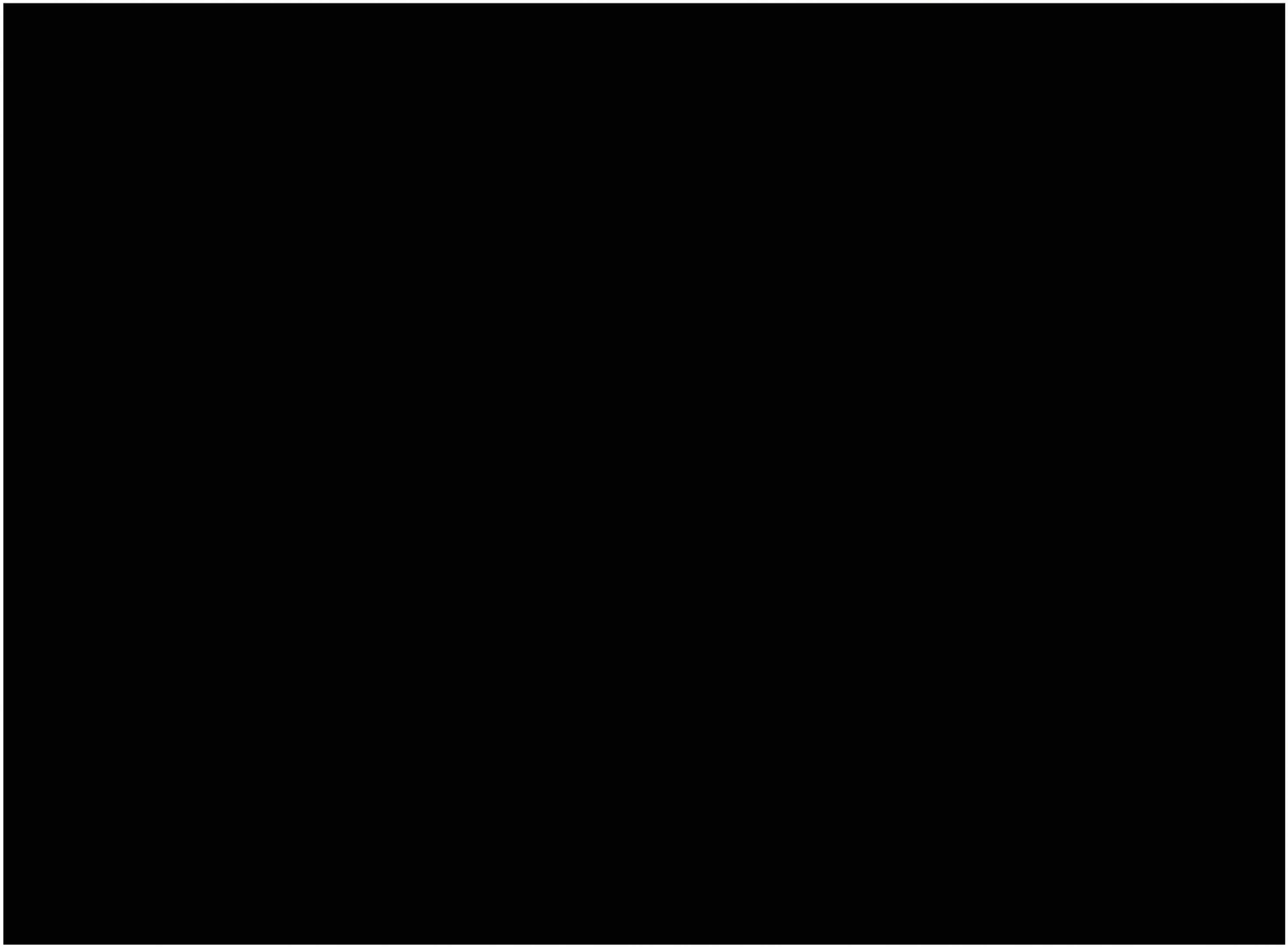
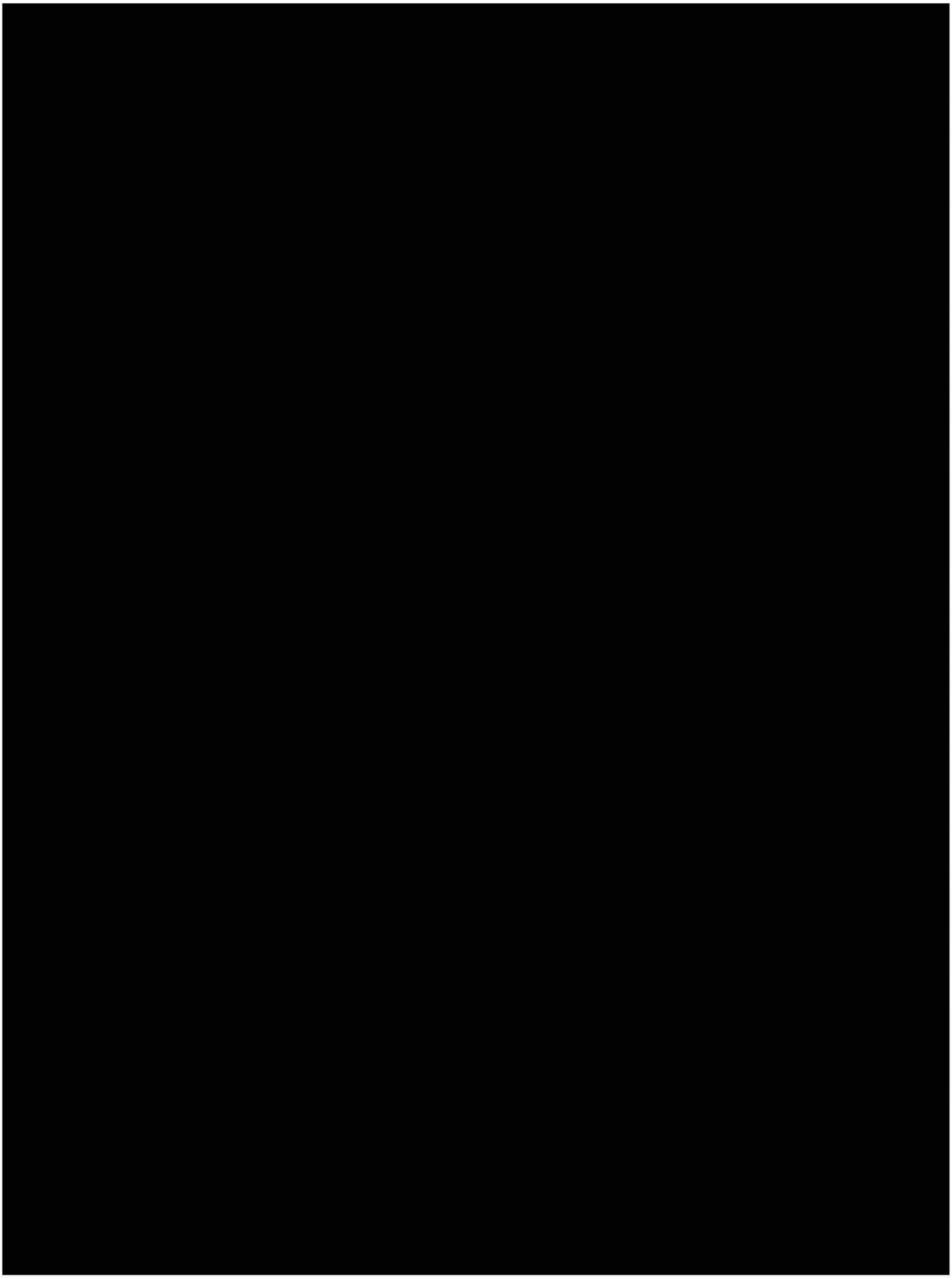
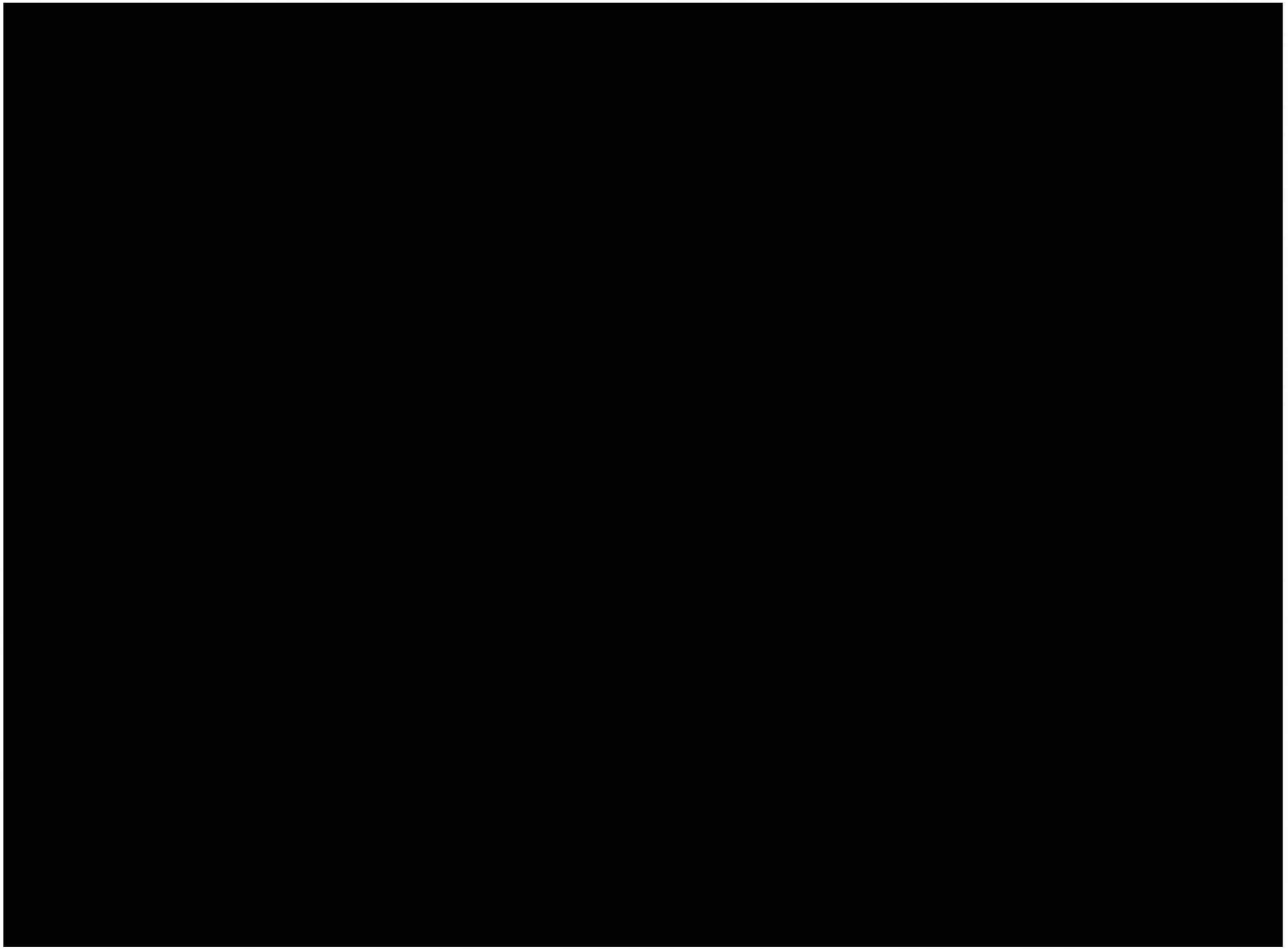


Figure 5 – Map of the United States Coastal Plain



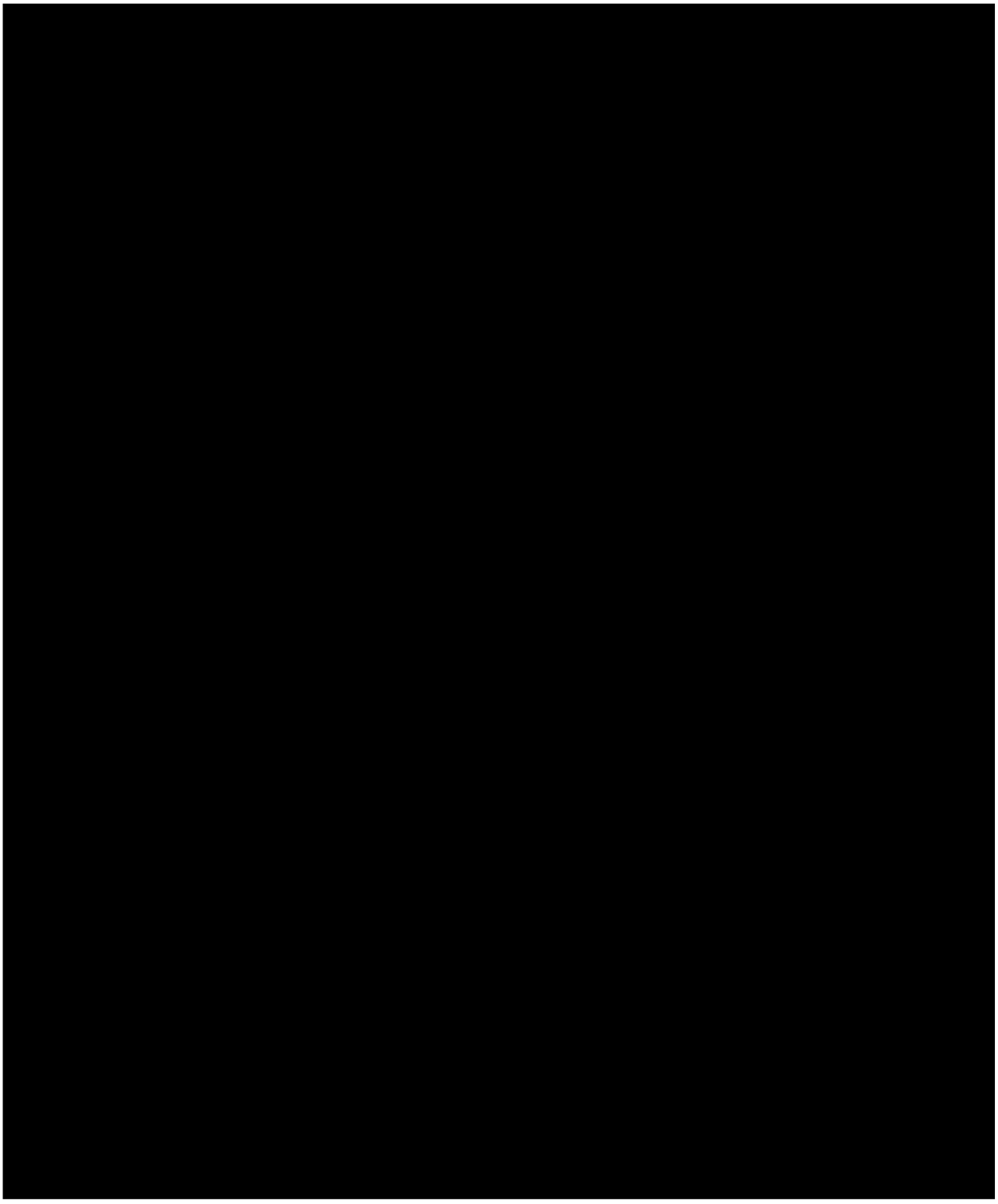


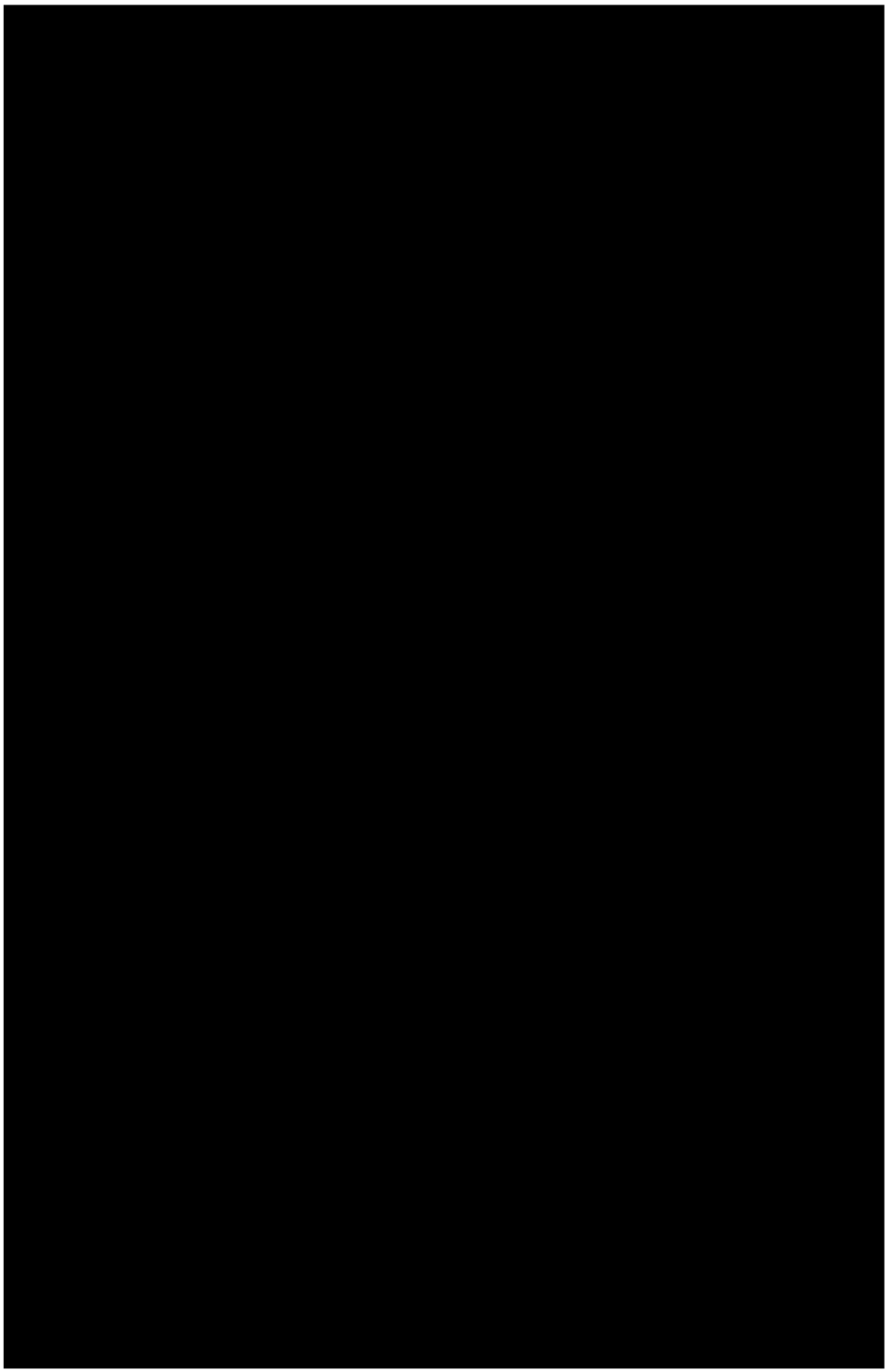


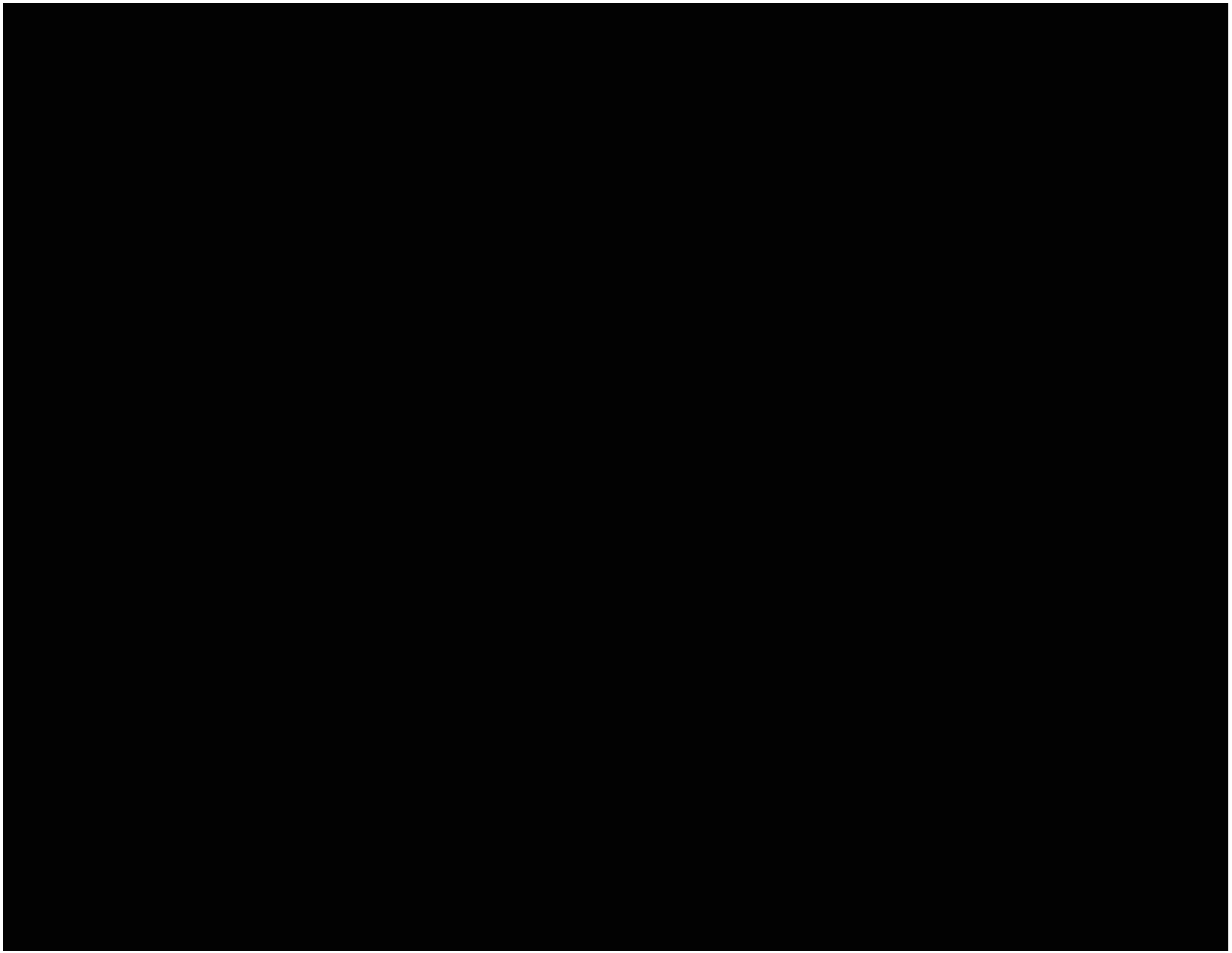


TABLES

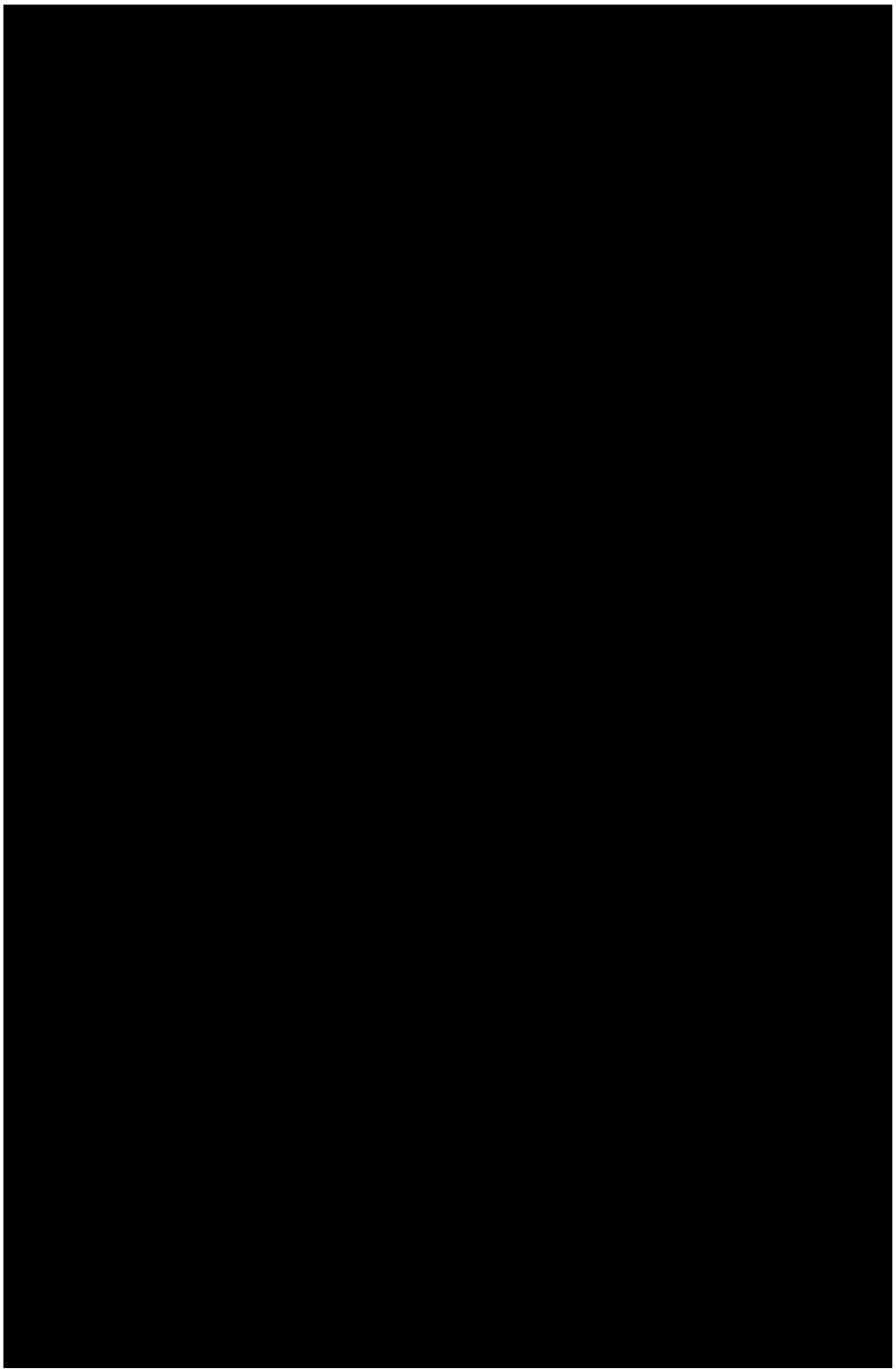
Table 1 – Salient Considerations in the Selection of a Quarry Site
Used to Export Stone to the United States.



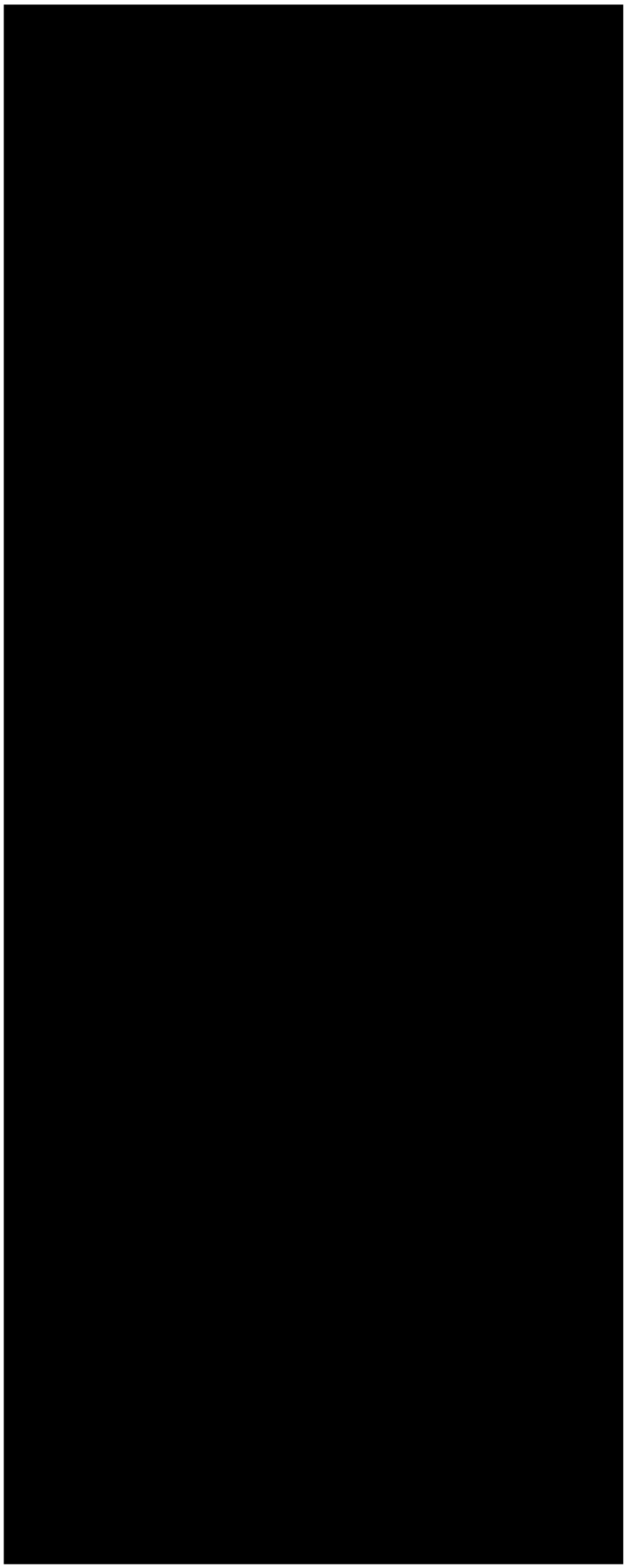


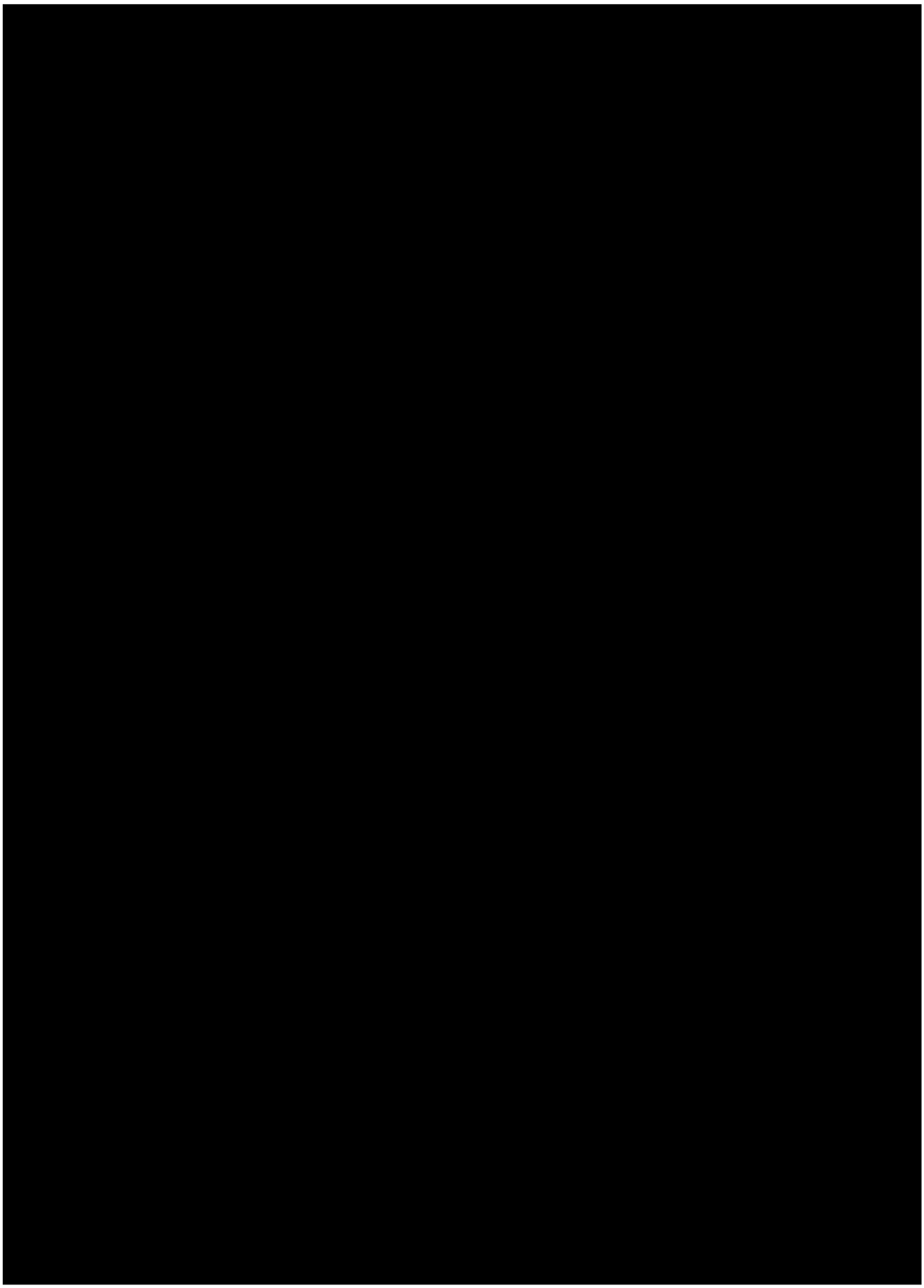


APPENDIX 1



APPENDIX 2





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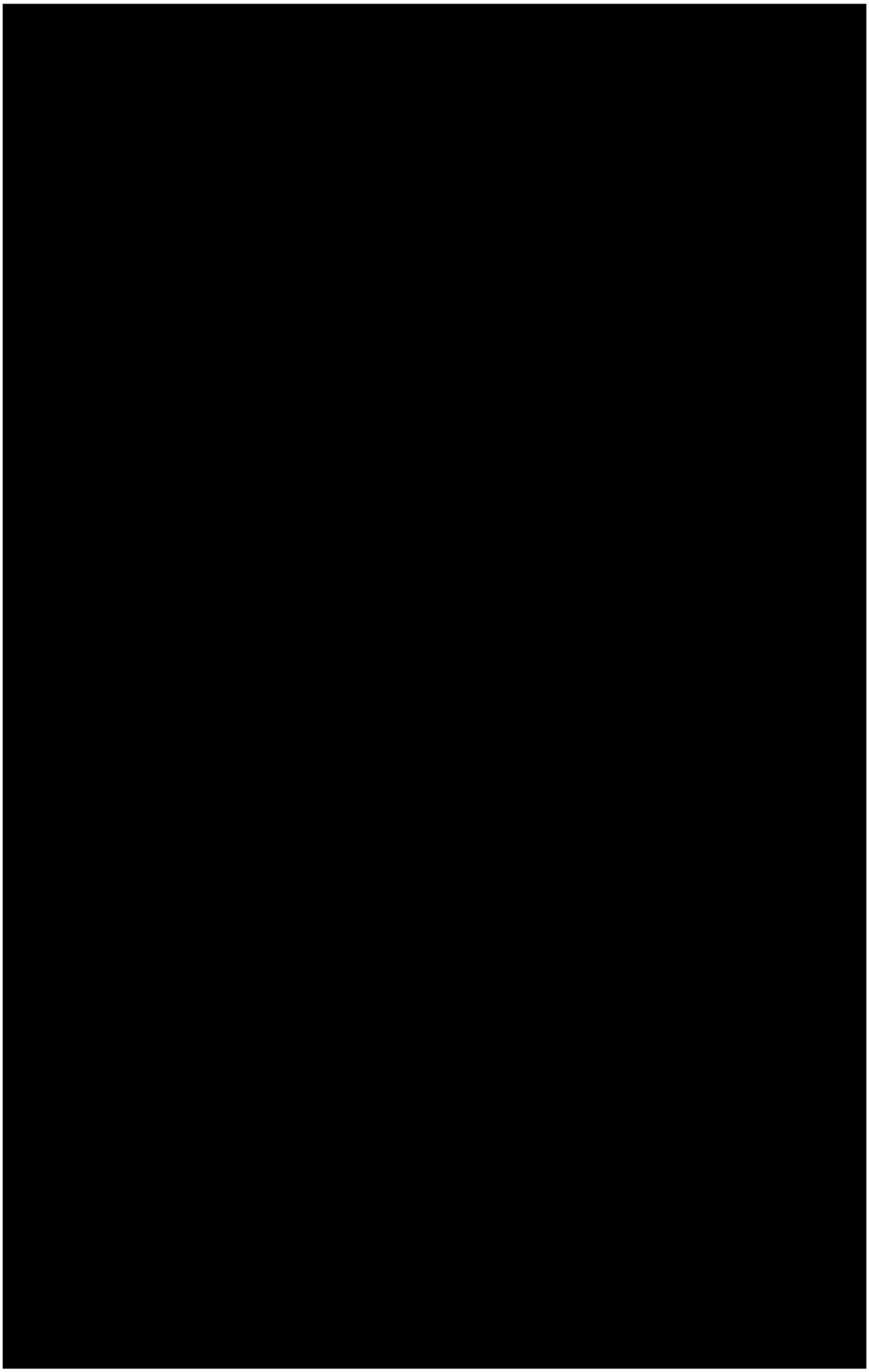
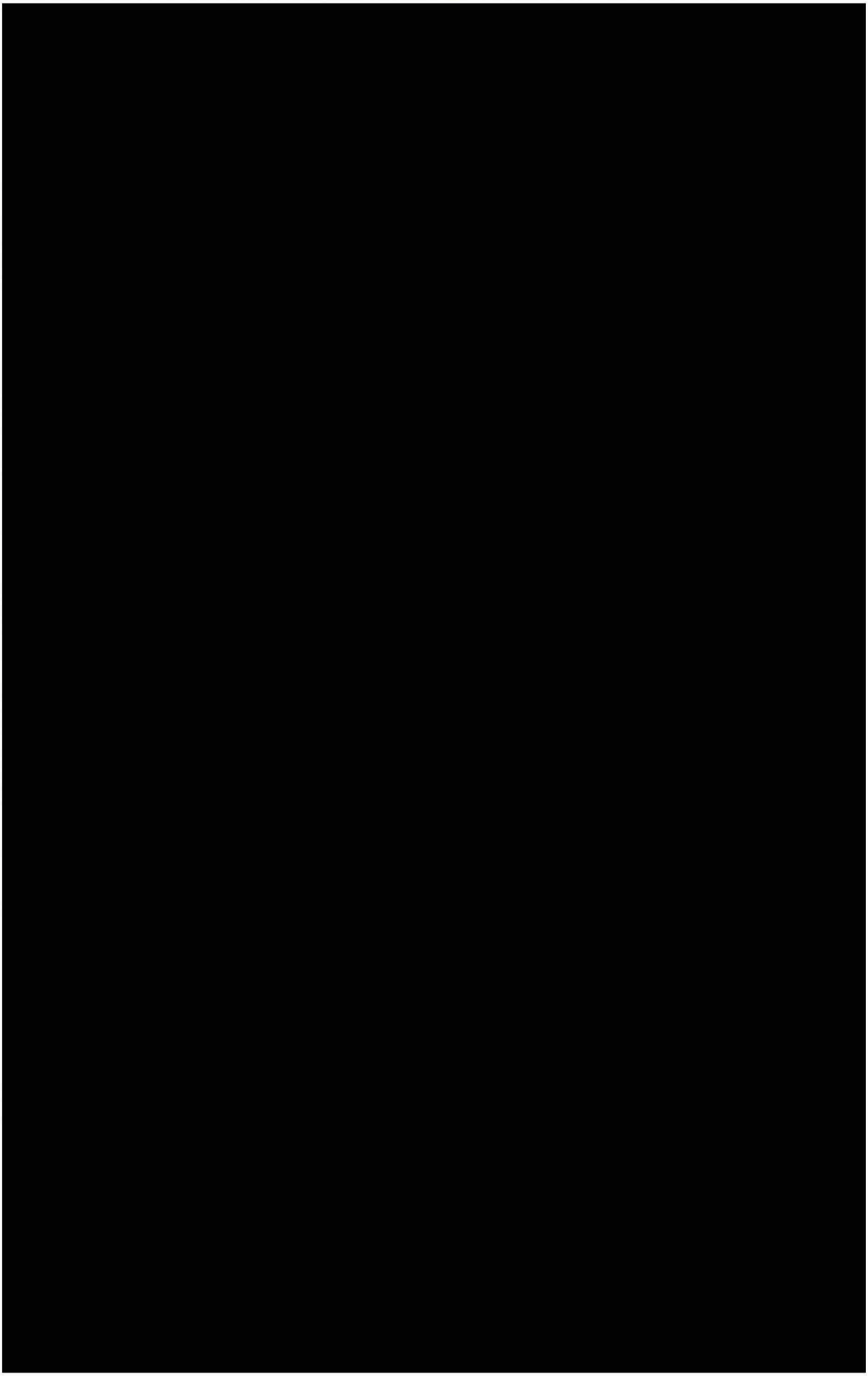
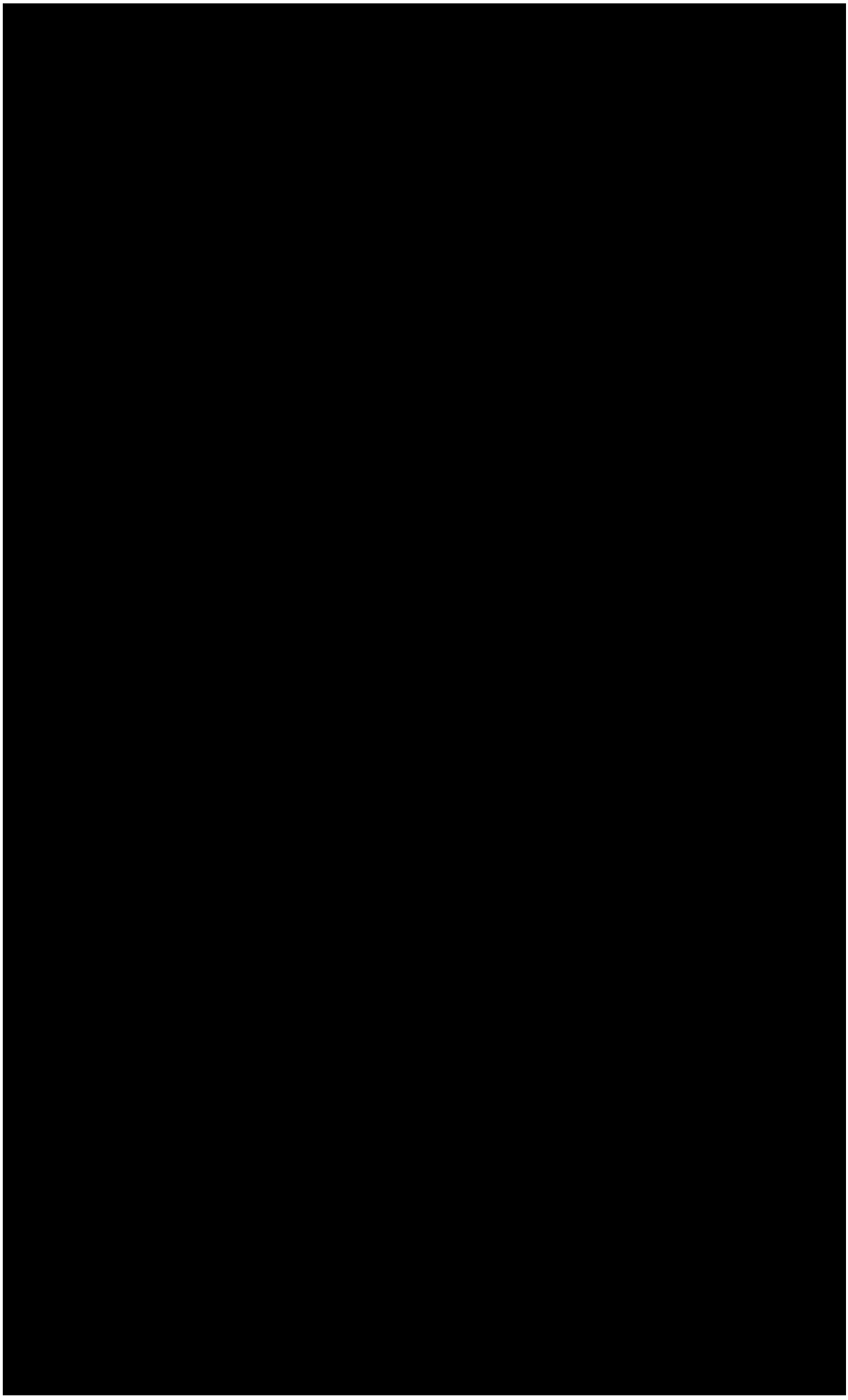
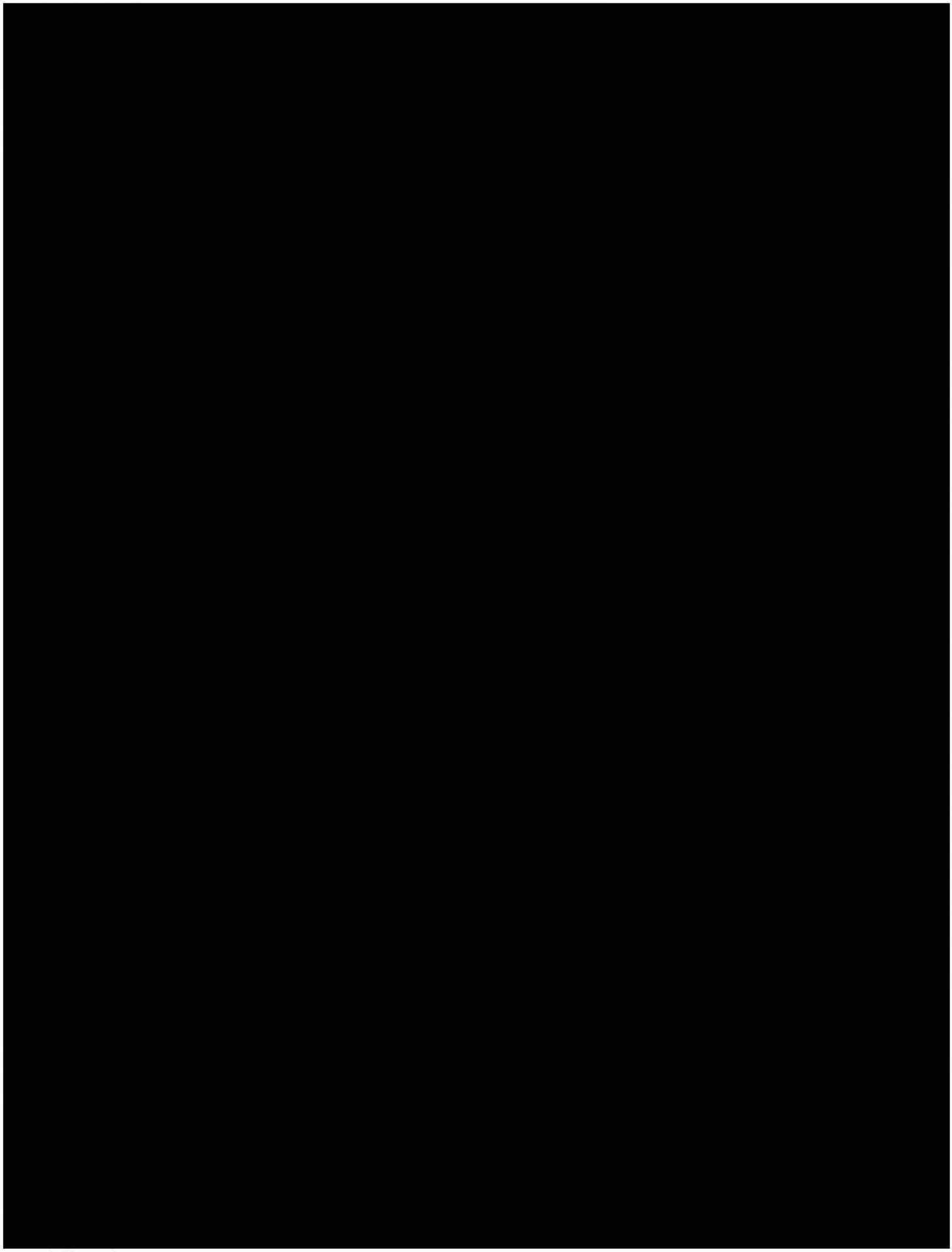
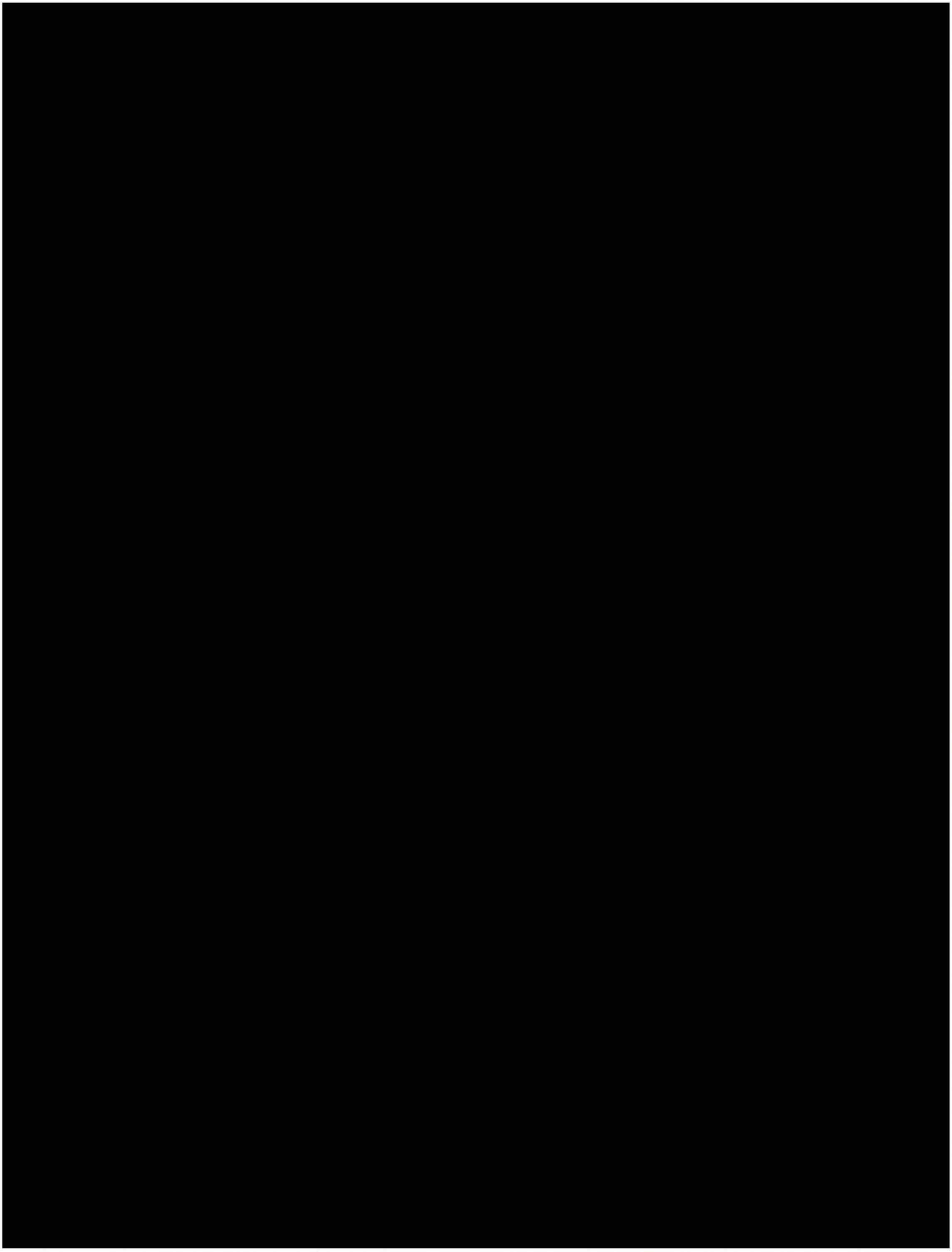
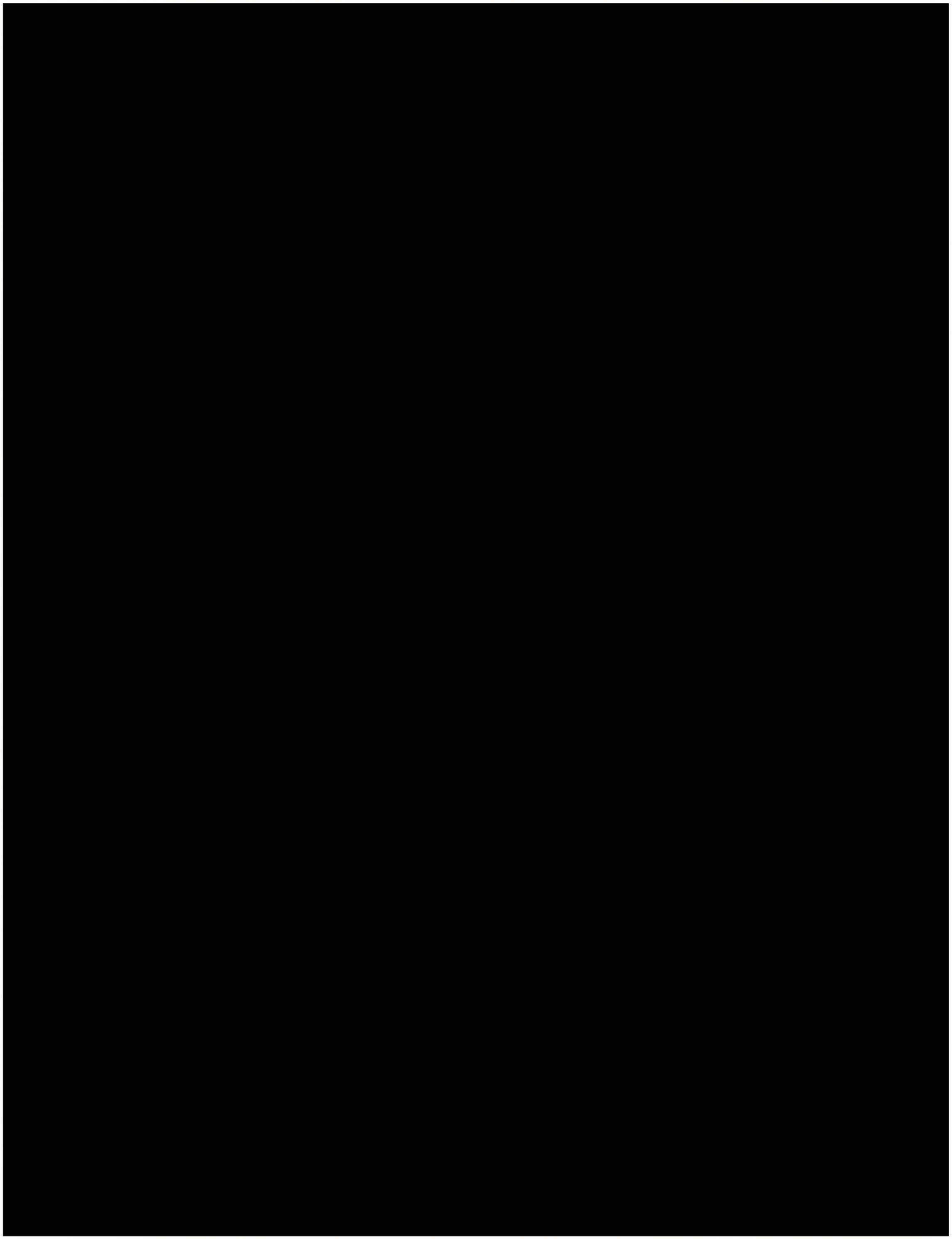


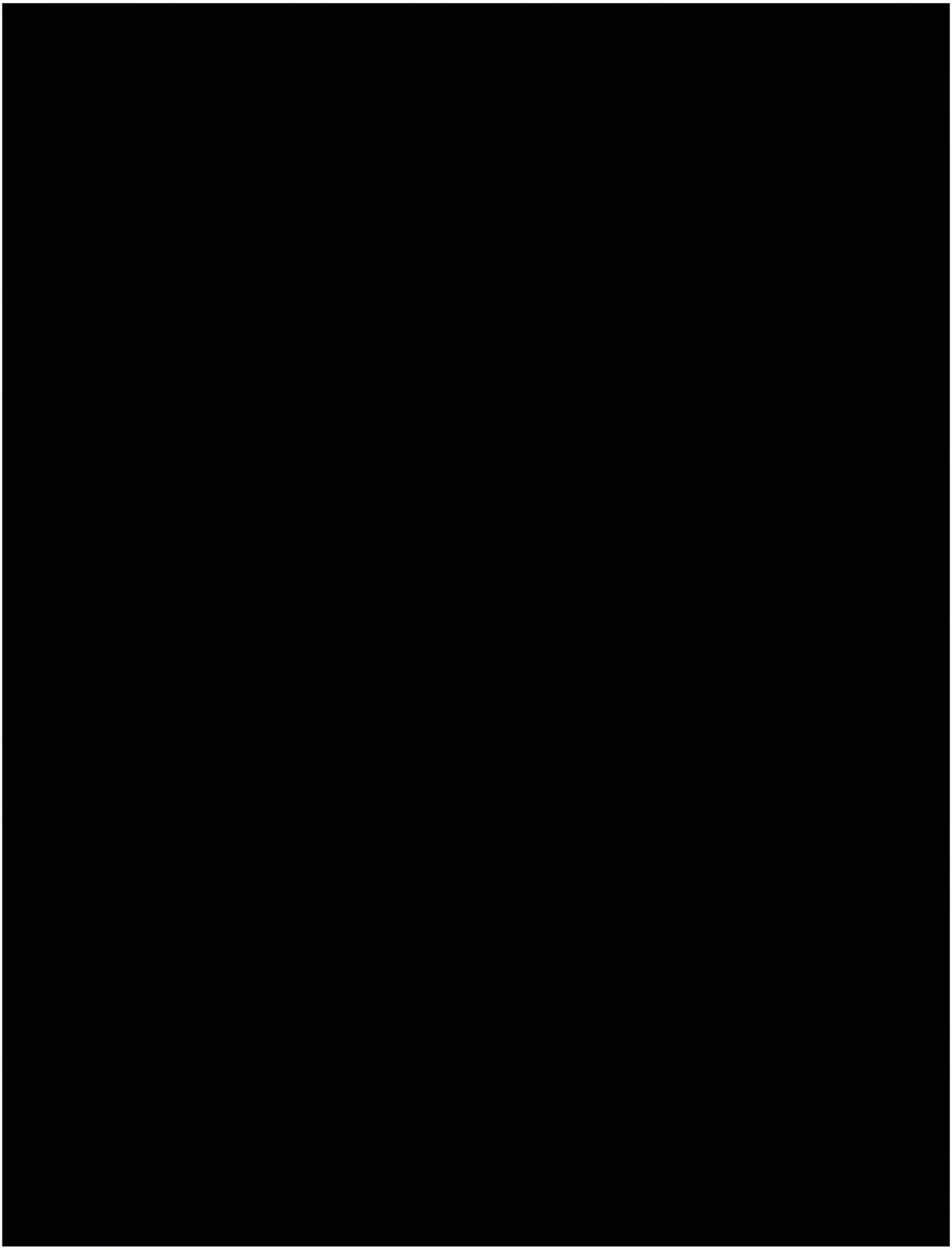




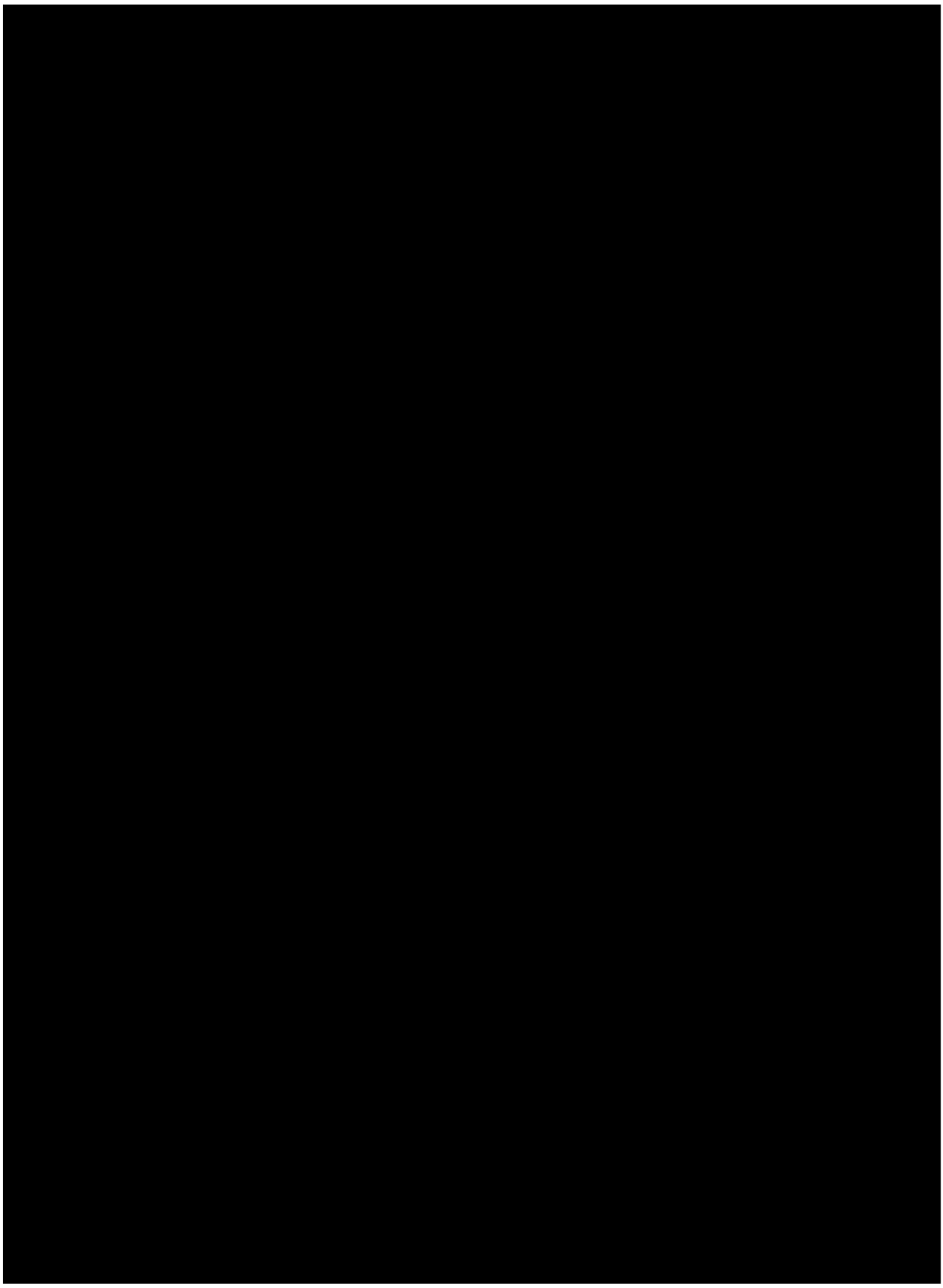


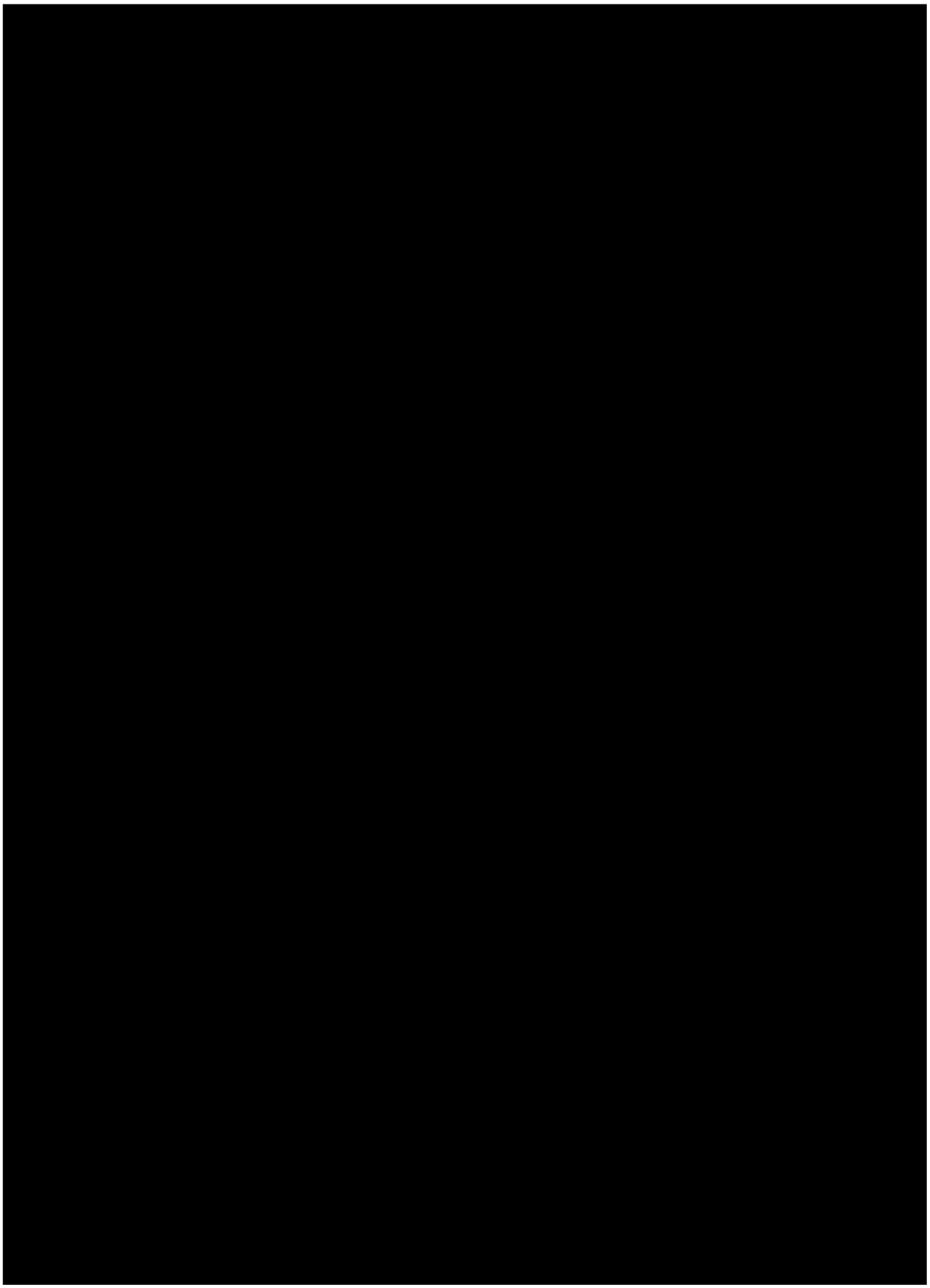


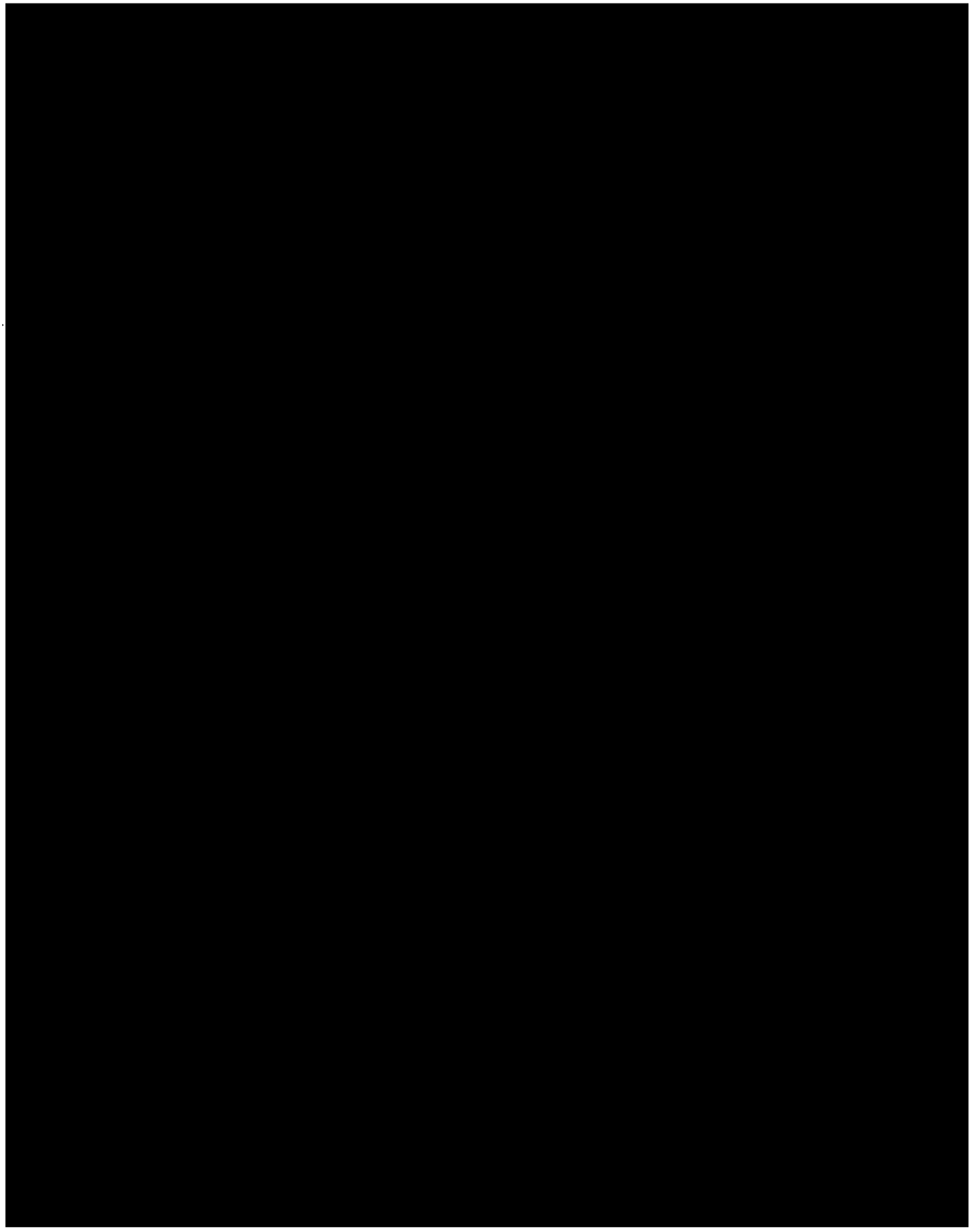




APPENDIX 4







APPENDIX 5