

# BELLEVUE TOWER WEST

## BUILDING CONDITION ASSESSMENT

195 21st Street, West Vancouver, BC V7V 4A4



Engineers



### Prepared for:

**Hollyburn Properties Ltd.**

1155 West Pender Street, Suite 700  
Vancouver, BC V6E 2P4

### Prepared by:

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## 1.0 INTRODUCTION

Read Jones Christoffersen Ltd. (RJC) was engaged by Hollyburn Properties Ltd. to carry out a Building Condition Assessment (BCA) of Bellevue Tower West, a residential building located at 195, 21<sup>st</sup> Street, West Vancouver, BC.

The scope of work included an assessment of the structure, building enclosure, exterior grounds, mechanical systems, electrical systems, elevator systems, roofing systems, fire suppression and fire alarm systems.

The capital expenditure projection period and minimum threshold for Opinions of Probable Cost (OPC) for the report are five (5) years and \$5,000, respectively. Our report includes replacement, renewal, repair, rehabilitation and maintenance projects which we believe will exceed \$5,000 and should be undertaken in the next five (5) years. Expenditures, which we expect to be less than \$5,000 are not documented in the report unless we feel that they are of particular importance.

Each of the building systems included in the scope of work have been documented in the attached appendices. The main body of this report provides some background regarding the field reviews, the documents reviewed, the rationale for determining the condition and estimated remaining service life of the components reviewed, as well as a description of the complex and a compilation of the OPCs. The appendices provide detailed information of the property components and therefore, must be read in detail.

RJC has been providing the owners and property managers of Hollyburn Properties with a variety of engineering services for over 20 years. These services have included a variety of structural and building enclosure assessments, as well as design development, contract administration and field review services related to a number of projects related to building enclosure and structure. The in-depth knowledge gained through our involvement in these projects has been incorporated into this report as best possible.

## 2.0 SITE AND DOCUMENT REVIEWS

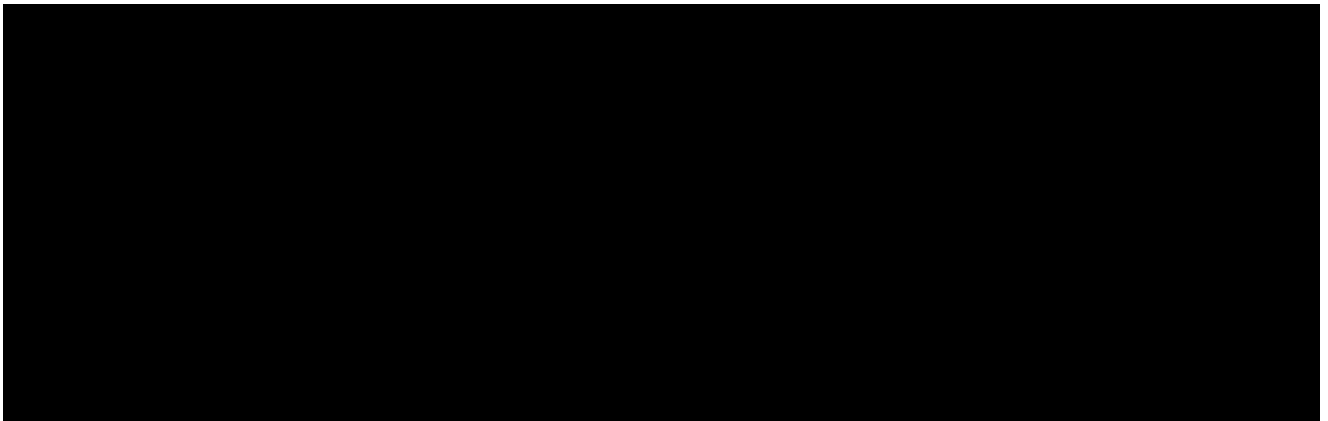
Representative areas of the complex were visually reviewed by RJC and Owner provided consultants and contractors in order to complete the BCA. The field review for the structural, building envelope, and [REDACTED] components took place on Wednesday, April 6, 2022. The field review was undertaken by Adam Bodlack and Owen Domitruk from RJC. [REDACTED]

[REDACTED]



Prior to RJC's field review and/or during the preparation of the report, internal documents were reviewed. These documents included:

- Structural drawings from the original development. From Read Jones Christoffersen Limited. Dated June, 1970.
- Architectural drawings from the original development. From Wilfred D Buttjes+Associates Architects. Date unable to recognize.
- Plaza load review letter from Read Jones Christoffersen Ltd. Dated September 8, 2010.
- Architectural drawings for lobby renovation project. From Abbarch Engineering Design. Dated June 25, 2018.
- Drawings and specifications for lobby renovation project. From RJC. Dated April, 2019.
- Structural review for removal of a partition wall and addition of a bulkhead project by Read Jones Christoffersen Ltd. Dated April 7, 2021.



### 3.0 CONDITION ASSESSMENT

A condition assessment is provided for each building component. The condition is generally categorized as Very Good, Good, Fair, Poor or Failed.

**Very Good** generally applies to new building components or components that are very well-maintained, require only basic maintenance if any, are fully functional and serving their intended purpose without known issues.

**Good** generally applies to building components that are in the first half of their expected service life, are well-maintained, require only basic maintenance if any, are fully functional and serving their intended purpose without known issues.

**Fair** generally applies to building components that are in the second half of their expected service life, require some regular maintenance, are fully functional and serving their intended purpose, however may have known issues.



**Poor** generally applies to building components that require increasing effort to maintain in a functional state or are not serving their intended purpose reliably.

**Failed** applies to building components that require replacement or that cannot serve their functional purpose any longer without significant repairs.

When a component cannot be visually reviewed, such as underground storm water piping or building components hidden inside walls or behind other building components, **Unknown** may be used. When the component condition varies significantly, such as for buildings where portions of the exterior cladding have been restored at different times, **Varies** may be used.

#### **GLAZING SYSTEMS:**

Unless there is a life safety issue, we understand that the client wishes to maintain the existing glazing systems (e.g. windows and balcony doors). With glazing systems that are nearing or have exceeded their service life, there are numerous benefits to replacing the glazing systems. These include, but are not limited to an improvement in structural integrity of the windows, structural attachment to the building, thermal performance, occupant comfort, air tightness, water management, and noise transmission. However, based on the client's preference, recommendations for full window replacement will be reserved only for glazing systems that exhibit a life safety issue.

## **4.0 ESTIMATED REMAINING SERVICE LIFE**

The estimated remaining service life, as well as the timing for work required before the component reaches the end of its expected service life, is based on the year the component was installed, its expected service life (published and internal data), its condition at the time of the site review and the field observer's knowledge of the component. If the installation date is unknown, the condition assessment becomes the primary means of estimating the year of installation. If deemed useful (and included in the agreed-upon scope of work for the BCA), the condition assessment is supplemented by a review of available documentation and discussions with maintenance staff or service providers. This can improve the estimates of the component's remaining service life. If the estimated remaining life is greater than the projection horizon for the report, **Over 5 years** is noted.

There are numerous factors that can affect the service life and performance of a component. Furthermore, certain evidence which might impact our opinions of estimated remaining service life or work required before the component reaches the end of its expected service life may be hidden within walls, inside the component or behind other components, underground or in crawl spaces, for example. As a result, there remains a significant margin of error for certain building components. Actual conditions may differ significantly from the assumed conditions. In some cases, components could require significant expenditures earlier or later than what is noted in this report.

### GLAZING SYSTEMS:

In the case of glazing systems, the owner's renewal strategy and replacement criteria will also be considered when determining the estimated remaining service life. In some cases, repairs and maintenance may be required to ensure the estimated remaining service life is achieved.

## 5.0 BUILDING DESCRIPTION

Bellevue Tower West is a 17 storey residential complex, constructed circa 1972 in West Vancouver, BC. It is located on the corner of Bellevue Avenue and 21<sup>st</sup> Street on a site that slopes from north to south. Two recently built Hollyburn buildings called Hollyburn Gardens are built on the north and south sides of the site circa 2017. We believe that the original parking structure to the north of Bellevue Tower West was either fully or partially demolished when constructing Building B of Hollyburn Gardens. The two Hollyburn Garden buildings, including the parking structure of Building B, have been addressed in a separate report.

The original Bellevue Tower West building is serviced by two elevators and consists of 126 residential units. The residential tower structure is mainly composed of conventionally reinforced cast-in-place concrete, with suspended slabs spanning to columns and walls. There is no parking structure directly below the tower. A portion of the exterior walls are exposed cast-in-place concrete. Other sections are precast concrete panels with an exposed aggregate finish. The balcony guard walls also consist of precast concrete panels connected to the face of the balcony slab edges. The glazing system within the units is a single paned non-thermally broken metal framed slider system.

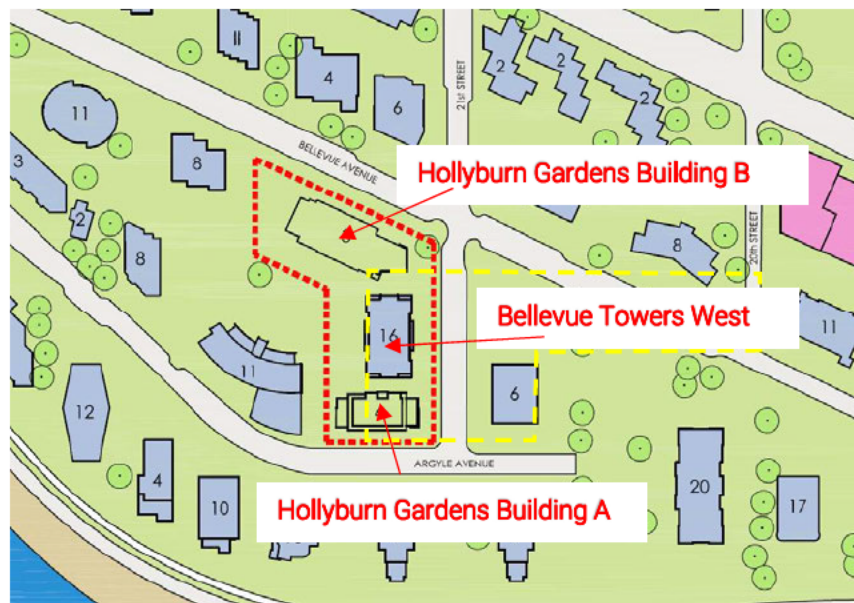


Photo 1: Bellevue Tower West Plan View

For a more detailed description related to the various building components which make up this complex, please refer to the appendices. Directional references in this report are based on an east/west orientation for Argyle Avenue.



## 6.0 OPINIONS OF PROBABLE COST (OPC)

Below is an OPC table which lists the projects that are likely to exceed \$5,000 (excluding taxes) and may be required in the next five years. Refer to the individual appendices for details regarding the OPCs. The estimates below should only be used for general budgeting purposes, since the BCA process does not generate detailed cost estimates.

<b>Opinion of Probable Cost (OPC) Summary Table:</b>					
<b>Bellevue Tower West</b>					
* Except for the Owner supplied contractor costing obtained in the Trade Reports and RJC Assessments, the OPC values provided below include the contingencies described in section 6.1. These include: 1) Project Contingency Allowance 2) Consulting Fees/Permits & Testing 3) Contractor General Conditions 4) Design Contingency 5) Inflation Contingency. The OPC values which are <\$5000 are not included in the "subtotal" or "total". They are listed in this OPC Table for the purpose of awareness.					
Year	Item	Practice	Description of work	*OPC (present value)	Reason
<b>Immediate / 1 Year</b>					
	A.2	STR	Concrete balcony restoration	\$ 2,000,000	Damage
	A.2	STR	Concrete balcony investigation	\$ 30,000	Damage
	B.1	BE	Rockdash stucco assessment	\$ 8,000	Estimated Remaining Life
	H.1	FIRE	Unsupervised 3-wire system replacement/upgrade	Refer to Notes	Reliability
			<b>Subtotal</b>	<b>\$ 2,038,000</b>	
<b>Years 2 - 3</b>					
	B.2	BE	Sealant renewal	\$ 250,000	Concern
	B.6	BE	Pedestrian deck coating - Balcony	\$ 200,000	Damage
	F.2	ELEV	Equipment guarding	\$ 30,000	Reliability
			<b>Subtotal</b>	<b>\$ 480,000</b>	
<b>Years 4 - 5</b>					
	A.3/B.1	STR/BE	Exterior concrete & precast panel assessment	< \$5,000	Damage
	A.3	STR	Exterior concrete restoration	\$ 200,000	Damage
	B.3	BE	Window fastener visual review	< \$5,000	Concern
	F.2	ELEV	Code Changes	\$ 6,000	Code Compliance
			<b>Subtotal</b>	<b>\$ 206,000</b>	
			<b>Total</b>	<b>\$ 2,724,000</b>	
<b>NOTES</b>					
* Balcony deck coating options: The OPC included in this table for item B.2 assumes the installation of a conventional pedestrian deck coating system. A lower performing balcony deck system by Deckote has been used by Hollyburn Properties as a less costly alternative. The OPC for the Deckote system would be \$100,000.					
* For more details concerning estimated remaining service life and opinions of probable cost for roofing projects beyond 5 years, please refer to appendix G.					
* For information concerning estimated remaining service life and opinions of probable cost for mechanical projects, please refer to appendix D and contact Inline Sales & Service Ltd.					
* For information concerning estimated remaining service life and opinions of probable cost for fire alarm system projects, please refer to appendix H and contact Voltech Fire Protection.					



The OPCs presented in this report are categorized as Immediate / Year 1, Years 2 - 3 and Years 4 - 5 expenditures. These timeframes start on the date of issuance of this building condition assessment report. Hence, the Years 2 – 3 recommendations start 1 year from the date of issuance and extend to 3 years from the same date. Likewise, the Years 4 - 5 recommendations start 3 years from the date of this report and extend to 5 years from that date.

Expenditures, which are required within one (1) year are typically associated with:

- Projects that the client has already committed to undertaking in the next year, or
- Items requiring immediate attention due to safety concerns (or potential safety concerns), rapid deterioration if left unattended, or
- Cost-related risk due to deferral

This category is also used for assessments of key components that have exceeded their expected service life and should be assessed in greater detail as soon as possible in order to more accurately determine their condition and risk of failure.

For recommendations in the Immediate/Year 1, OPCs are presented in present dollar values. For recommendations in the Years 2 - 3 and Years 4 - 5 category, OPC's are presented in future dollar values with inflation percentages as noted below (see contingencies). Delaying projects beyond the recommended timing may result in further deterioration, increased maintenance costs, isolated damage to adjacent components and increased replacement costs.

## 6.1 CONTINGENCIES

For construction projects related to the structure, building envelope, and exterior grounds, the following minimum contingencies have been incorporated into the Opinion of Probable Cost. The percentages vary on the size of the project (i.e. the smaller the project, the higher the percentage typically):

- Project Contingency Allowance: contingency allowance for unknown conditions and additional work uncovered during construction.
  - 30% for projects below \$100K
  - 25% for projects between \$100K-\$500K
  - 20% for projects above \$500K



- Consulting Fees, Permits & Testing: for schematic/design development, preparation of contract documents (drawing and specifications), administering a tender process, contract administration and field reviews. Includes cost of permits and testing (with the exception of hazardous materials testing)
  - 25% for projects below \$100K
  - 20% for projects between \$100K-\$500K
  - 15% for projects above \$500K
  
- Contractor General Conditions: including but not limited to access, supervision, mobilization, disposal, cleaning, and demobilization.
  - 30% for projects below \$100K
  - 25% for projects between \$100K-\$500K
  - 20% for projects above \$500K
  
- Design Contingency: covers design changes related to additional scope or alternative requirements.
  - 35% for projects below \$100K
  - 25% for projects between \$100K-\$500K
  - 20% for projects above \$500K
  
- Inflation Contingency: For projects in the Years 2 - 3 category, a flat rate of 6% for inflation has been applied. For projects in the Years 4 - 5 category, a flat rate of 10% for inflation has been applied.

Note: The Opinions of Probable Cost related to mechanical, electrical, elevator, fire suppression or fire alarm do not have the above contingencies added to them. Values related to these systems and components were taken directly out of the sub consultant and contractor reports.

## 7.0 LIMITS OF LIABILITY

This report is intended to provide the client with a general description of the systems employed in the building and to comment on their general condition which was apparent at the time of our review. We did not perform any calculations to confirm the adequacy of the elements. The scope of services did not include an evaluation of the original building design or a detailed engineering investigation. A structural loading or seismic review was not performed.

The review undertaken was of a visual nature only. No testing or dismantling of any coverings was performed. Reviews were made on a random basis with no attempt to review every element or portion of the building. Comments are not a guarantee or warranty of the condition of the building or that the building has been built in accordance with the drawings and specifications. Given the limitations of a visual review, defects hidden from view or under-designed components may not have been detected.



Drawings and information relating to the building were used solely to supplement the visual review and to obtain design information on elements hidden from view so that a more accurate building description could be provided.

Section 3.0 Condition Assessment clarifies that glazing (e.g. Windows and balcony doors) replacement has been recommended solely if life safety issues were observed during the site visit. Review of the glazing was made on a random representative sample with no attempt to review every element or portion of the glazing on the building. Given the limitations of a visual review, defects hidden from view or under-designed components may not have been detected. With glazing that is nearing or exceeded its service life, replacement of the glazing systems would improve their structural integrity, structural attachment to the building, thermal performance, occupant comfort, air tightness, water management, and noise transmission.

Opinions of Probable Cost provided by RJC may be based on incomplete or preliminary information, and may also be based on factors over which RJC has no control. RJC does not guarantee the accuracy of these cost estimates and shall have no liability where cost estimates are exceeded or are less.

RJC prepared this report for the use of the owner and property manager, Hollyburn Properties Ltd., of Bellevue Tower West. The material in it reflects RJC's judgement in light of information available at the time of preparation. Any use that a third party makes of this report (including relying on this report for any decisions) is the responsibility of such third parties. RJC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The work in this report does not include any assessment or costing of hazardous materials that may be present at the building. Assessment and inventory of hazardous materials should be made by consultants specializing in that field of work. Neither RJC, nor any company with which it is affiliated, nor any of their respective directors, employees, agents, servants or representatives shall in any way be liable for any claim, whether in contract or in tort including negligence, arising of or relating in any way to hazardous materials such as asbestos, lead, mould, mildew or other fungus, including the actual, alleged or threatened existence, effects, ingestion, inhalation, abatement, testing, monitoring, remediation, enclosure, decontamination, repair, or removal of the actual or alleged failure to detect hazardous materials.



## 8.0 CLOSING

Thank you for choosing RJC to provide this BCA. Should you have any further questions or comments, or if we can be of further assistance, please contact this office.

Yours truly,

READ JONES CHRISTOFFERSEN LTD.  
**EGBC Permit to Practice No. 1002503**



Ilona Cervantes, B.A.Sc., MEng, P.Eng., LEED® AP  
Project Engineer

AJB/mer

**APPENDIX A: STRUCTURE**

**APPENDIX B: BUILDING ENCLOSURE**

**APPENDIX C:**

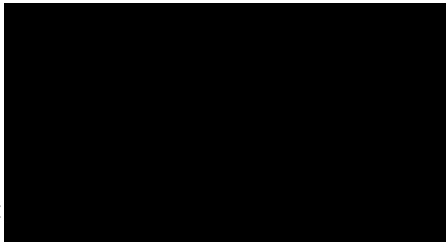
**APPENDIX D:**

**APPENDIX E:**

**APPENDIX F:**

**APPENDIX G:**

**APPENDIX H:**





Engineers

## APPENDIX A

### STRUCTURAL

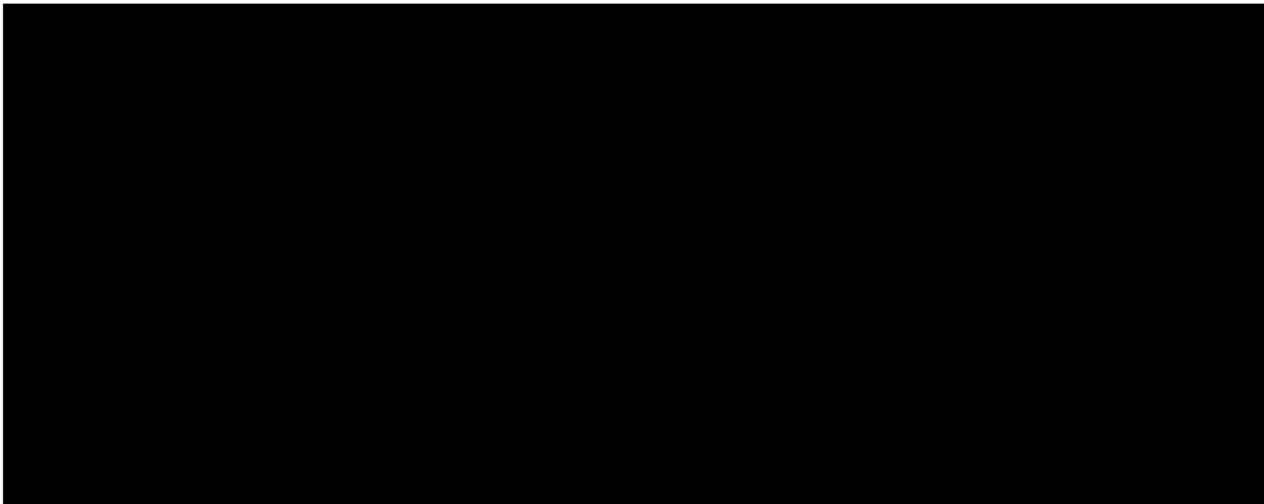
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Prepared By:



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Ilona Cervantes, B.A.Sc., MEng, P.Eng., LEED® AP  
Project Engineer



**TABLE A2 – BALCONY STRUCTURE**

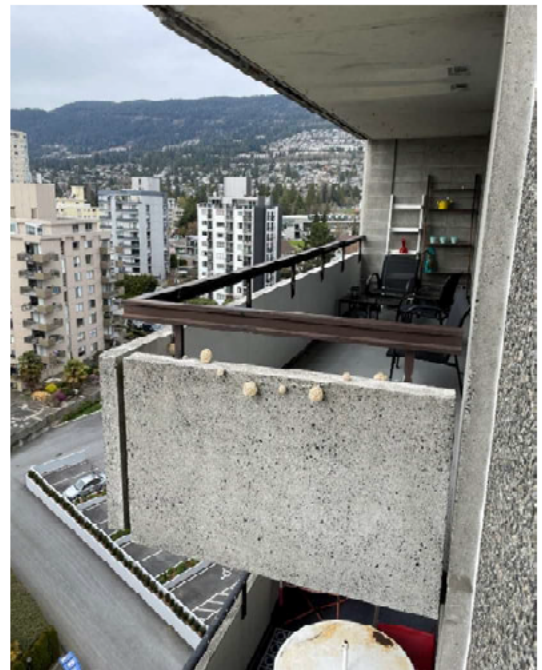
**Condition Assessment** Poor  
**Estimated Remaining Life** 3 - 5 years

**Project** Balcony restoration  
**First Occurrence** Immediate / Year 1  
**Budget** \$500,000 - \$2,000,000  
**Recurrence** 15 years

**Assessment** Balcony Investigation  
**First Occurrence** Immediate / Year 1  
**Budget** \$15,000 - \$30,000  
**Recurrence** 10 years

**Description**

- The cantilevered balcony slabs are constructed of conventionally reinforced cast-in-place concrete. Pre-cast concrete panels are fastened to the face of the slab edge and serve as a guard wall. An aluminum guardrail is side mounted to the inside face of the pre-cast guard walls.



**Photo 1 -** General view of typical balcony showing pre-cast panel guard walls.

## TABLE A2 – BALCONY STRUCTURE

### Condition/Observations

- In general, the balcony slabs and pre-cast concrete guard walls are in poor condition.
- Concrete spalling was observed on the balcony slabs including at the pre-cast to balcony slab connection.
- Corrosion product was observed on the surfaces of some pre-cast panel connection plates.
- At the precast to slab connection point, concrete spalling and exposed reinforcing steel were observed on multiple balconies.

### Recommendation/Projects

- For the immediate/year 1 timeframe, it is recommended that a site investigation be conducted to visually assess the condition of the precast panel connectors. Understanding the condition of the connections will assist in narrowing down the estimated cost and options for the balcony restoration project. The opinion of probable cost for the on-site investigation ranges from \$15,000 to \$30,000 depending on the percentage of balconies review and connectors exposed.



**Photo 2** - Concrete delamination on balcony - slab.



**Photo 3** - Spalling concrete above pre-cast panel connection to the balcony slab.

## TABLE A2 – BALCONY STRUCTURE

- In immediate/year 1 timeframe, and assuming that the above assessment recommends balcony remediation, it is recommended that a balcony restoration project be completed to address concrete delaminations and reinforce existing pre-cast panel connections as required. The opinion of probable cost for this project can range from \$500,000 to \$2,000,000 and depends on multiple factors including the concrete repair quantity and the number of precast panel connectors that require repair. (See recommended assessment below). Further and depending upon the assessment, consideration can be given to remove the precast panels and replace them with new aluminum framed railing with glass infill panels. This should be established during the design development process and after an assessment is completed.

\* Except for values <\$5000, opinions of probable cost contain, the contingencies described in Section 6.1 of the report body. These include:

- 1) Project Contingency Allowance
- 2) Consulting Fees/Permits & Testing
- 3) Contractor General Conditions
- 4) Design Contingency
- 5) Inflation Contingency



**Photo 4 -** Spalled concrete delamination with exposed reinforcing bar and metal connector.

**TABLE A3 – CONCRETE STRUCTURE**

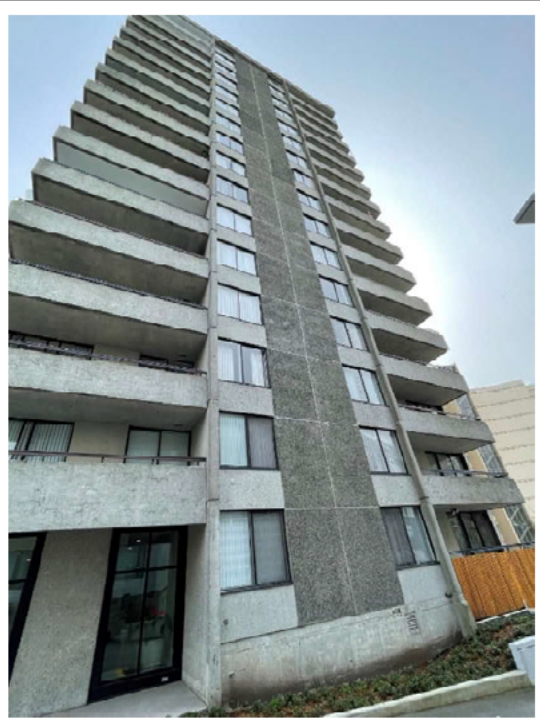
<b>Condition Assessment</b>	Fair
<b>Estimated Remaining Life</b>	Over 5 years
<b>Assessment</b>	Exterior tower assessment
<b>First Occurrence</b>	Year 5
<b>Budget</b>	Less than 5,000
<b>Recurrence</b>	5 - 10 years
<b>Project</b>	Exterior tower restoration
<b>First Occurrence</b>	Year 5
<b>Budget</b>	\$200,000
<b>Recurrence</b>	15 years

**Description**

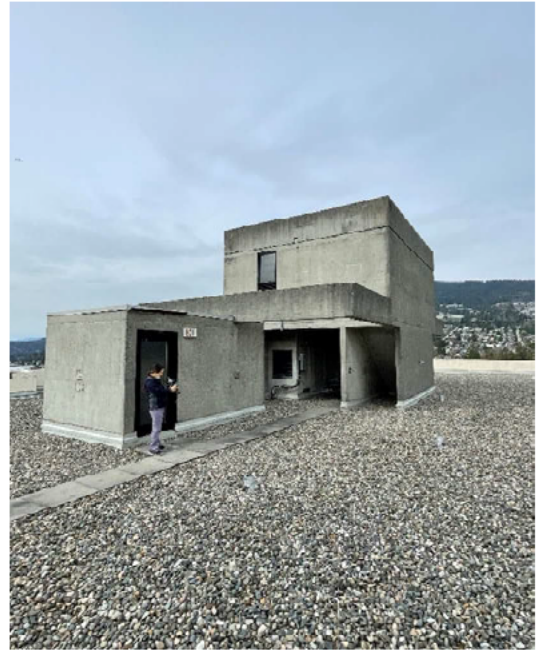
- The residential tower is composed of conventionally reinforced cast-in-place concrete with suspended slabs spanning to columns, and walls. The cast in place concrete has varying finishes including a smooth finish and a vertical channel finish.
- Precast concrete elements are present on the building exterior including precast balcony guard walls, and precast panels with exposed aggregate finish adjacent to windows.
- There does not appear to be a coating on the concrete finishes.

**Condition/Observations**

- The concrete structure was observed to be in generally fair condition.
- No areas of significant spalling were noted at concrete exterior wall areas under exposed windows and grooved concrete walls.



**Photo 5** - General view of north elevation of the building.



**Photo 6** - General view of the elevator core on roof.

### TABLE A3 – CONCRETE STRUCTURE

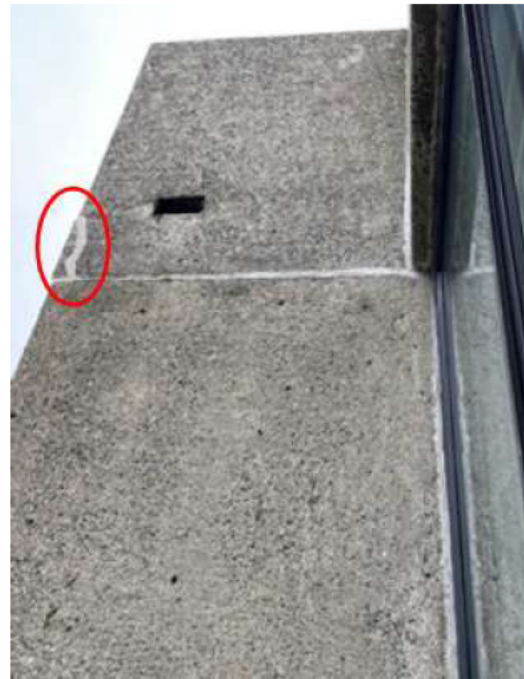
- Cracks were observed on the exterior concrete walls. Some of the cracks appear to have been temporarily sealed by sealant application over the cracks.

#### Recommendation/Projects

- In Year 5, it is recommended that an assessment of the exterior concrete walls be completed to monitor the condition of the tower. The Opinion of Probable Cost for this assessment is less than \$5,000.
- In Year 5, it is recommended that an exterior concrete restoration project be anticipated. The cost of this project cannot be identified until the concrete assessment is conducted. However, based on buildings of similar size and condition, it is estimated that the opinion of probable cost for the concrete restoration will be \$200,000.

\* Except for values <\$5000, opinions of probable cost contain, the contingencies described in Section 6.1 of the report body. These include:

- 1) Project Contingency Allowance
- 2) Consulting Fees/Permits & Testing
- 3) Contractor General Conditions
- 4) Design Contingency
- 5) Inflation Contingency



**Photo 7 -** Concrete exterior wall. Cracks have been sealed with sealant for a temporary repair.



Engineers

## APPENDIX B

### BUILDING ENCLOSURE

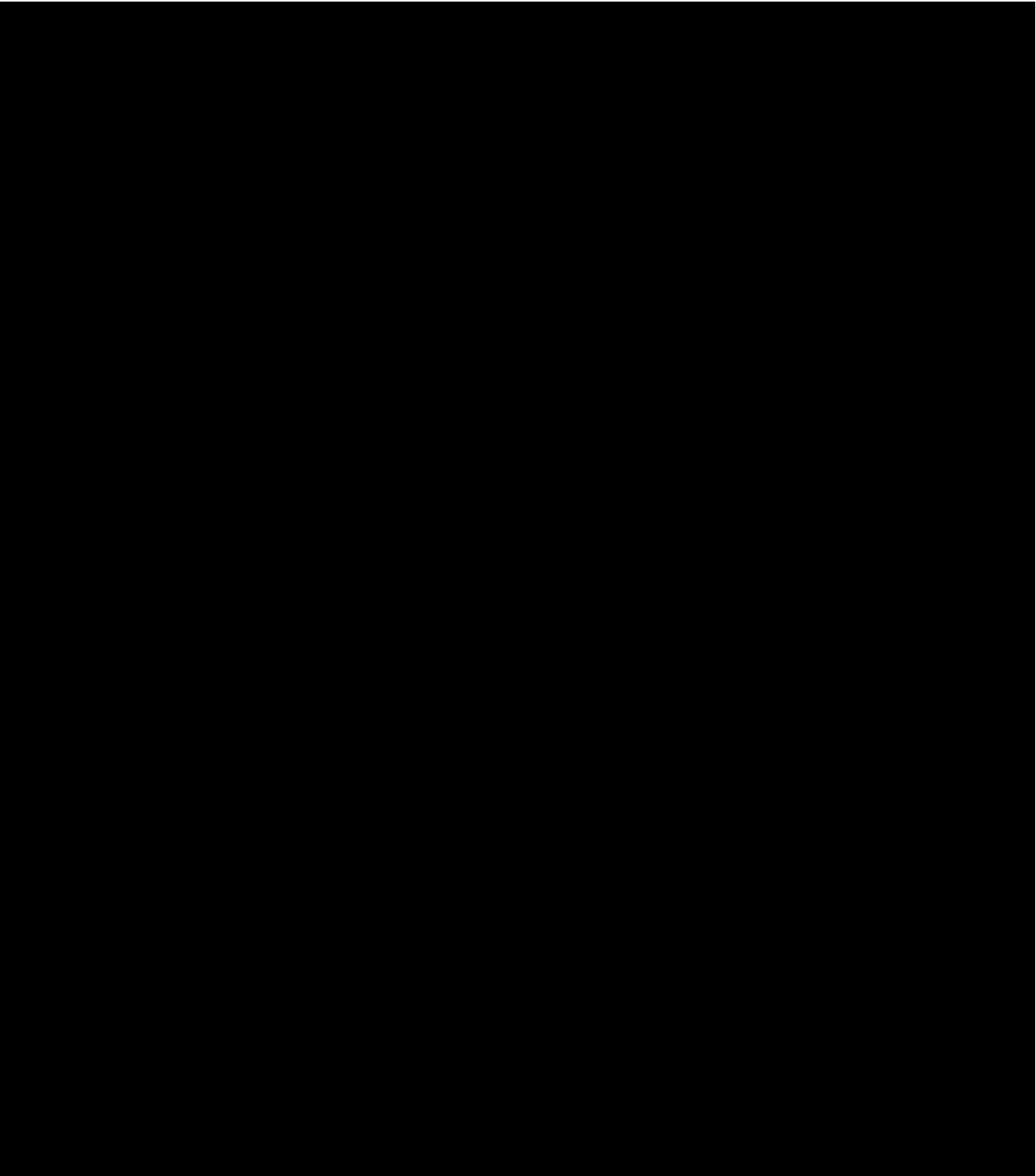
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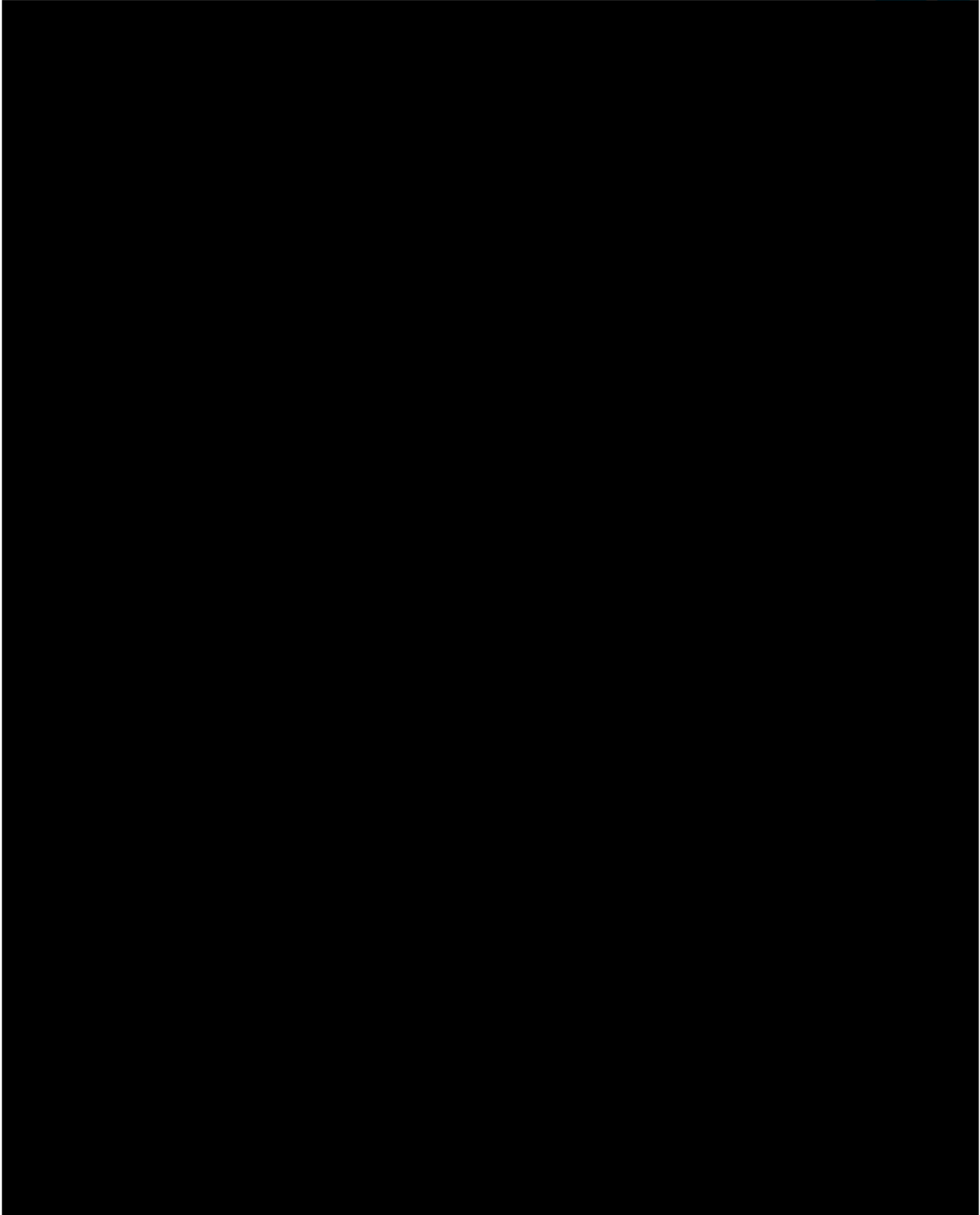




TABLE B2 – SEALANTS	
<b>Condition Assessment</b>	Poor
<b>Estimated Remaining Life</b>	3 years
<b>Project</b>	Sealant renewal
<b>First Occurrence</b>	Years 2 - 3
<b>Recurrence</b>	15 years
<b>Budget</b>	\$250,000
<b>Description</b>	
<ul style="list-style-type: none"><li>Sealant is typically installed at interfaces between dissimilar materials such as around window and door perimeters, between flashing and concrete, and at building penetrations.</li><li>It is also installed as precast concrete panel joints.</li></ul>	
<b>Condition/Observations</b>	
<ul style="list-style-type: none"><li>Sealant at perimeters of windows and doors was observed to be generally in poor condition. The sealant has exceeded its service life as there is no record of sealant replacement within the past 15 years.</li><li>Sealant at concrete to concrete joints was observed to be in poor condition.</li><li>Evidence of sealant failure observed includes loss of elasticity, cracking/cohesive failure, and adhesive failure.</li></ul>	
	
	<b>Photo 5</b> - Typical condition of sealant around perimeter of balcony door.
	
	<b>Photo 6</b> - Sealant around perimeter of balcony window.

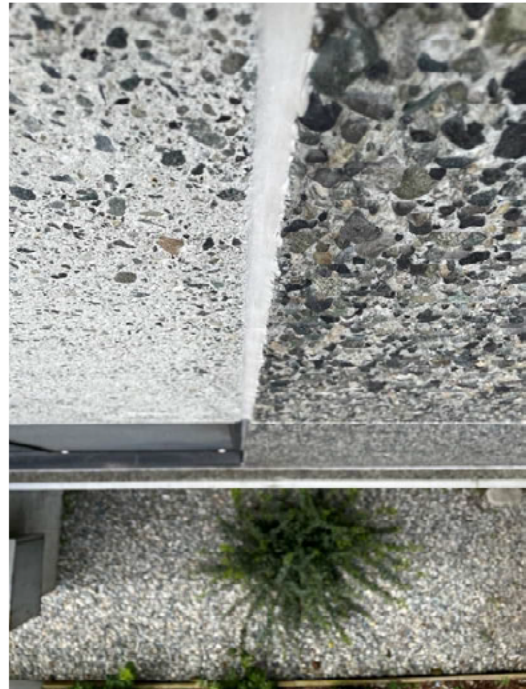
## TABLE B2 – SEALANTS

### Recommendation/Projects

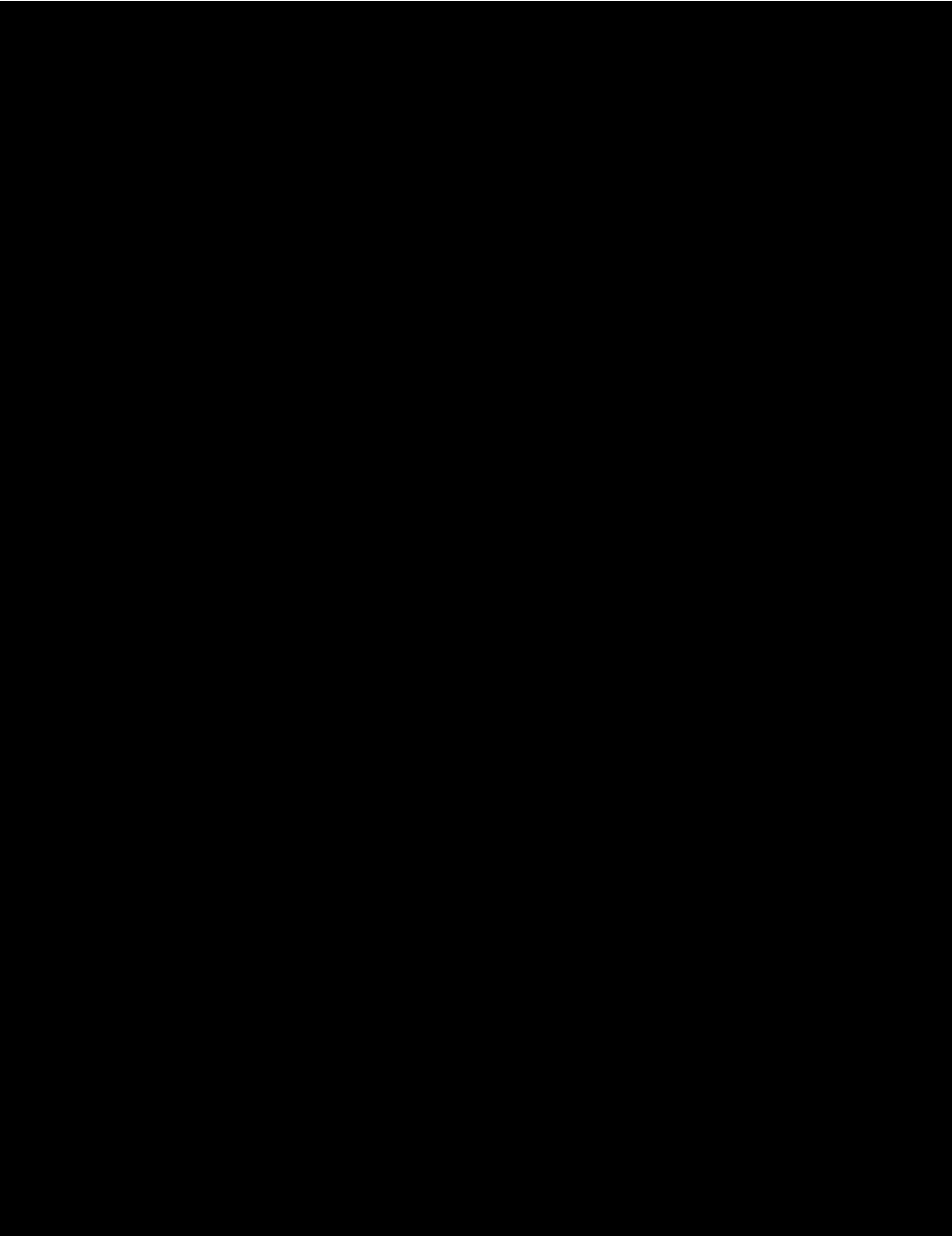
- In years 2 - 3, it is recommended that a sealant replacement project is completed to address sealant at window & door perimeters and concrete joints. We expect this project to cost \$250,000. This project can be completed in tandem with exterior restoration project recommended in Table A.2 & A.3.

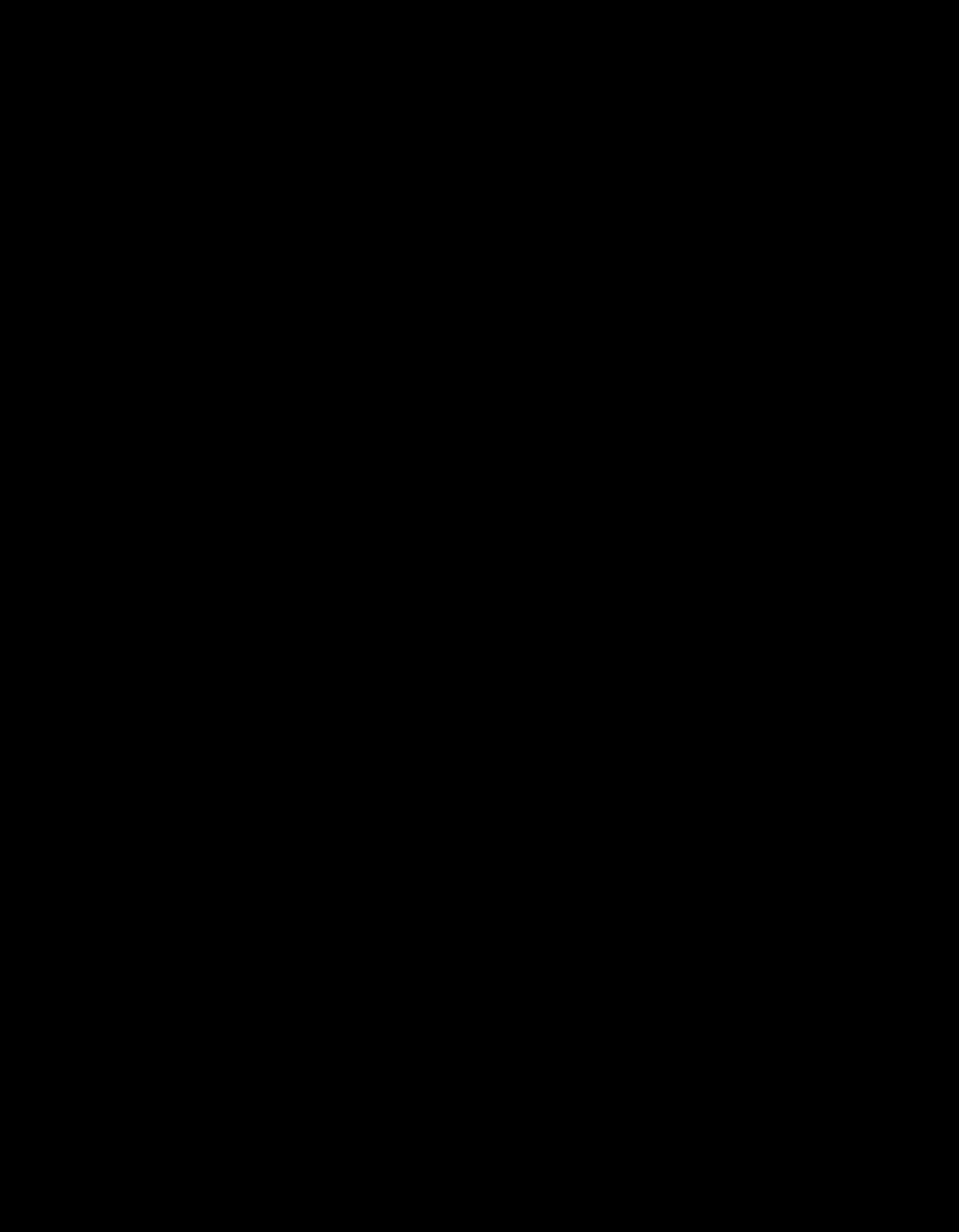
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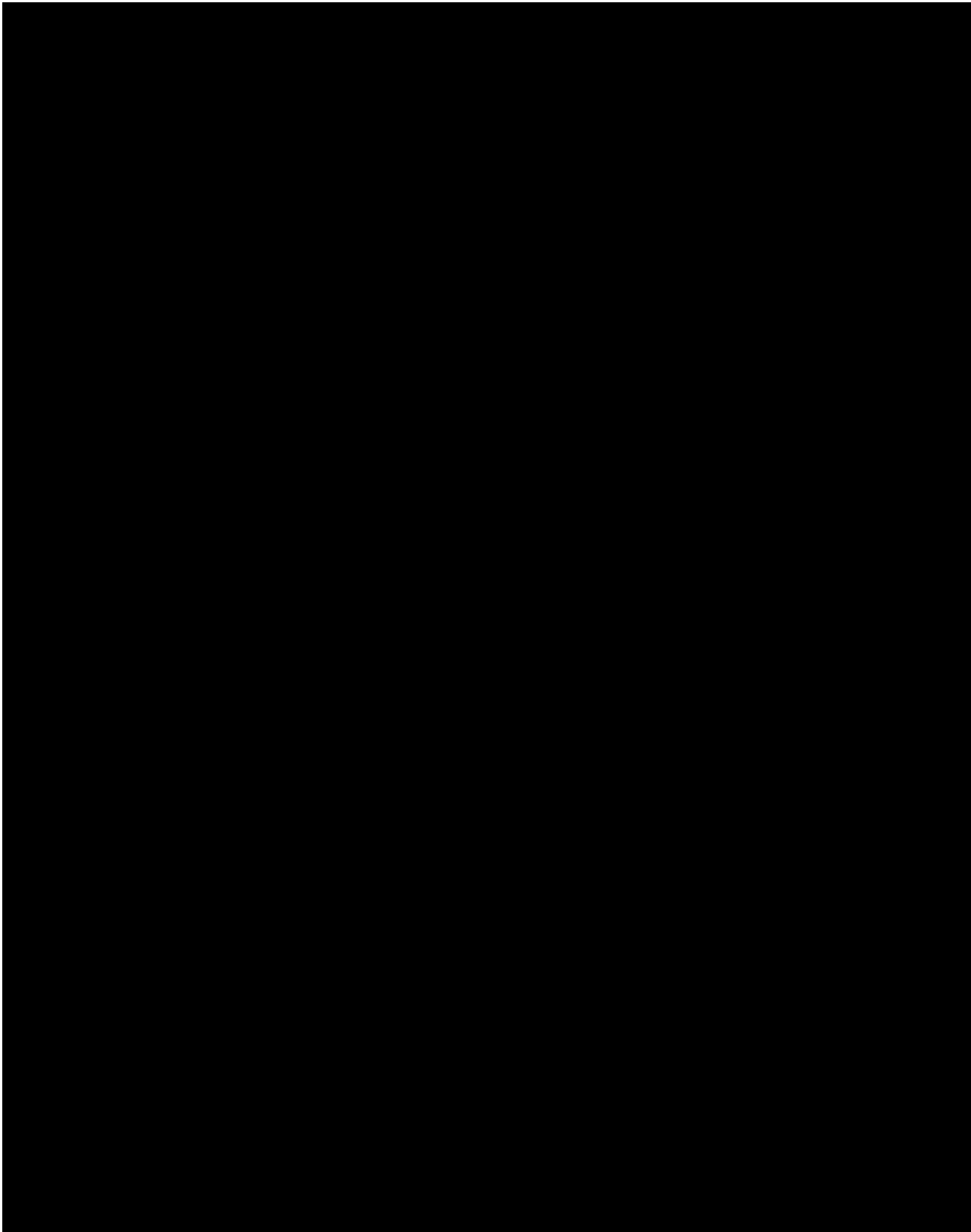
- 1) Project Contingency Allowance
- 2) Consulting Fees/Permits & Testing
- 3) Contractor General Conditions
- 4) Design Contingency
- 5) Inflation Contingency

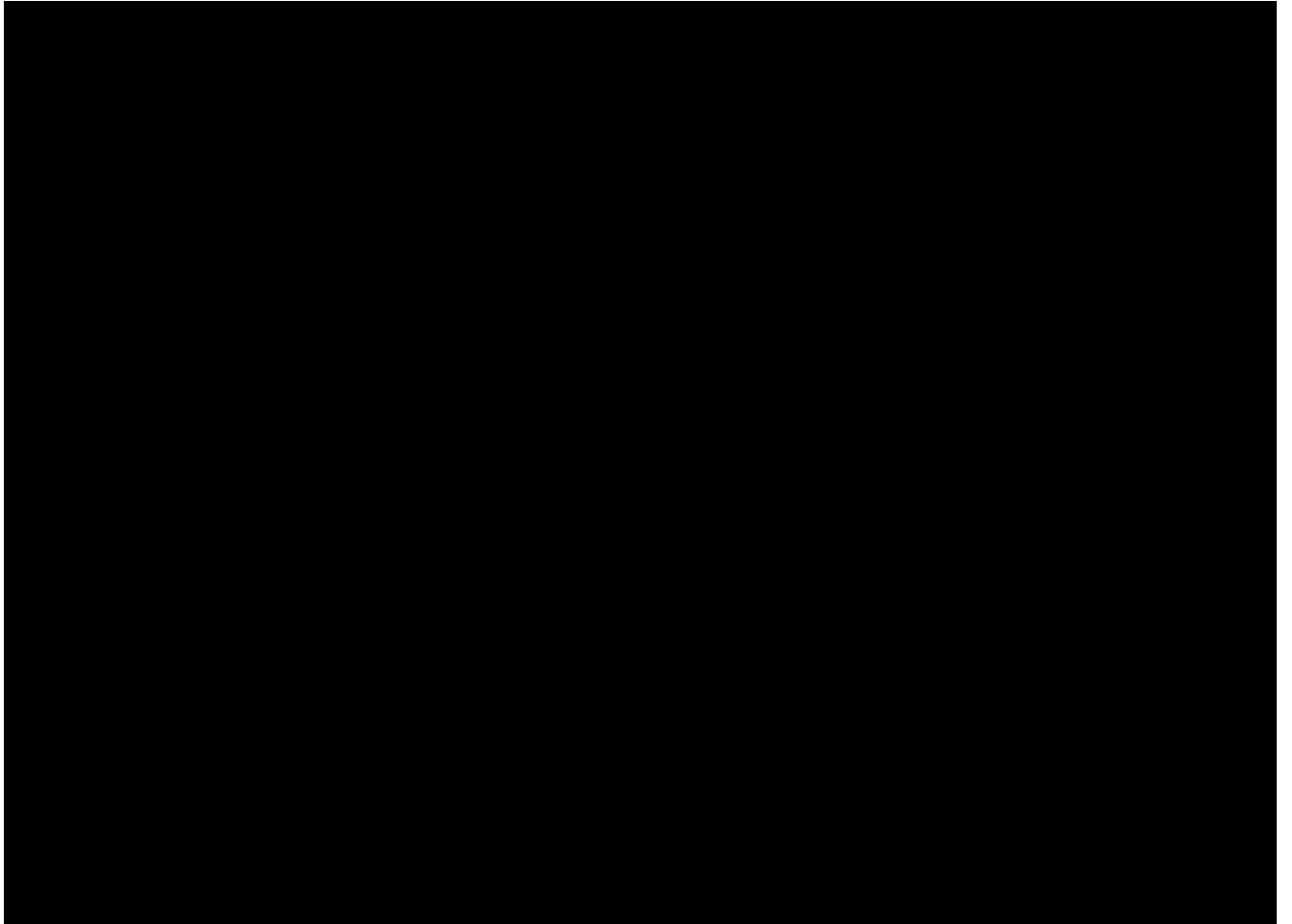


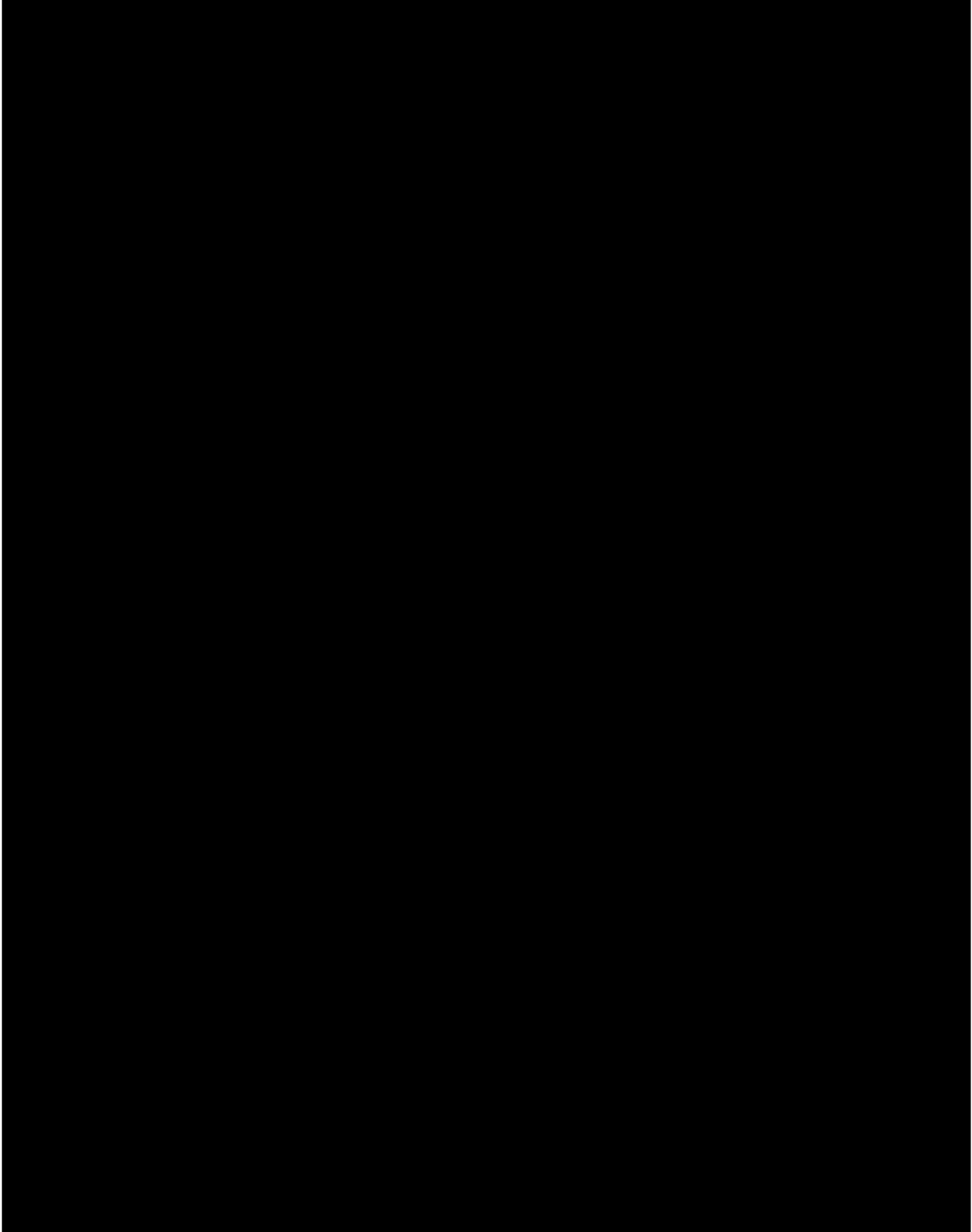
**Photo 7 -** Sealant at concrete to concrete joint.

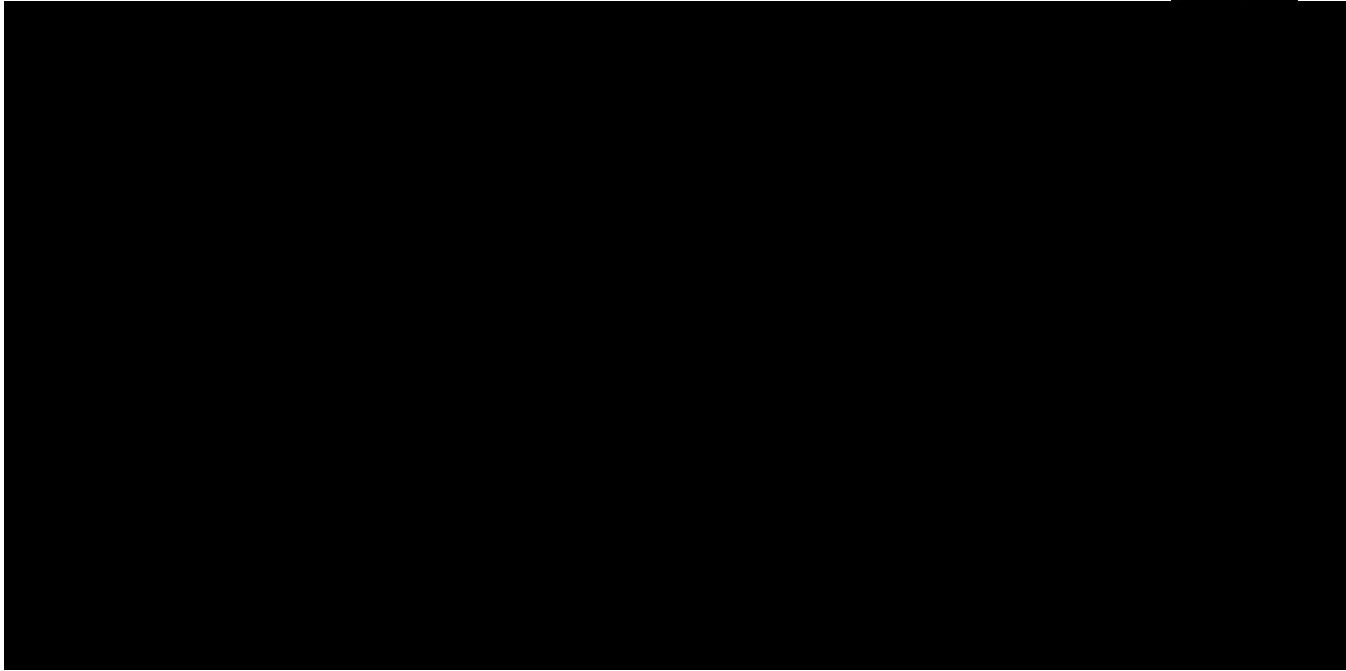












**TABLE B6 – BALCONY COATINGS**

<b>Condition Assessment</b>	Poor
<b>Estimated Remaining Life</b>	1 - 2 years
<b>Project</b>	Apply a Pedestrian Deck Coating
<b>First Occurrence</b>	Years 2 - 3
<b>Recurrence</b>	20 years
<b>Budget</b>	\$100,000 - 200,000

**Description**

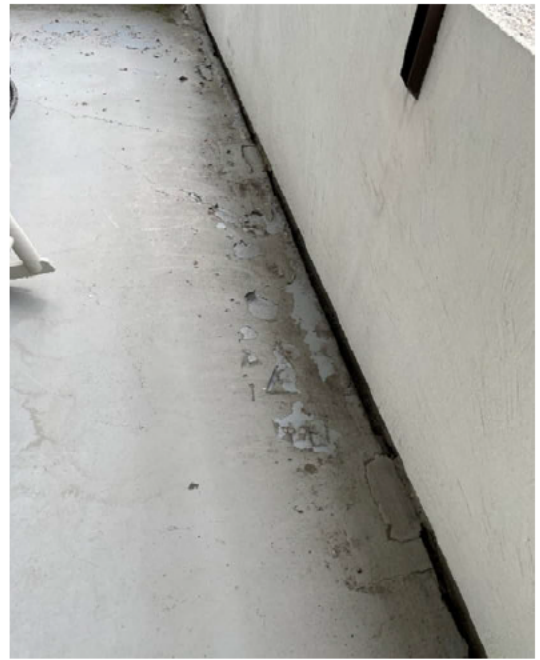
- The balconies have pre-cast concrete guardwalls attached to the face of the balcony slab edges. There are aluminum guardrails side mounted to the interior face of the pre-cast guard walls.
- The balcony guardrails are painted along with some of the interior sides of the guard walls.
- The balcony floors appear to have been coated with a few layers of paint or possibly Deckote

**Condition/Observations**

- The balcony guardrails generally appeared to be in fair condition. In general, guardrails appeared to be structurally secure.
- It appears that on multiple balconies, the guardrails have been painted black over their original brown colour. Both the new and original paints were observed to be peeling/flaking.
- The deck coating generally appears to be in poor condition showing signs of chipping and flaking.



**Photo 18 -** Peeling paint on balcony floor.



**Photo 19 -** Deck coating.

**TABLE B6 – BALCONY COATINGS**

**Recommendation/Projects**

- In years 2 - 3, after repair of the concrete delaminations in the balcony slabs recommended in Appendix A, it is recommended that a pedestrian deck coating system be applied. This may be completed in tandem with the recommended balcony concrete restoration project (Appendix A). The cost of this pedestrian deck coating project is expected to be \$200,000 if a conventional pedestrian deck coating is installed, or \$100,000 if a Deckote system is installed. If applied, it is recommended that maintenance of the pedestrian deck coating be completed every five years.

\* Except for values <\$5000, Opinions of Probable Cost contain, the contingencies described in Section 6.1 of the report body. These include:

- 1) Project Contingency Allowance
- 2) Consulting Fees/Permits & Testing
- 3) Contractor General Conditions
- 4) Design Contingency
- 5) Inflation Contingency



**Photo 20 -** Balcony guardrail connection.

## APPENDIX C

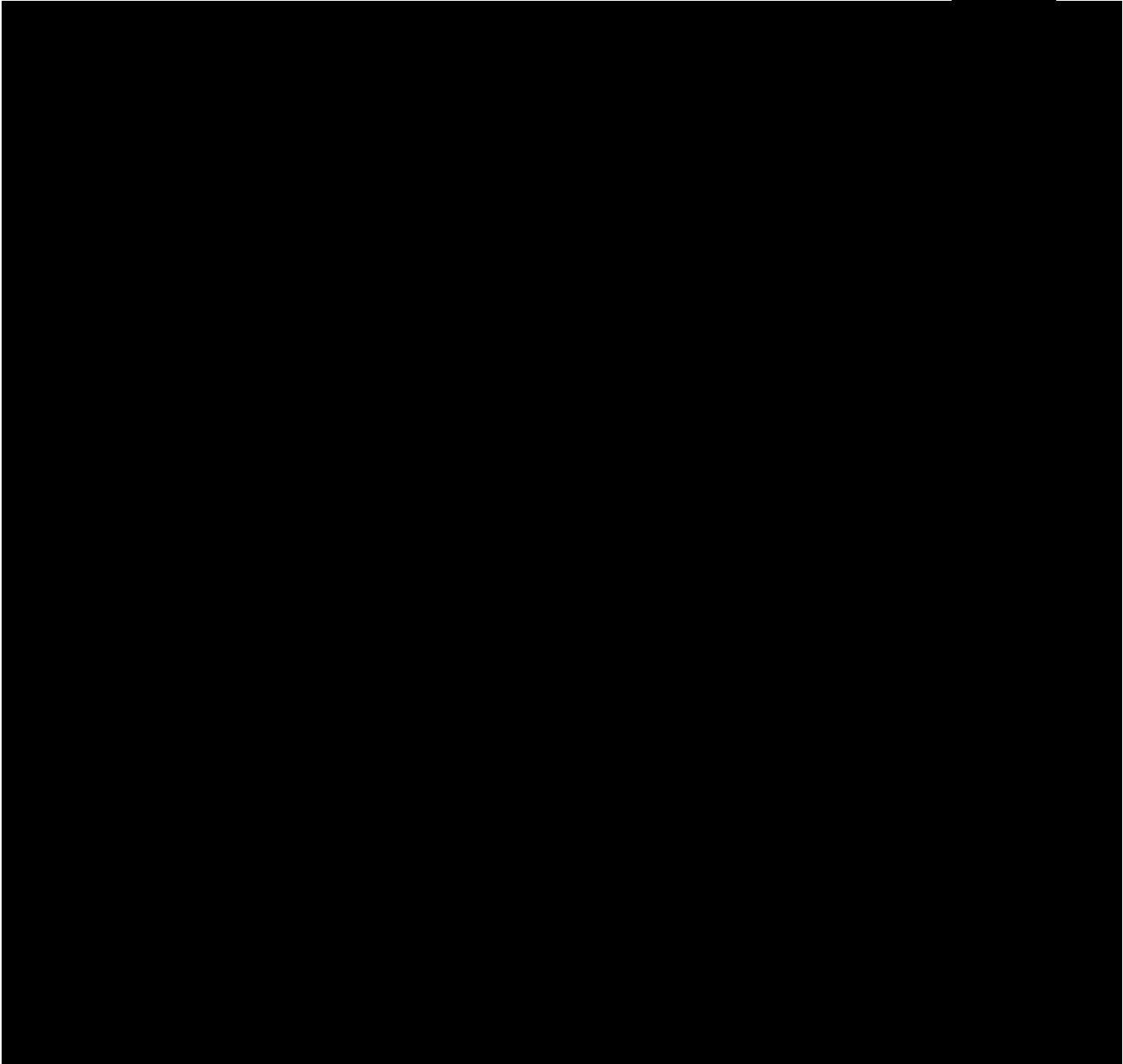


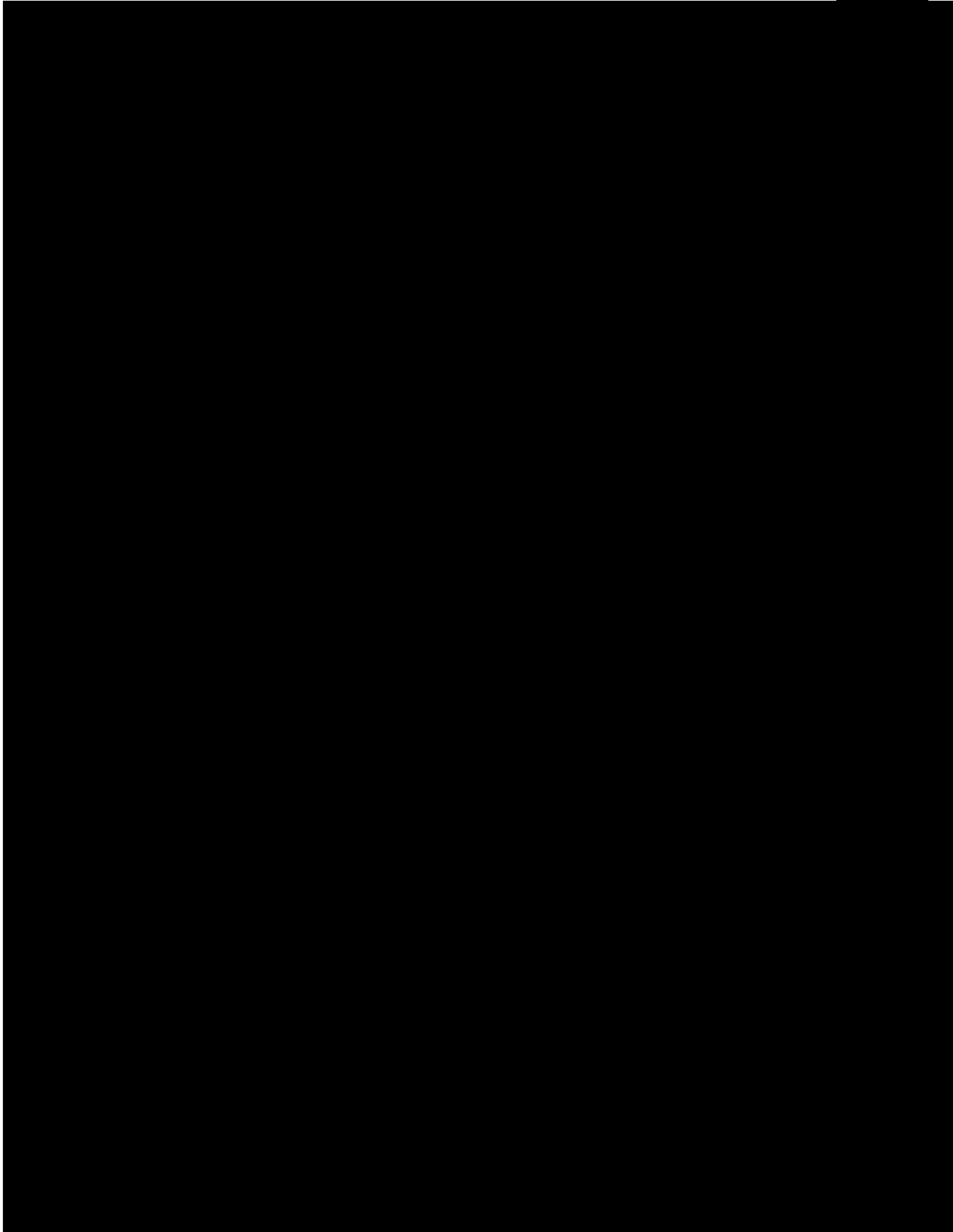
Read Jones Christoffersen Ltd. | EGBC Permit to Practice No. 1002503  
Prepared By:



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Ilona Cervantes, B.A.Sc., MEng, P.Eng., LEED® AP  
Project Engineer

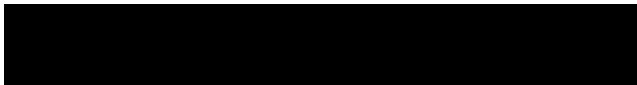


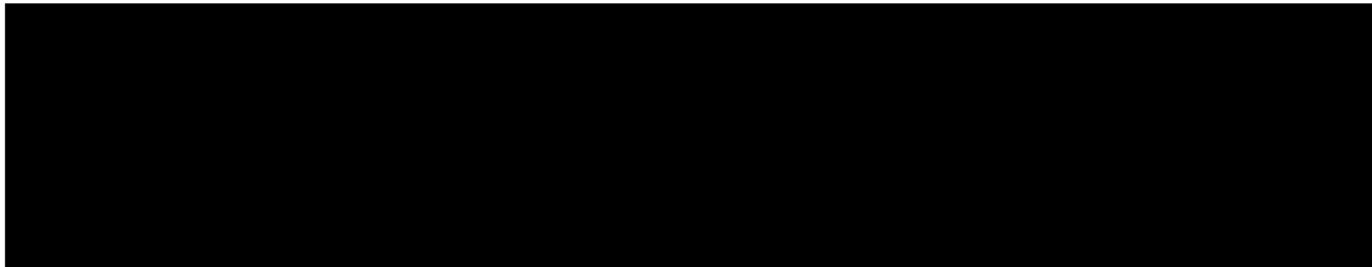




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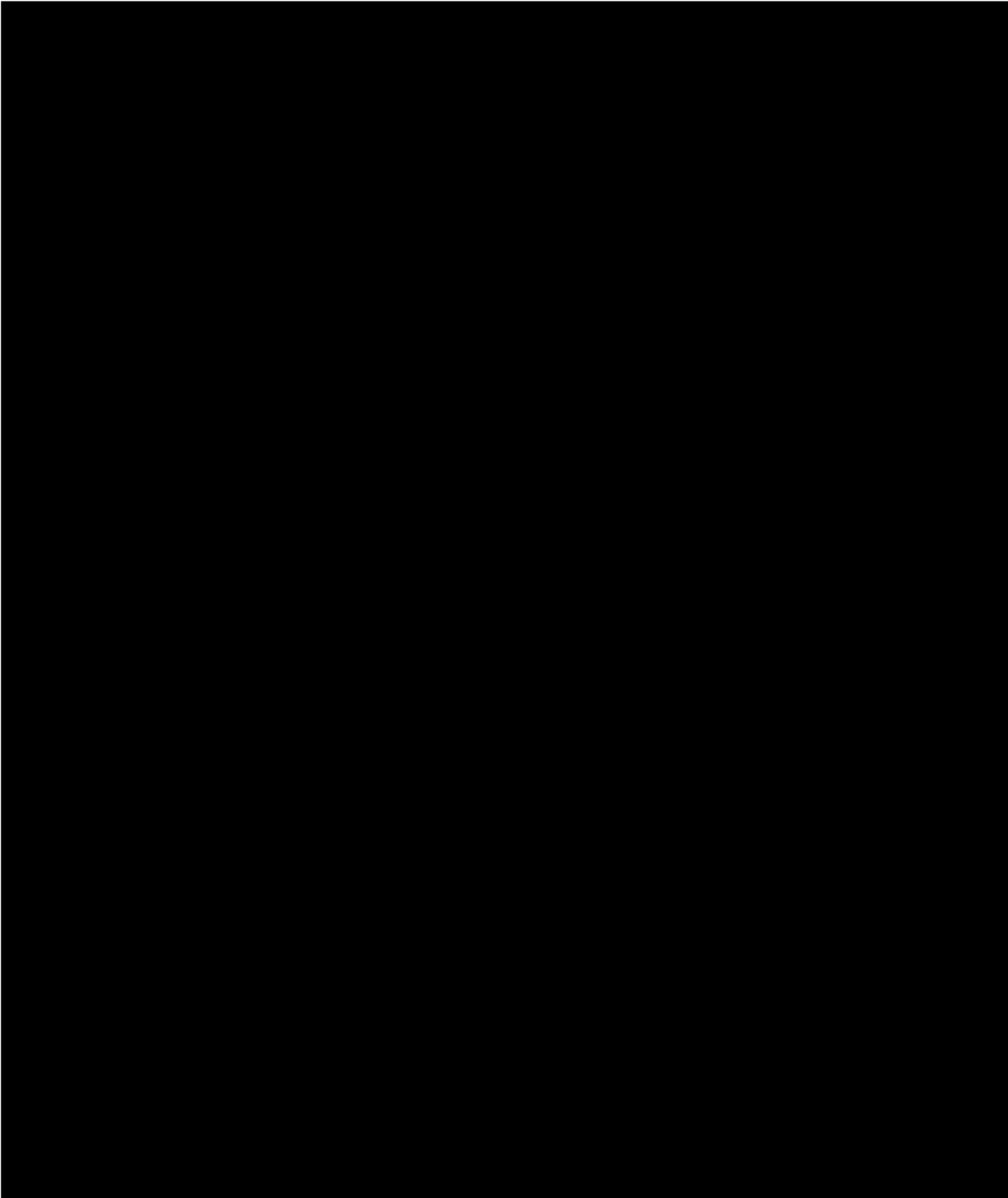
## APPENDIX D





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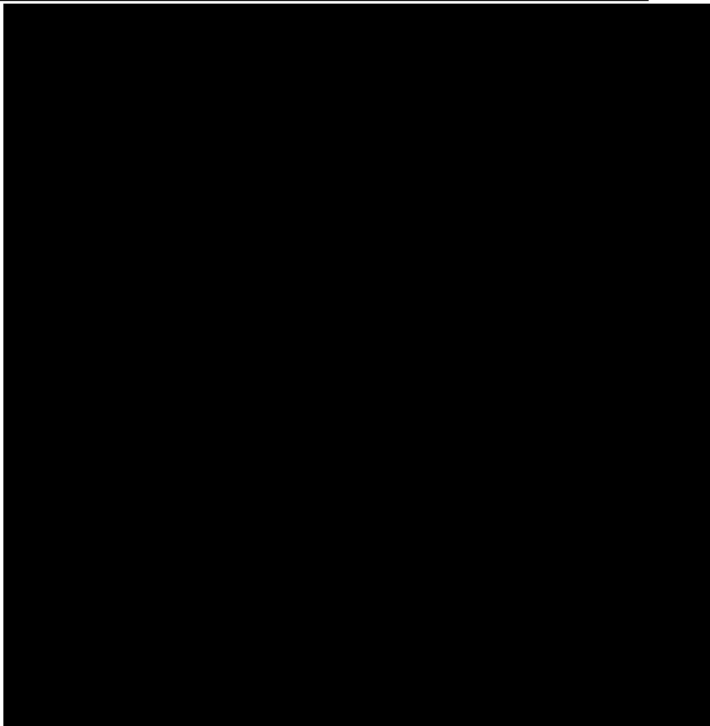
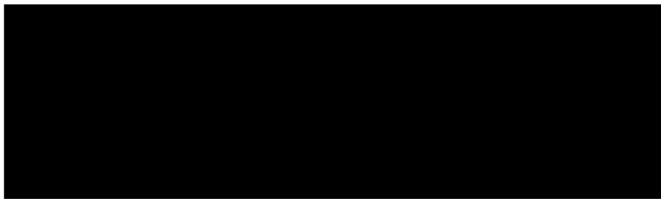
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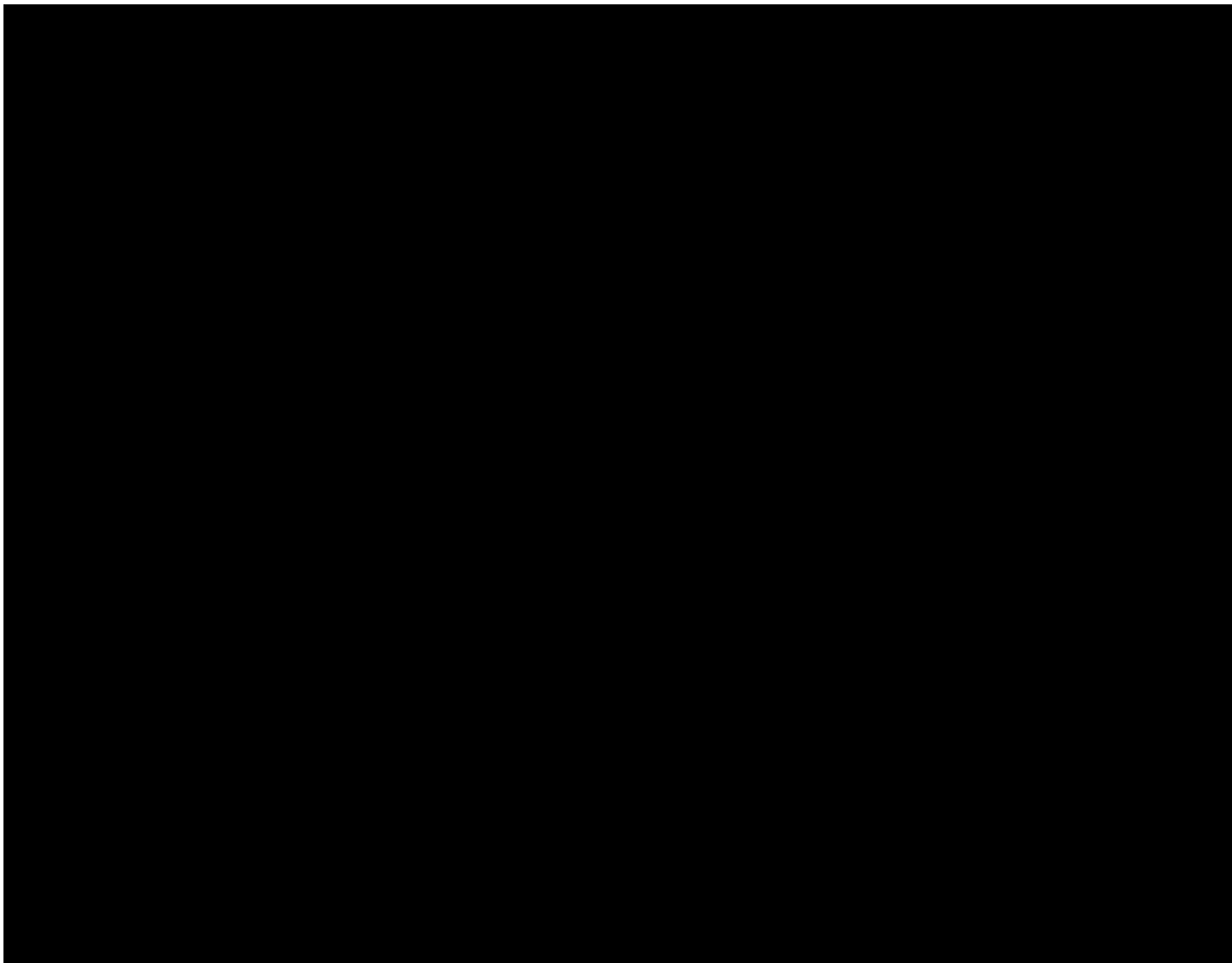


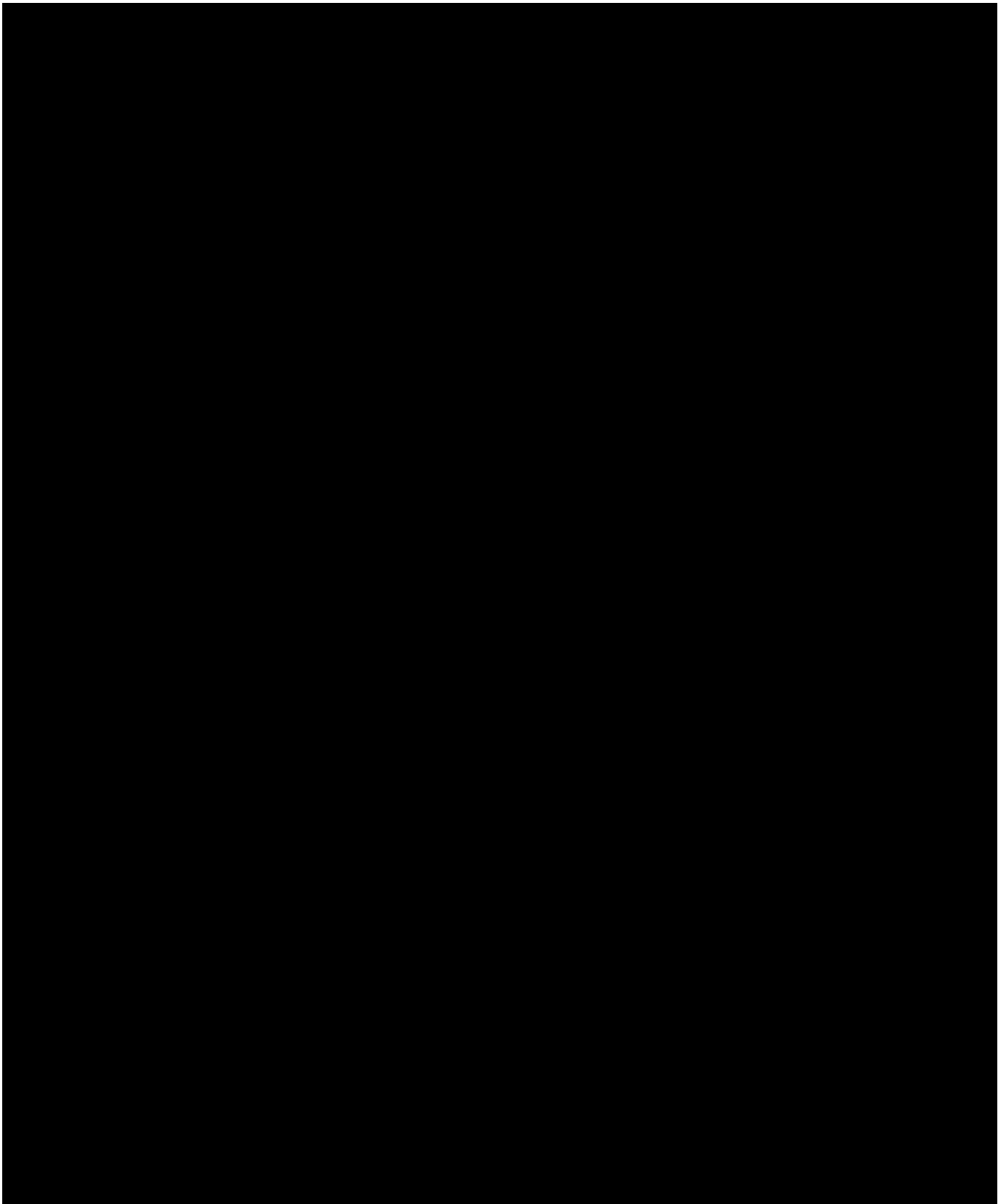
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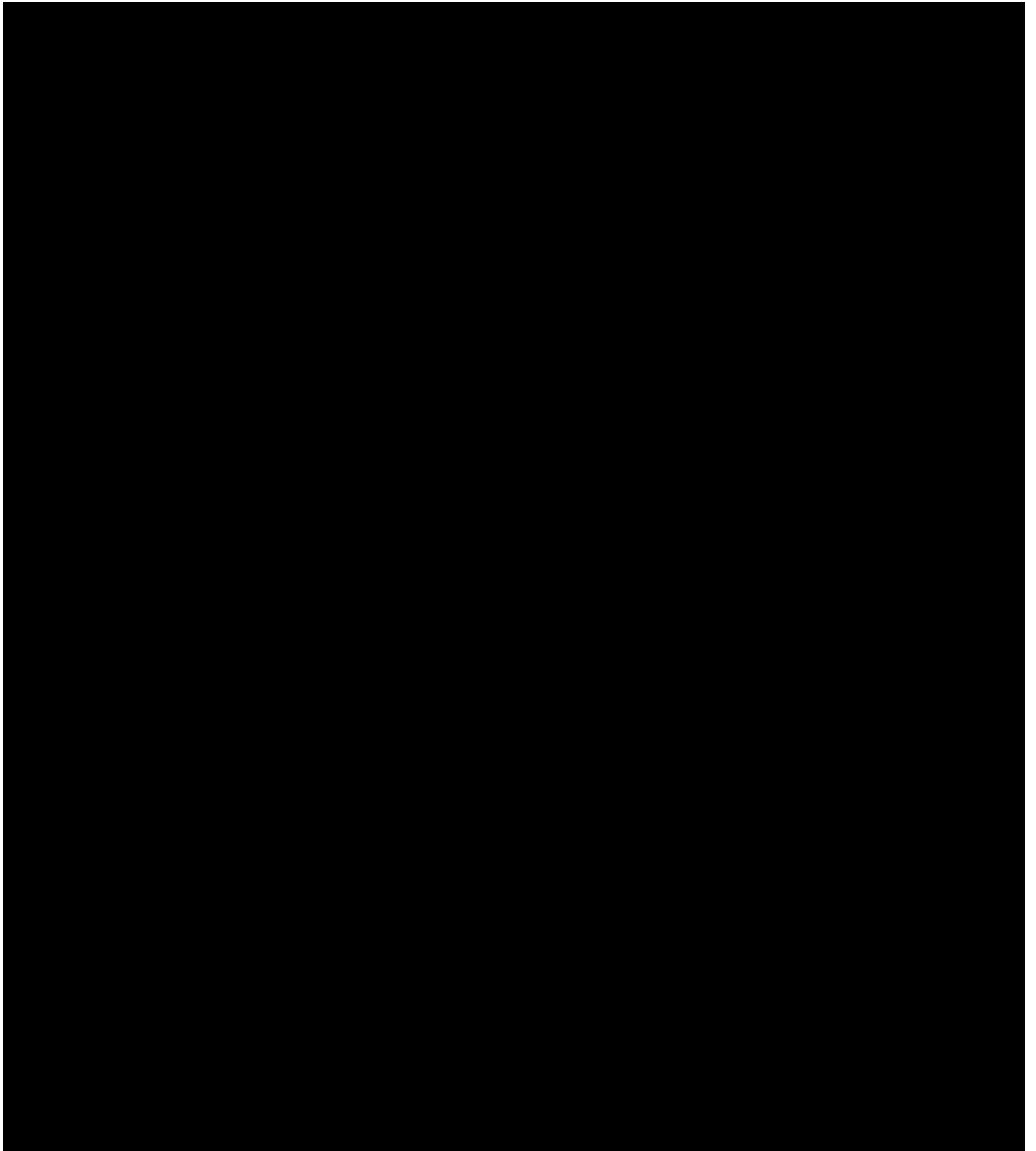
## APPENDIX E

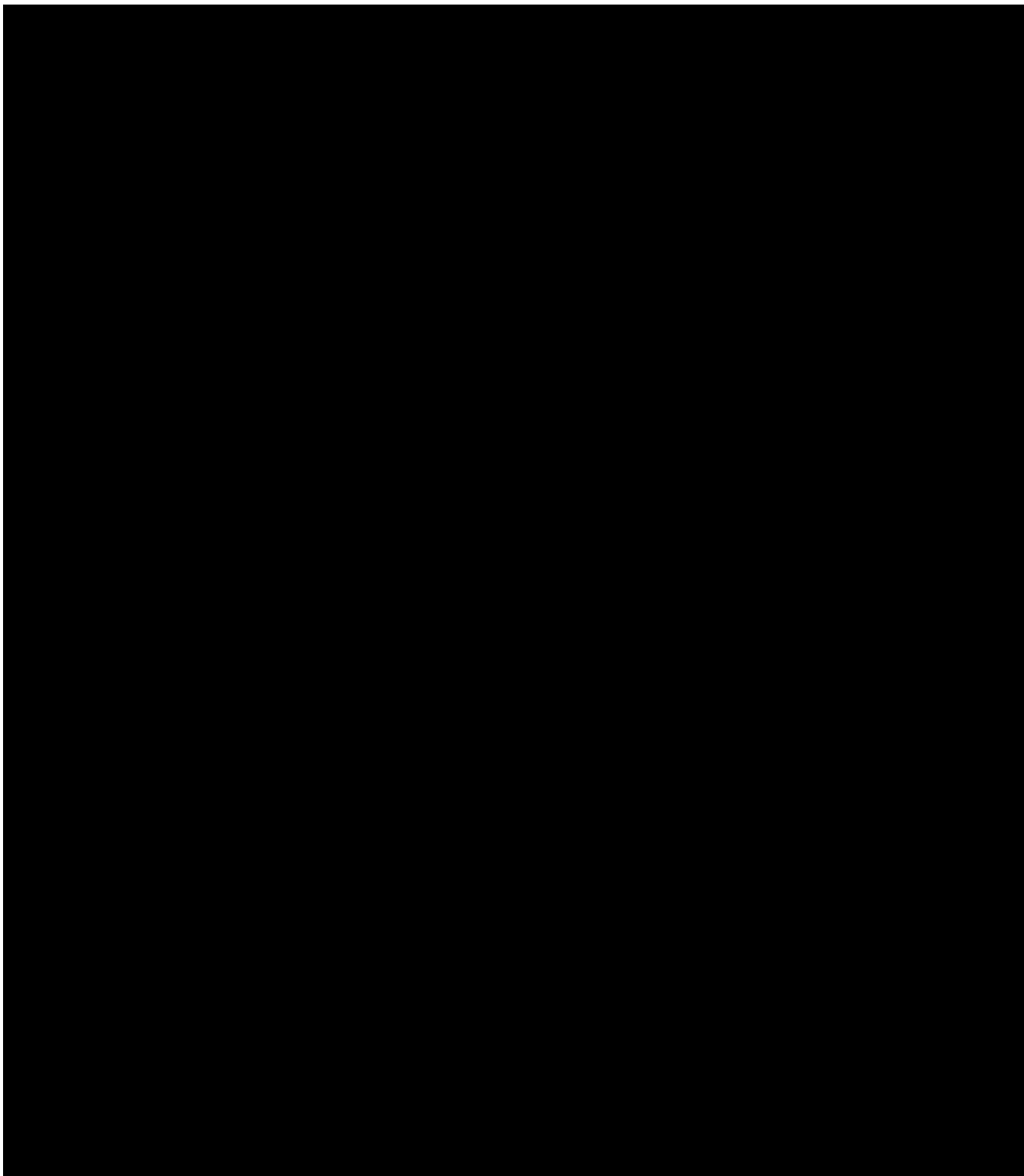


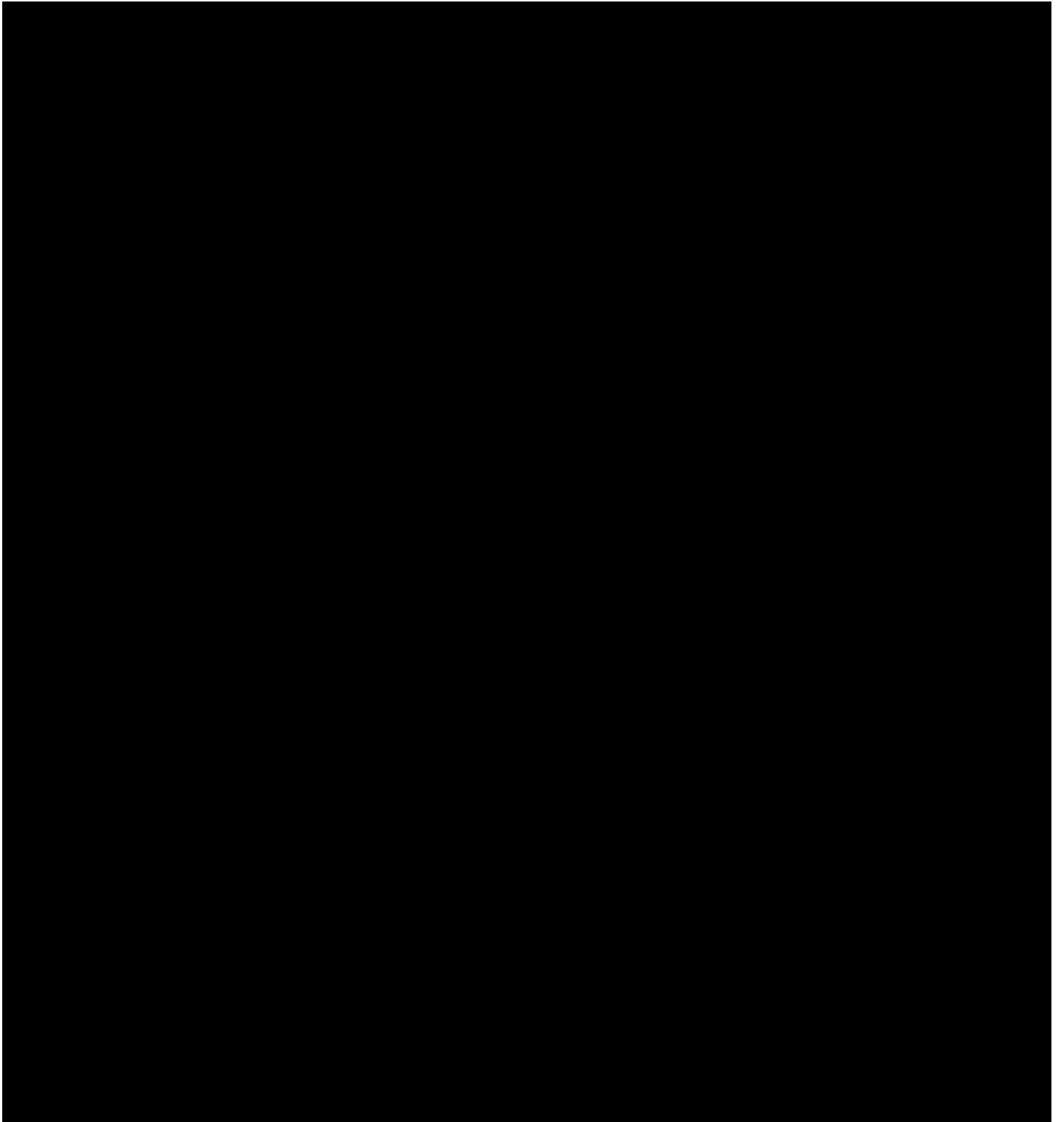


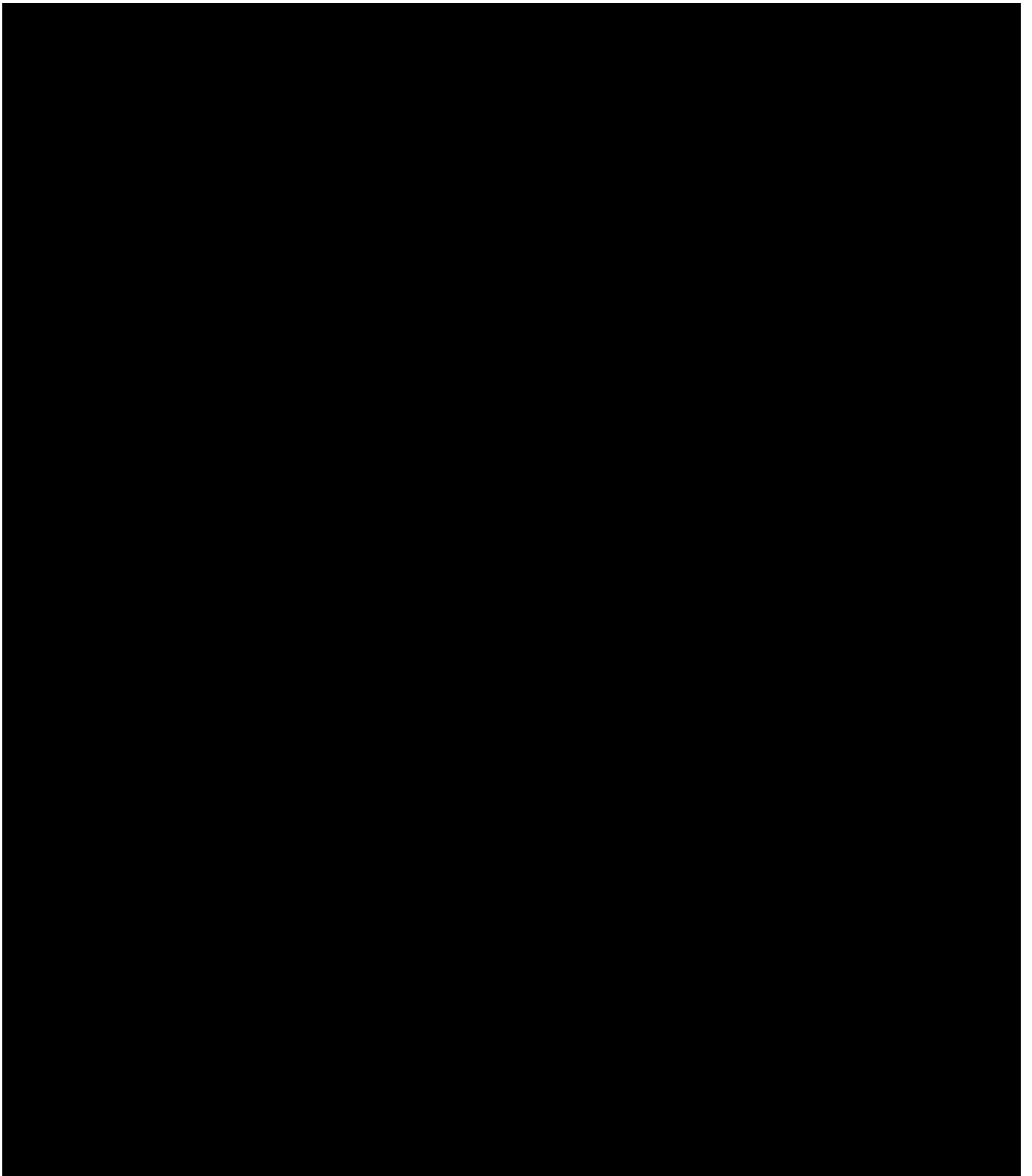


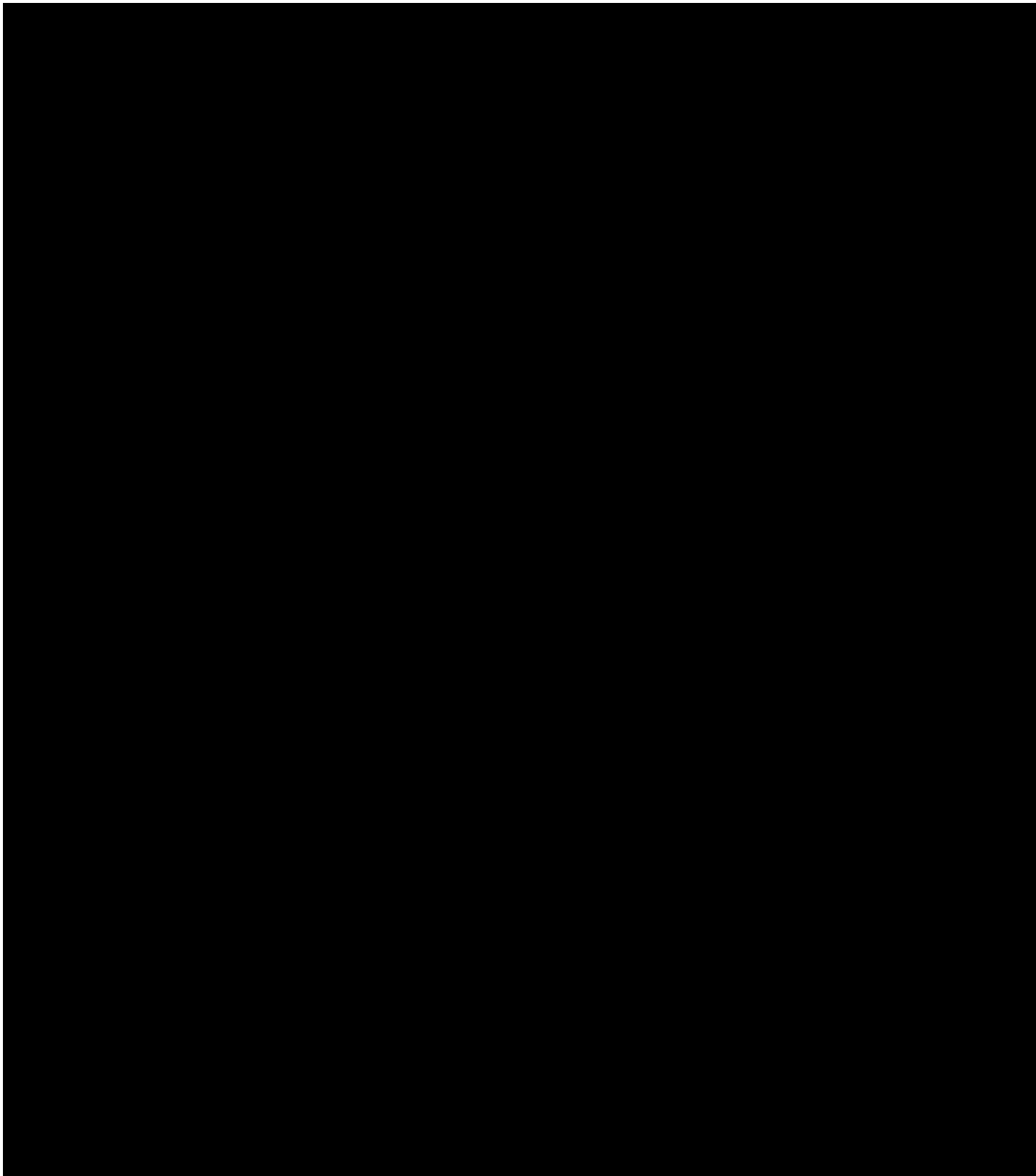


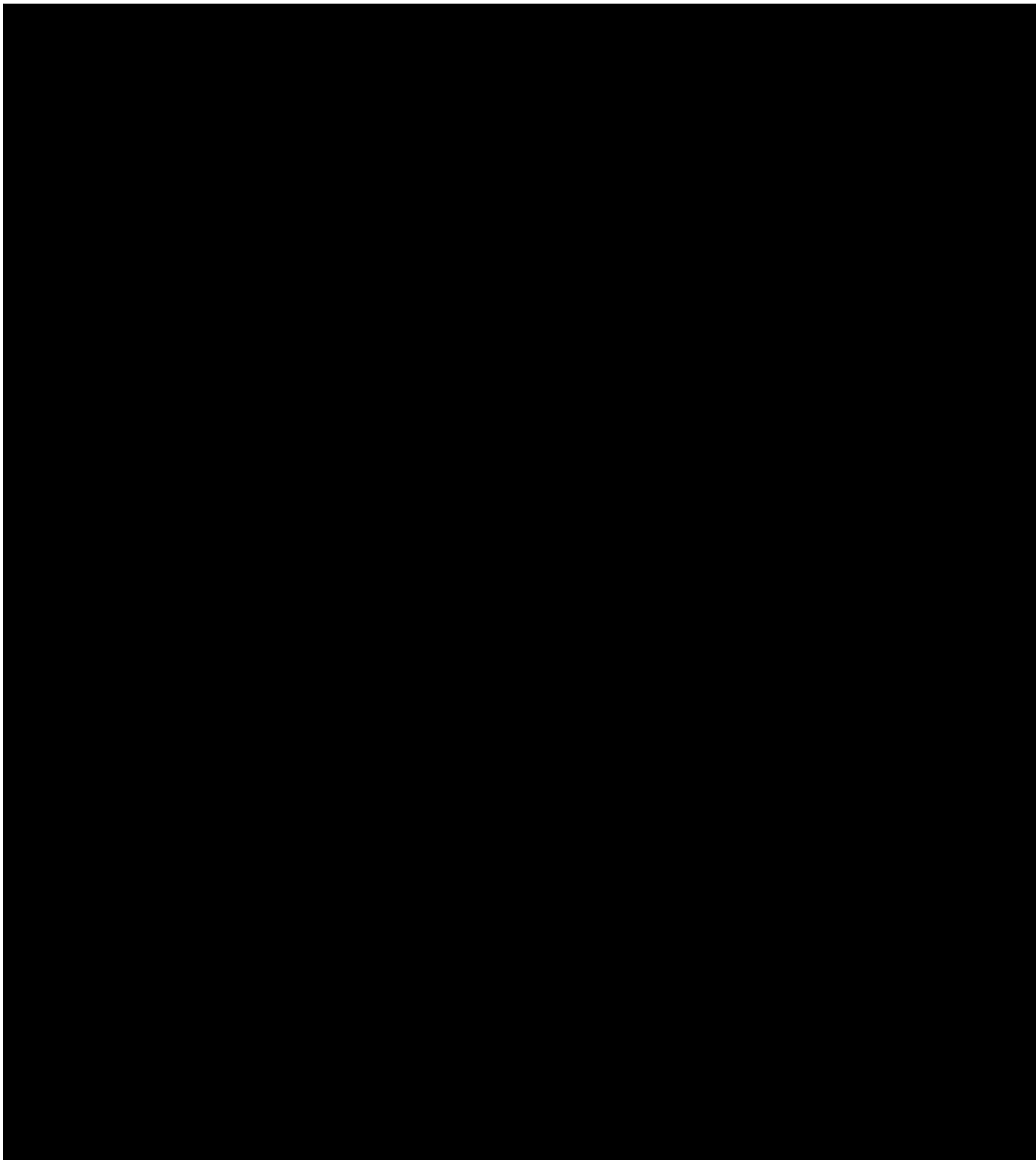


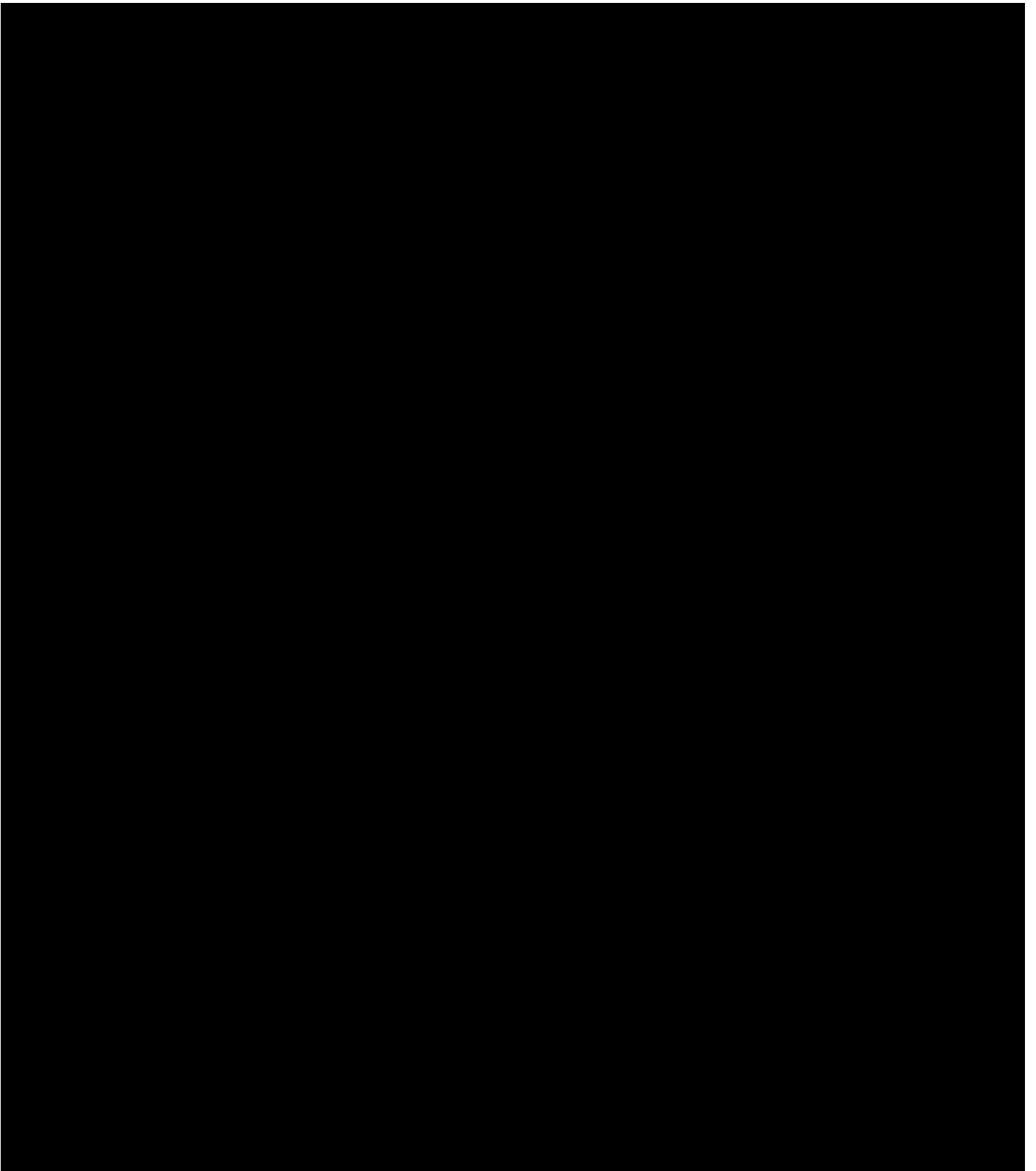


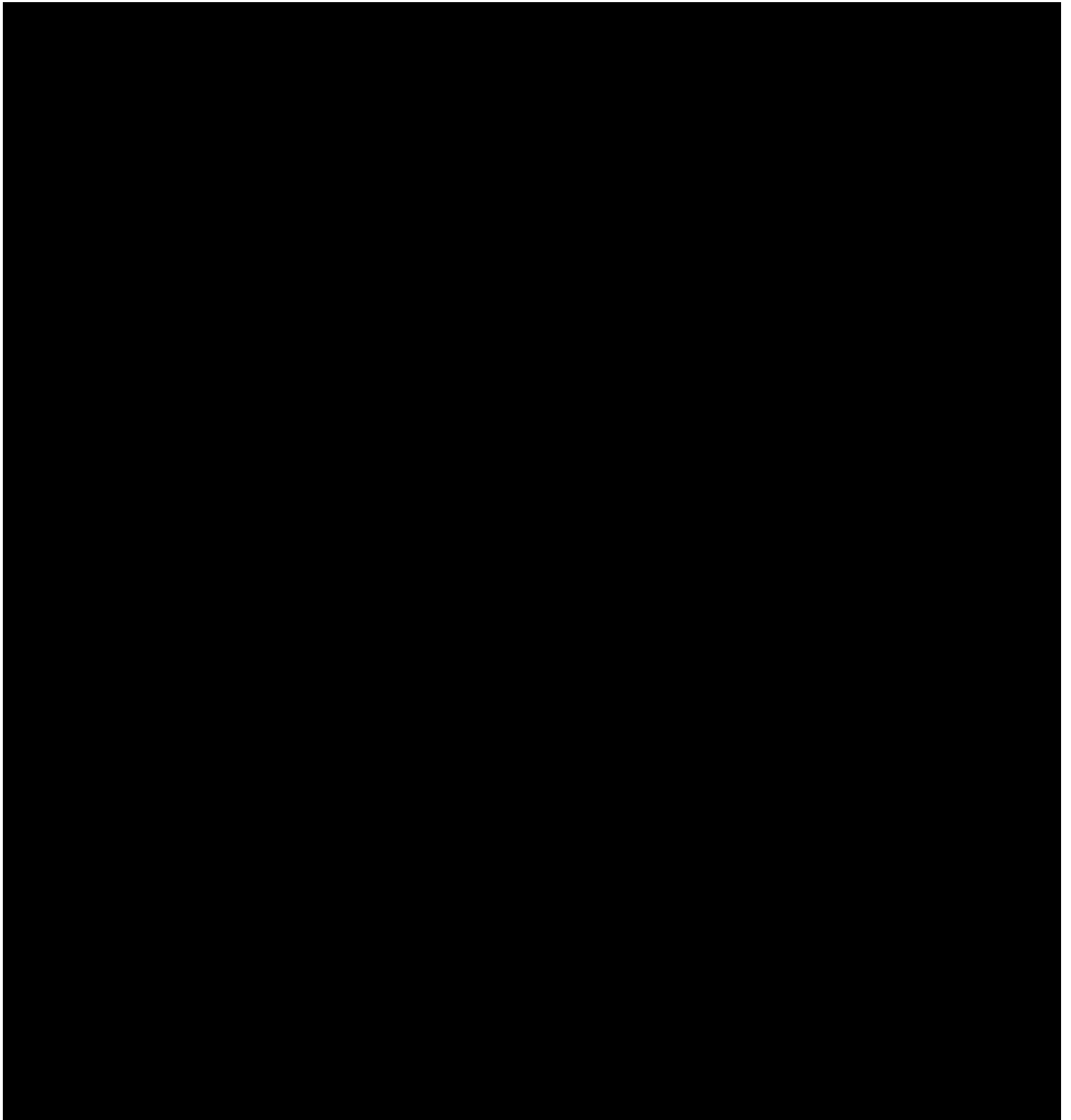


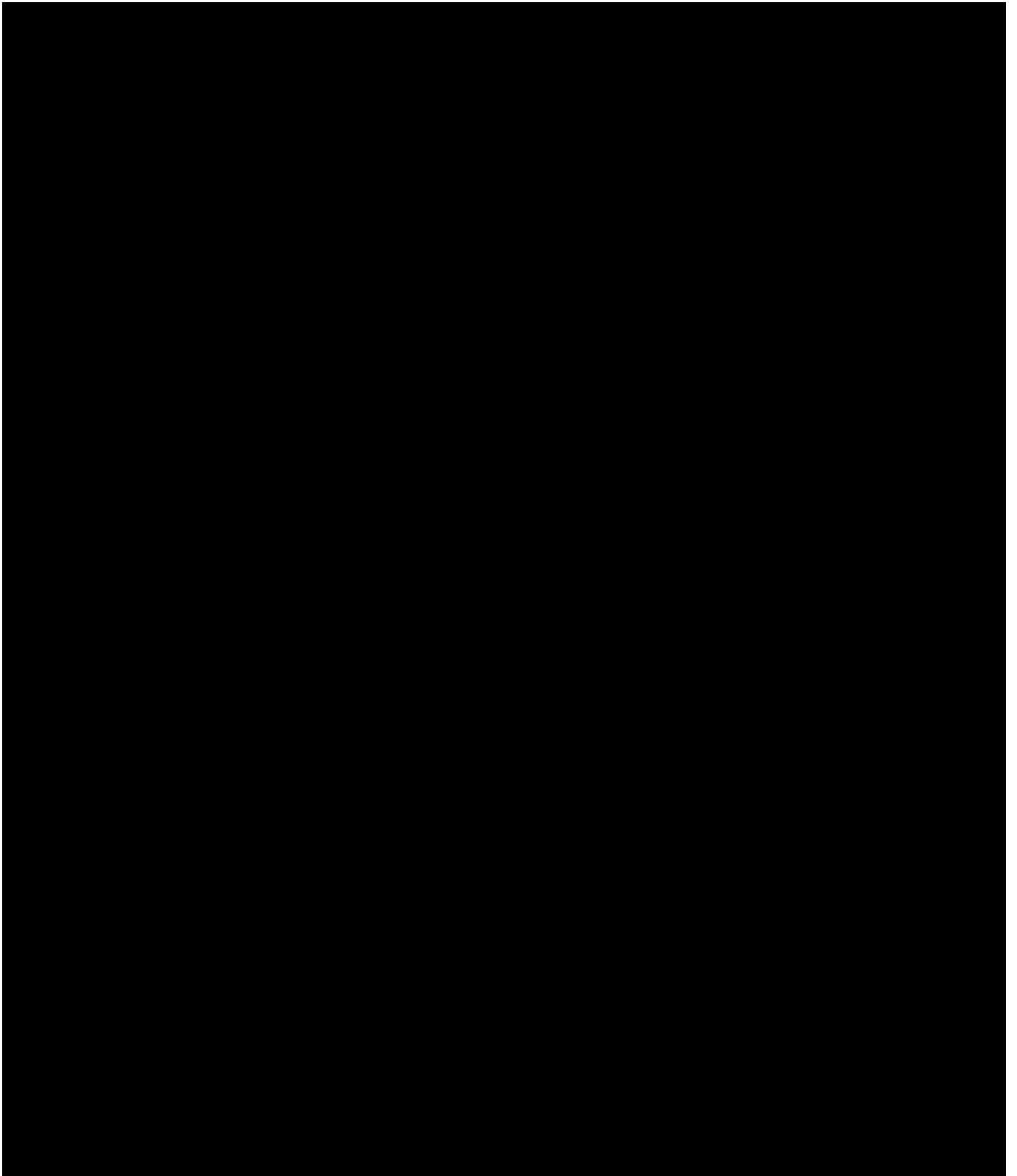


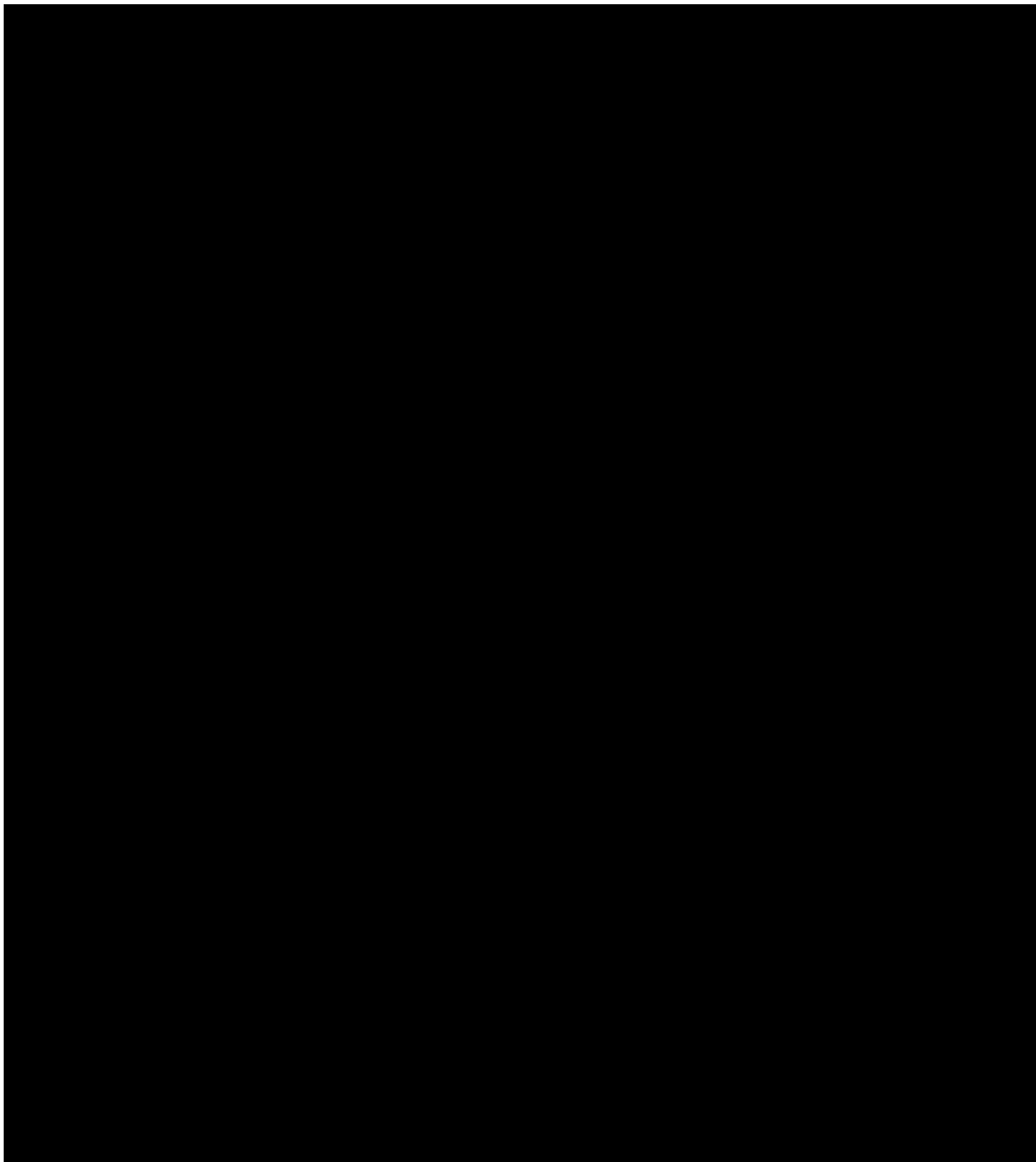


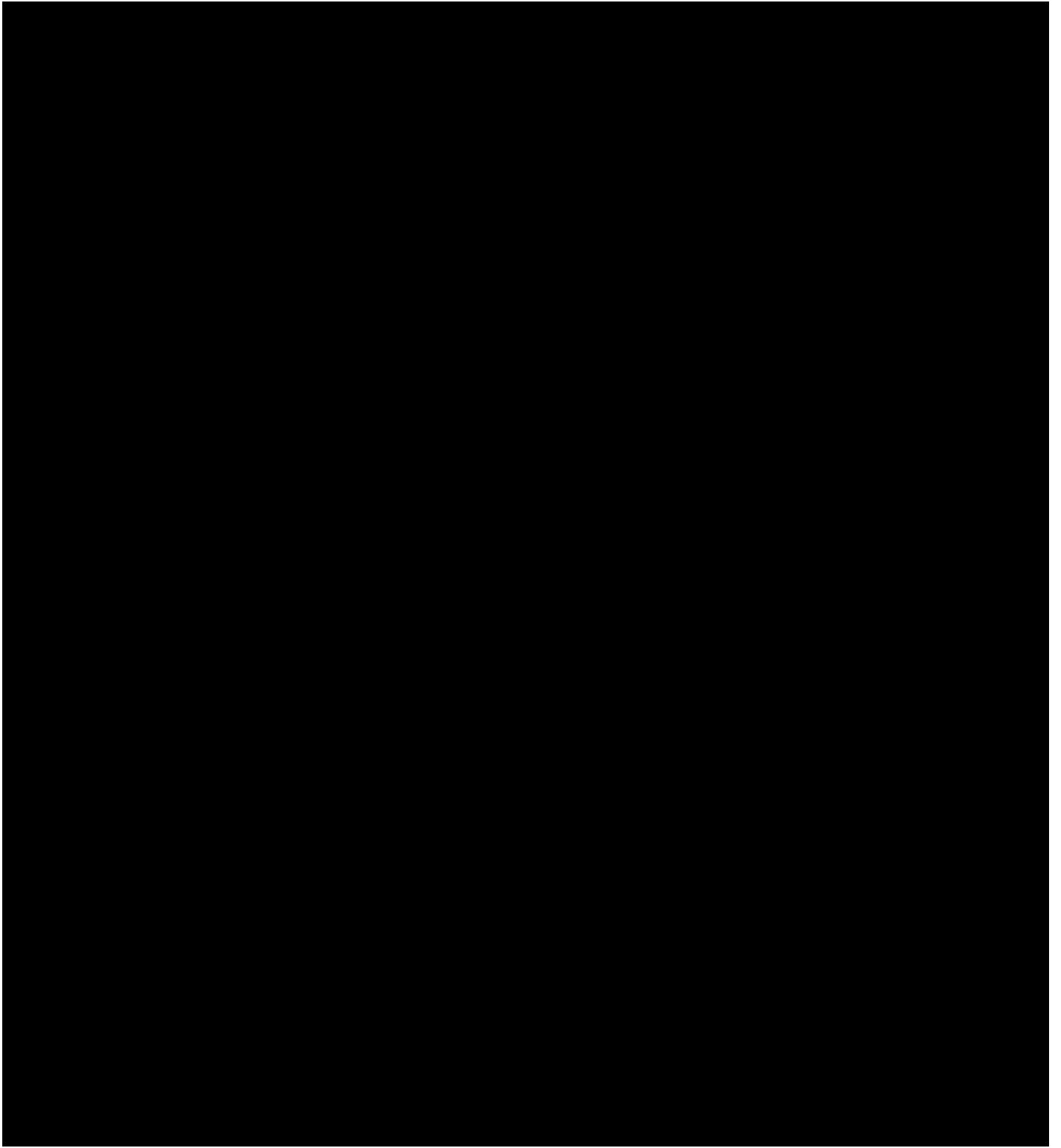


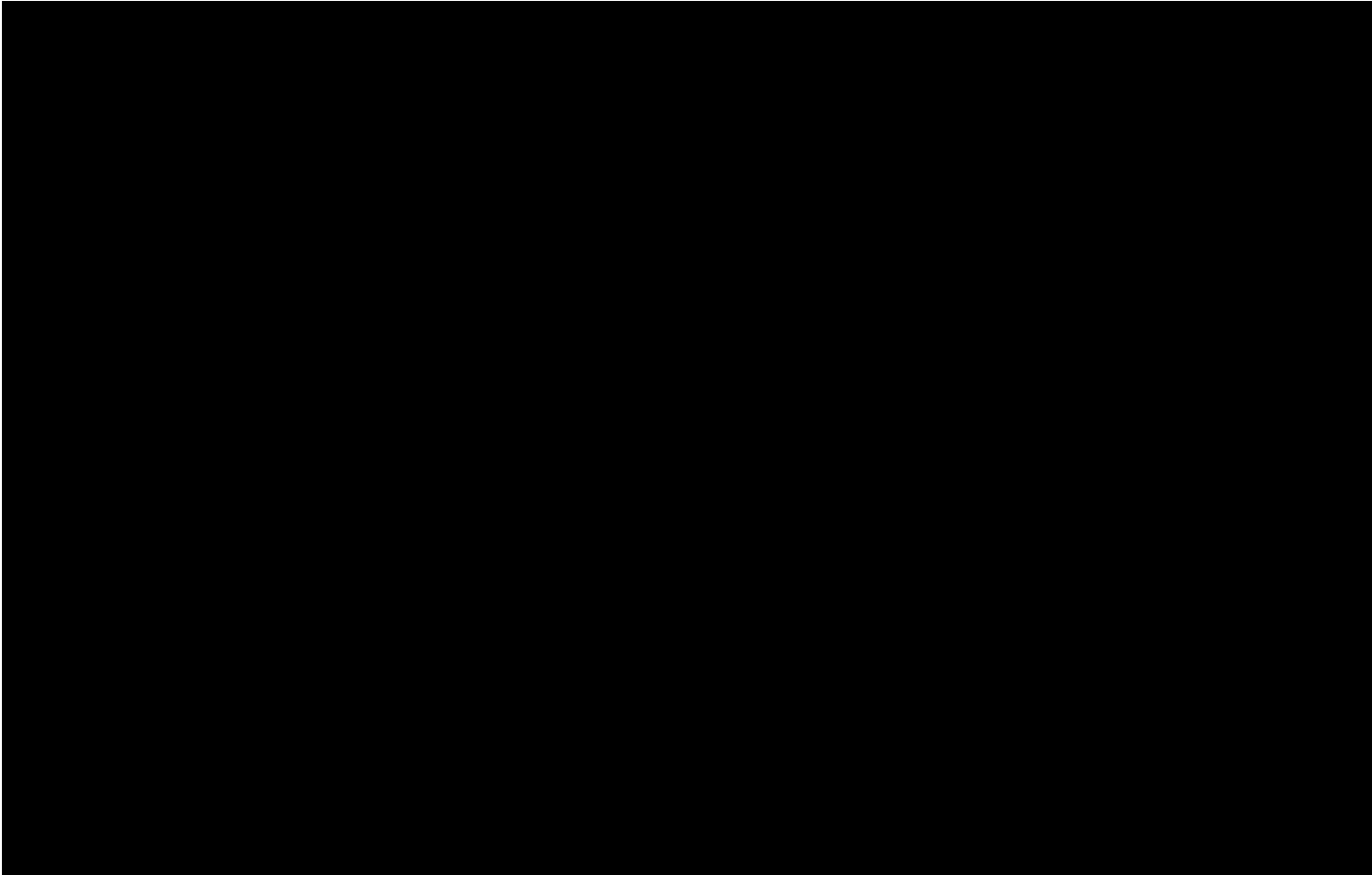


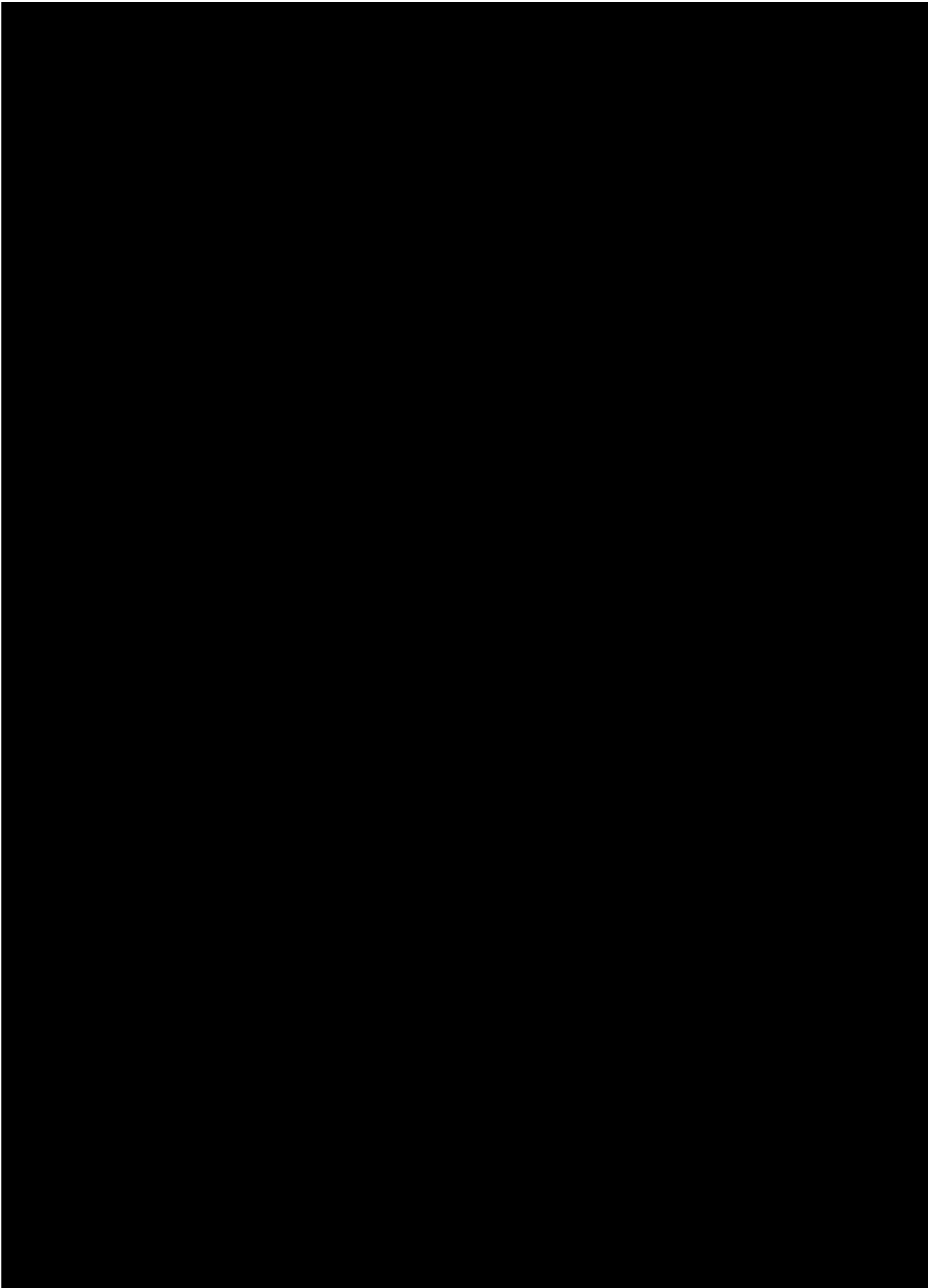


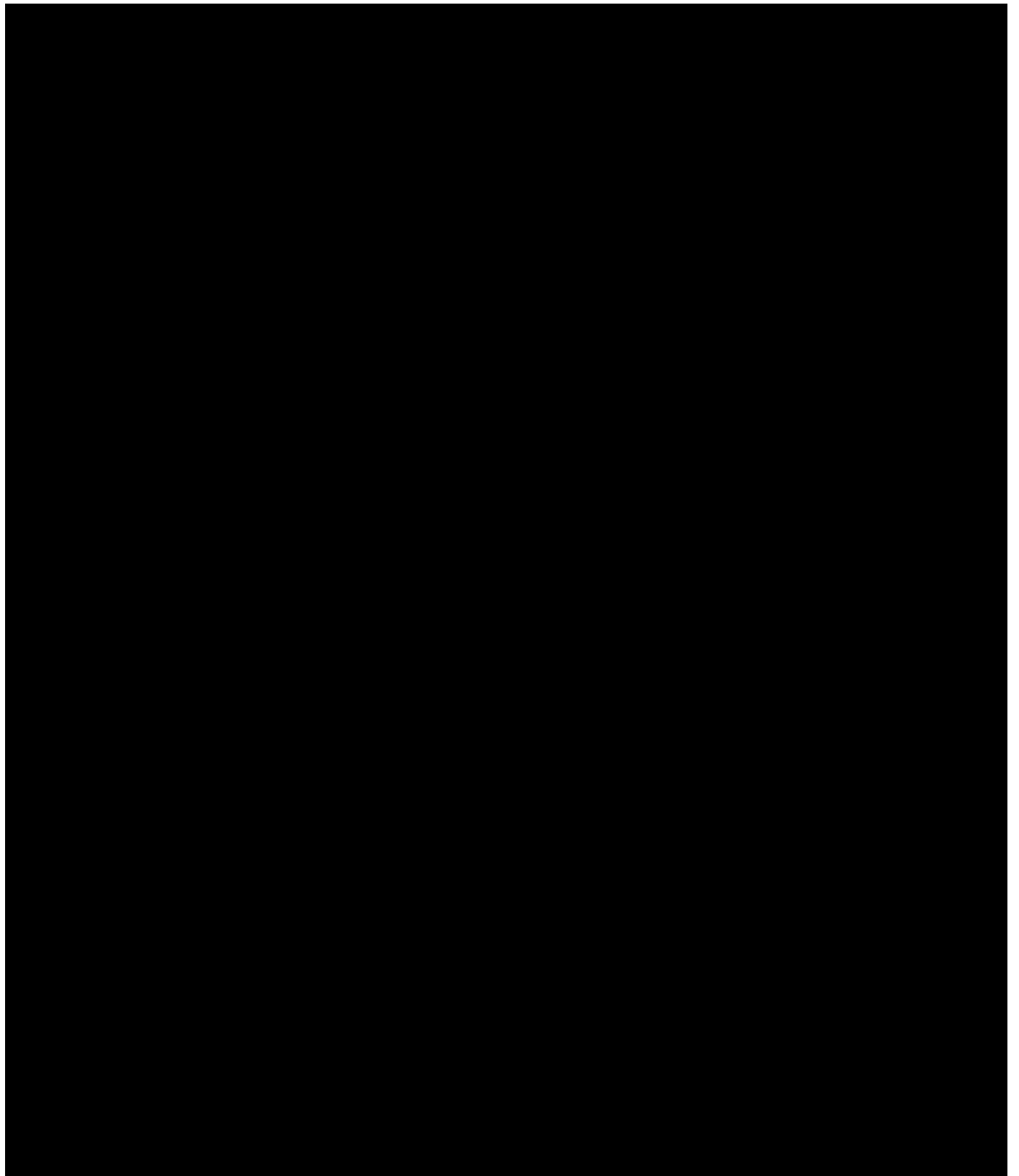


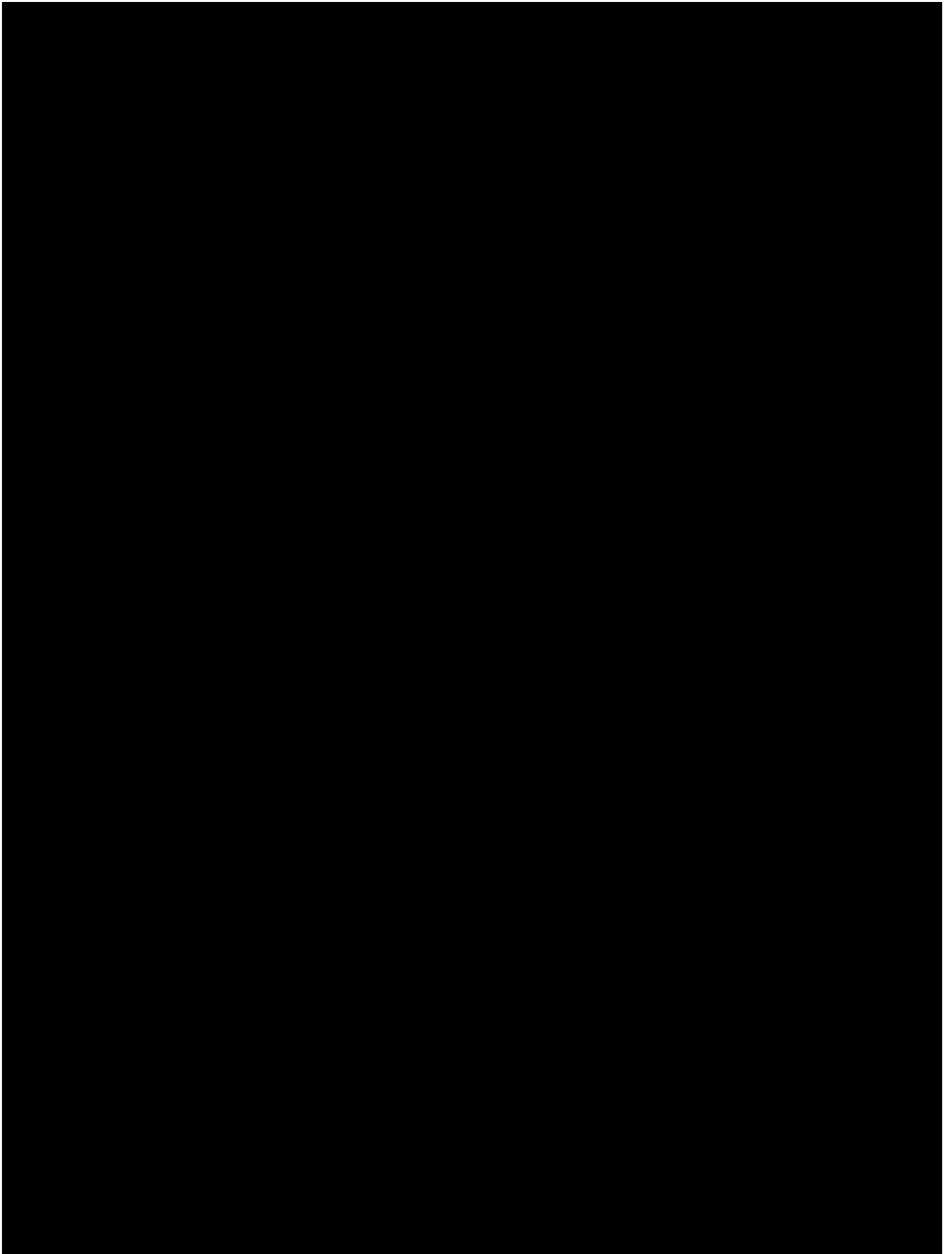


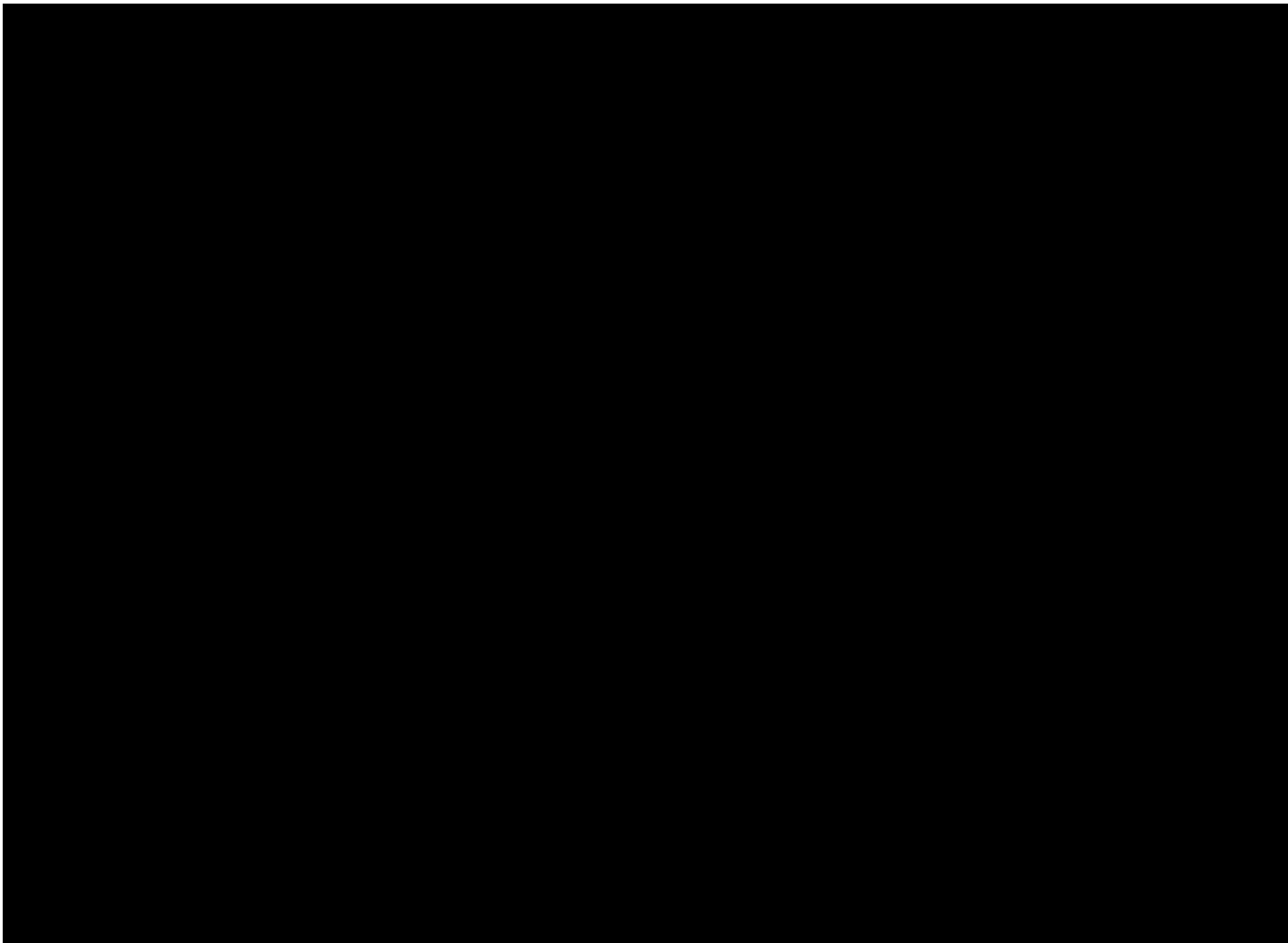


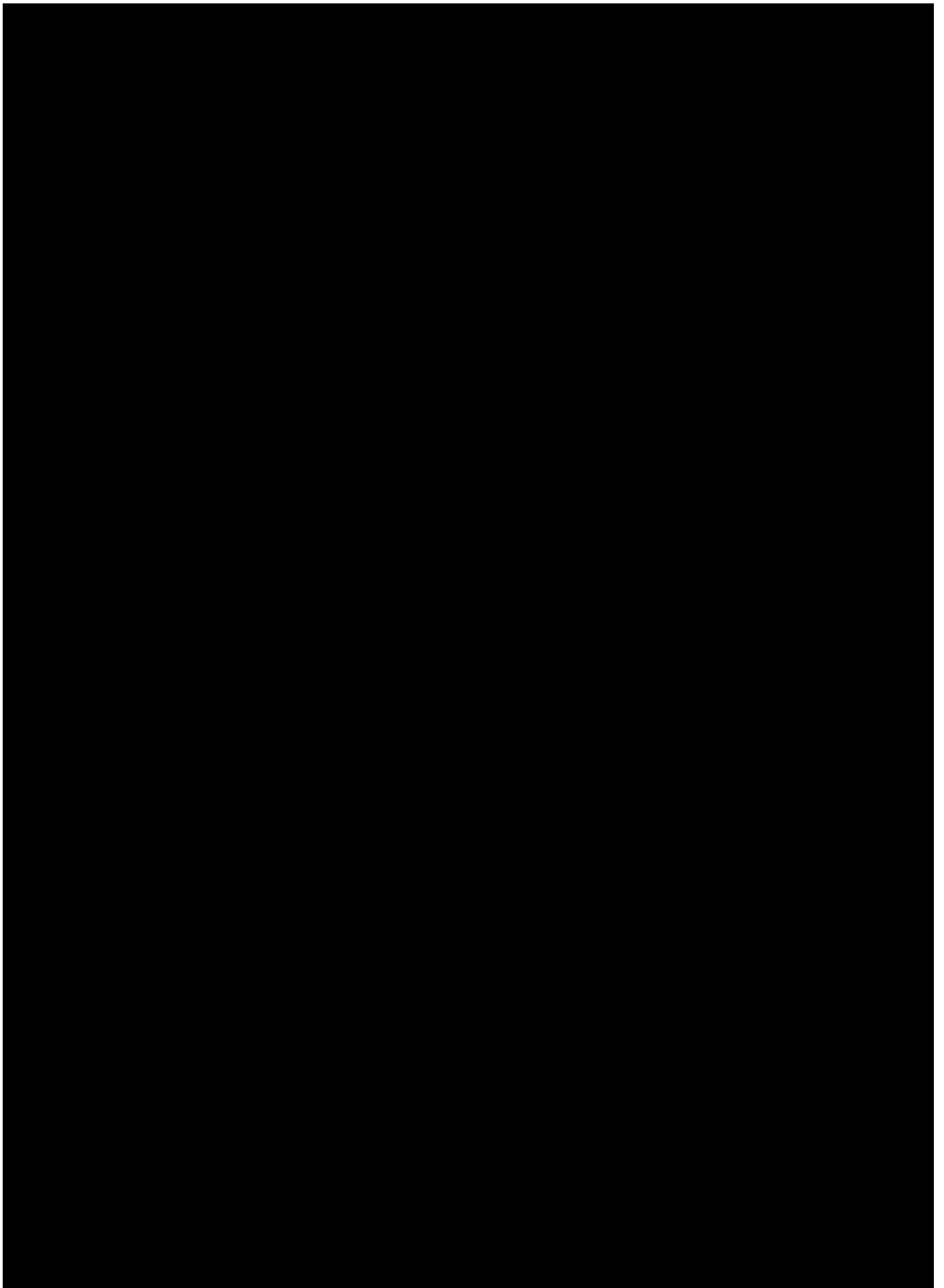


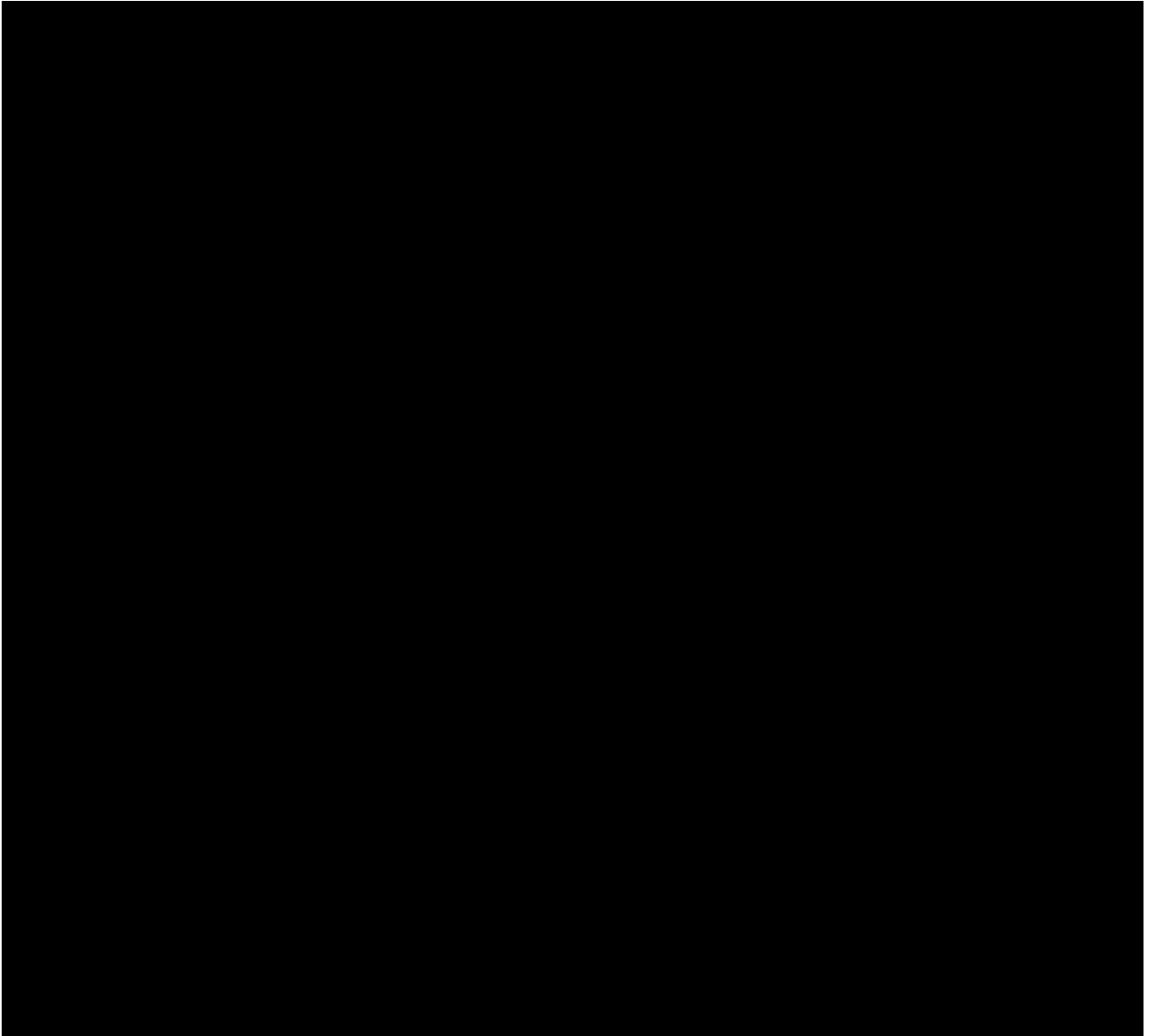


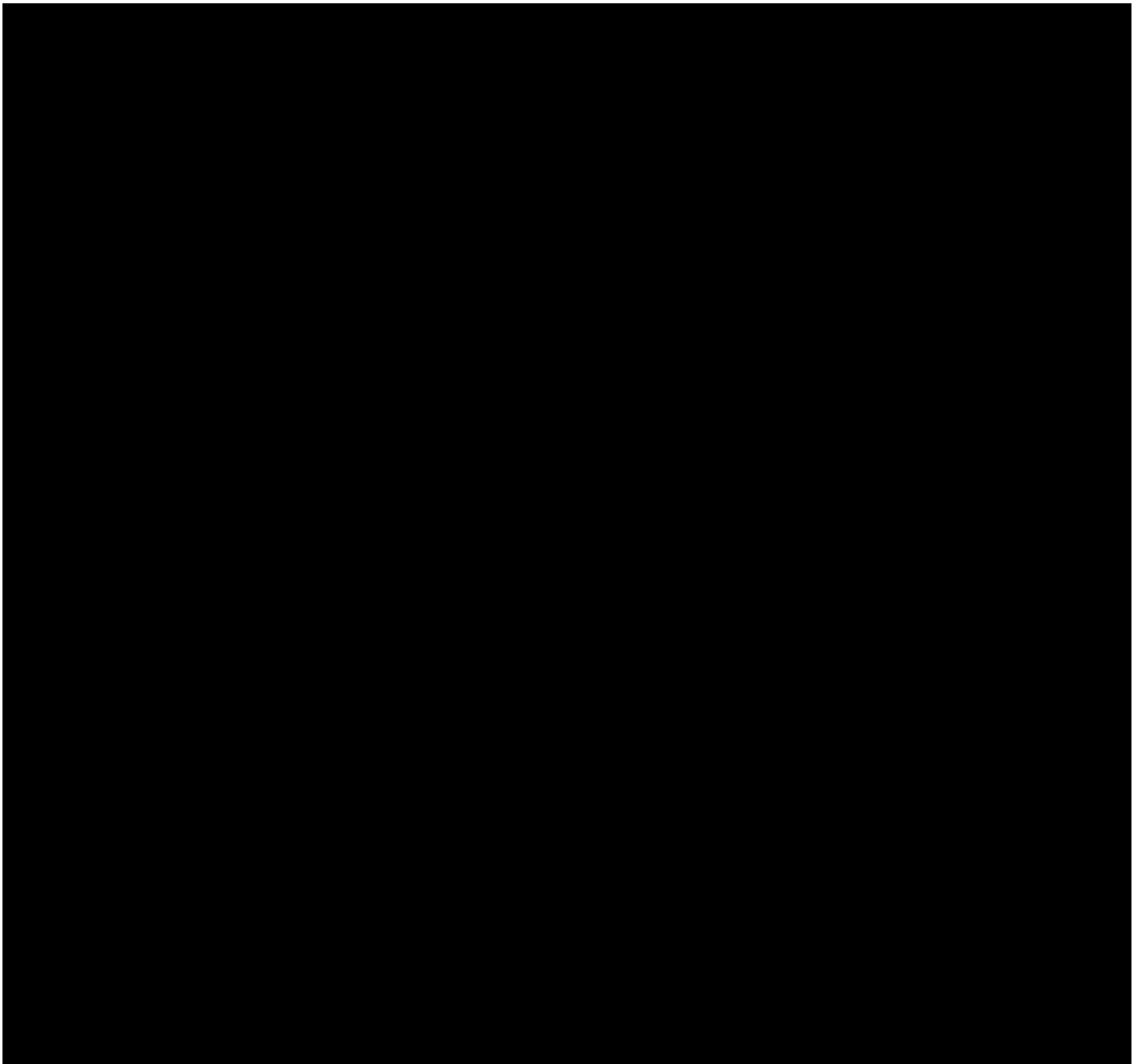




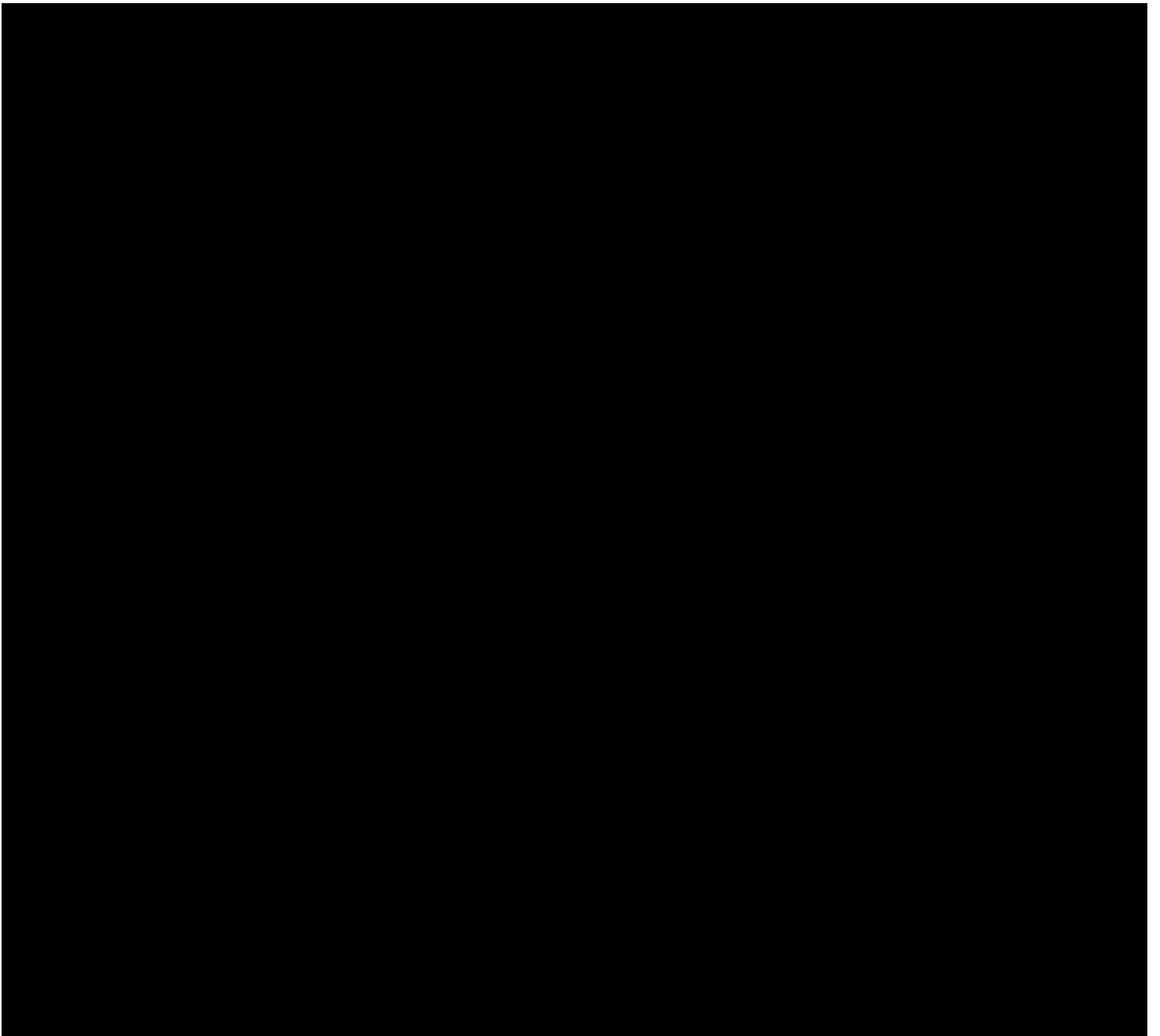


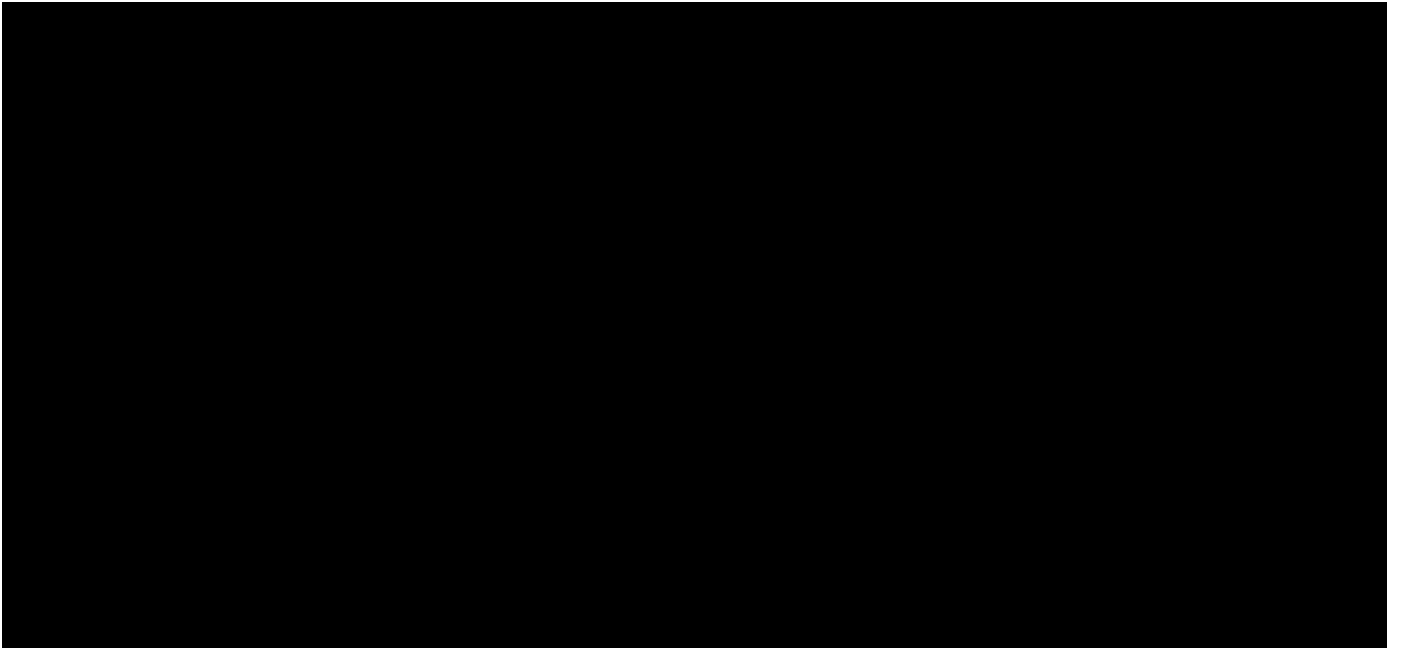


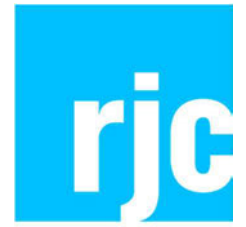






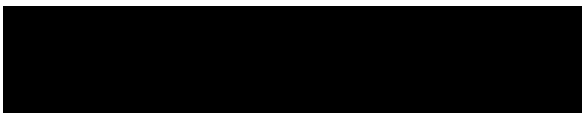


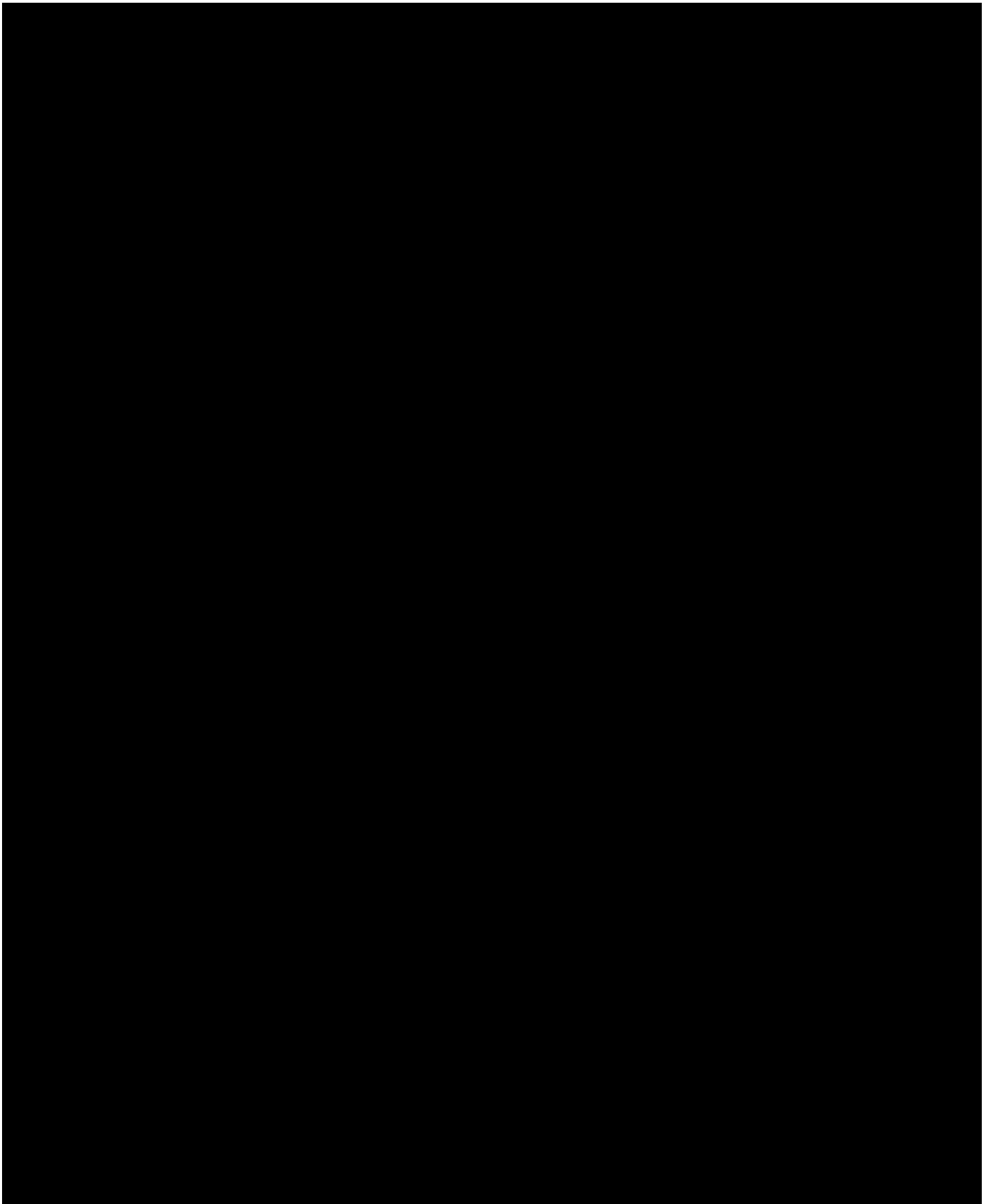


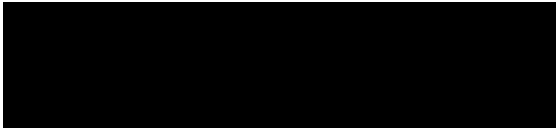
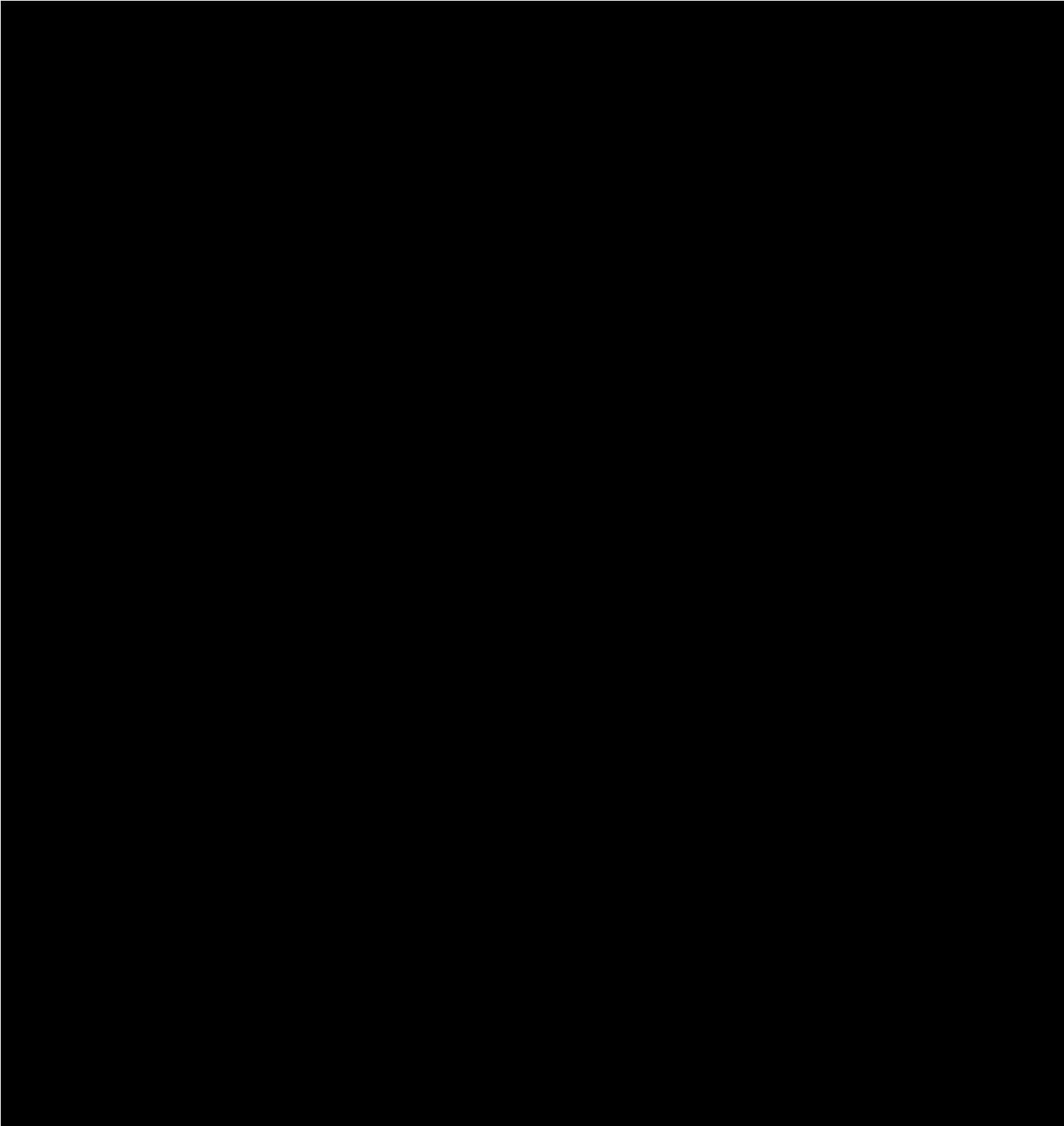


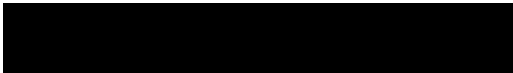
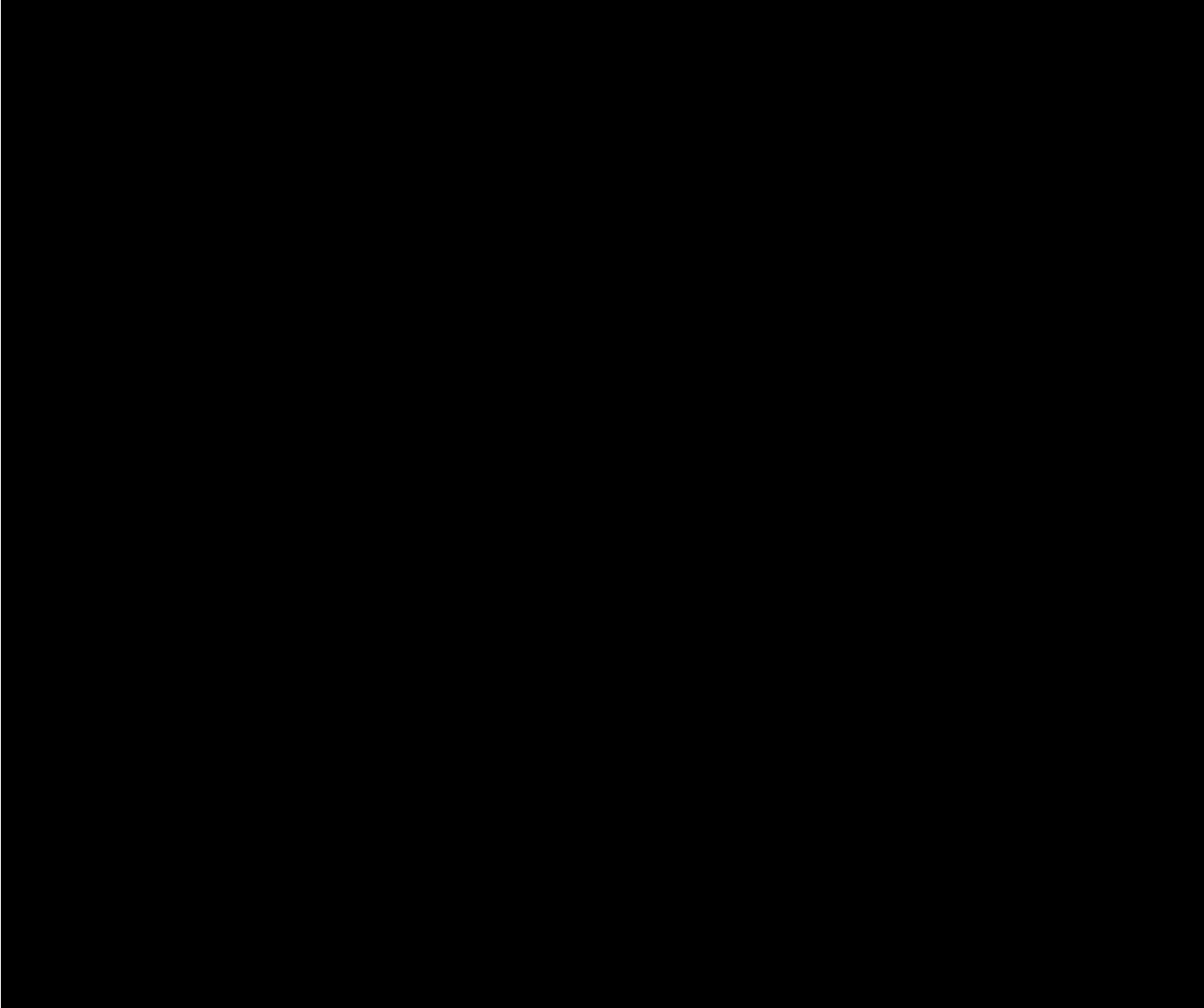
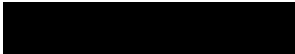
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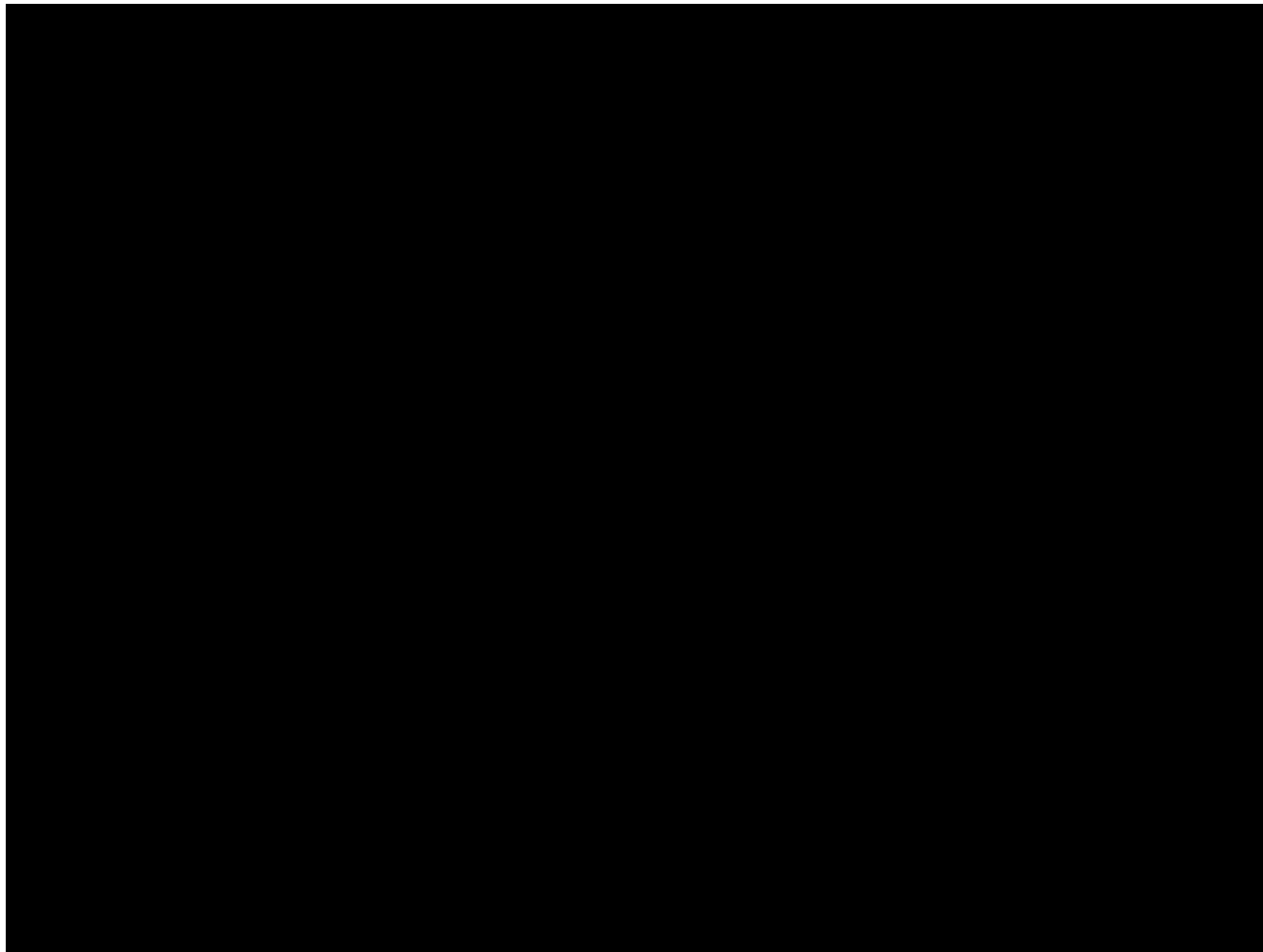
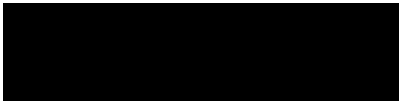
## APPENDIX F

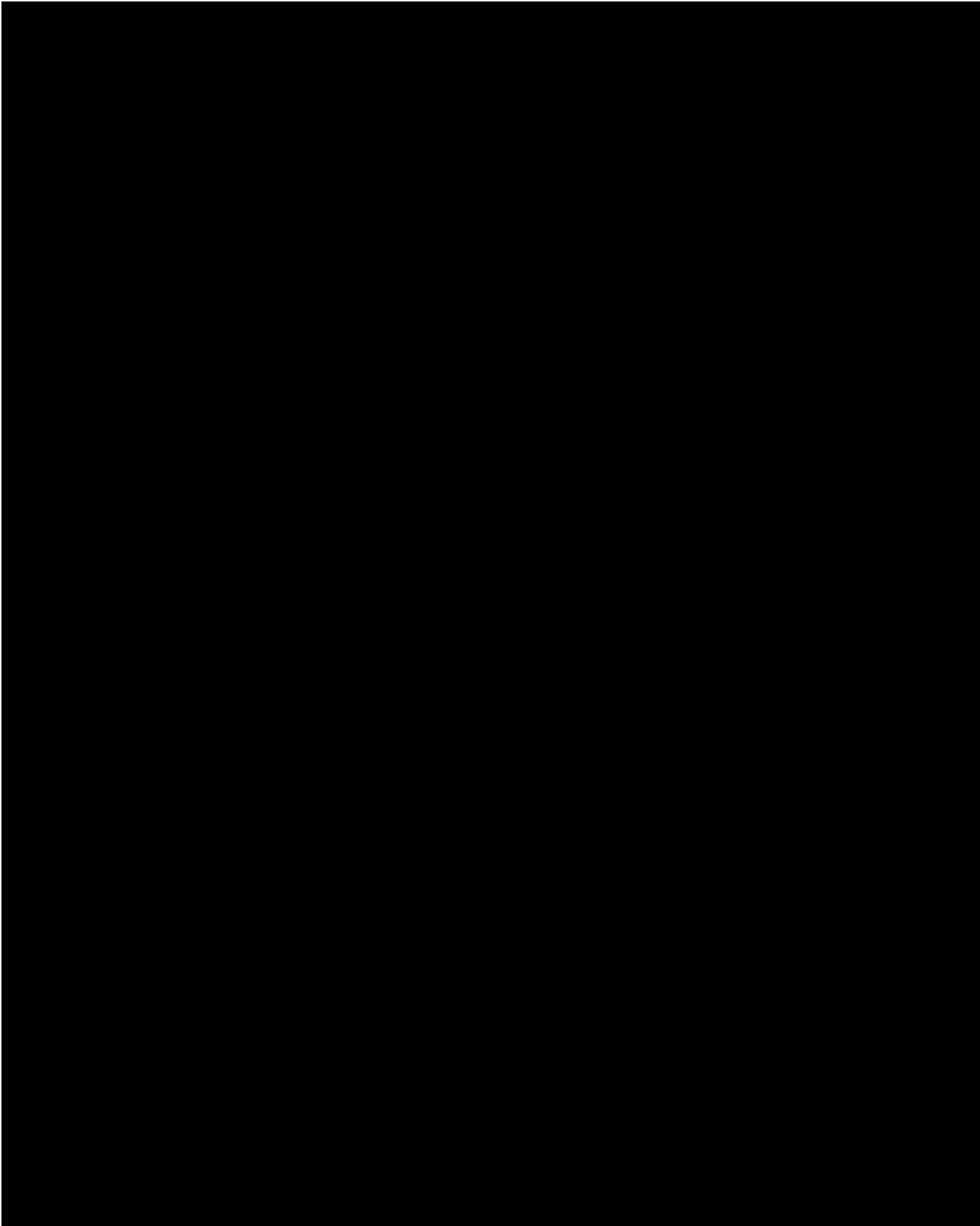
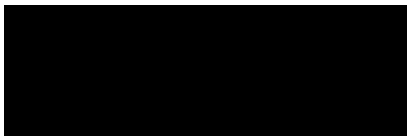


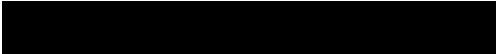
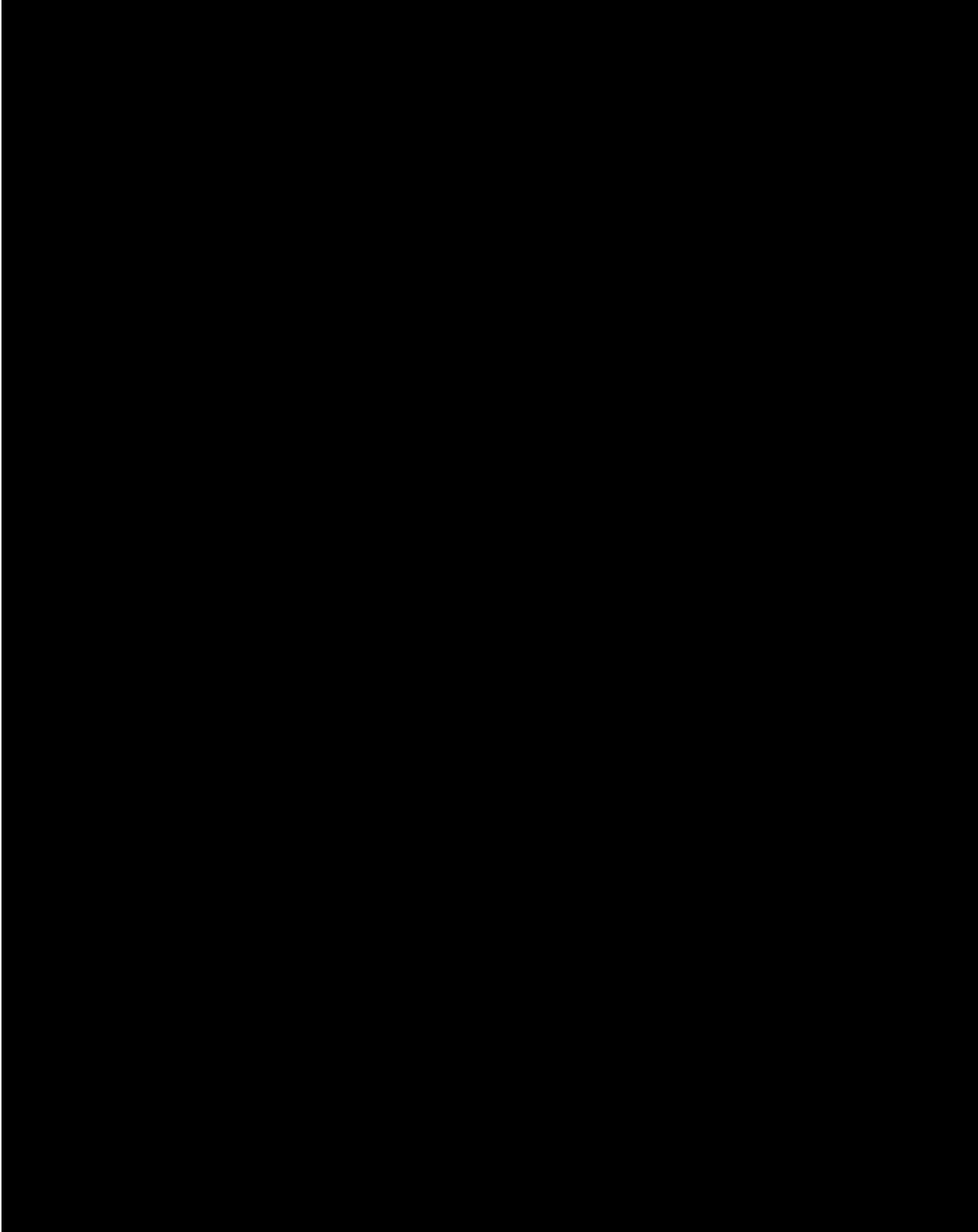
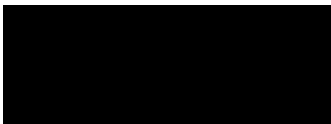


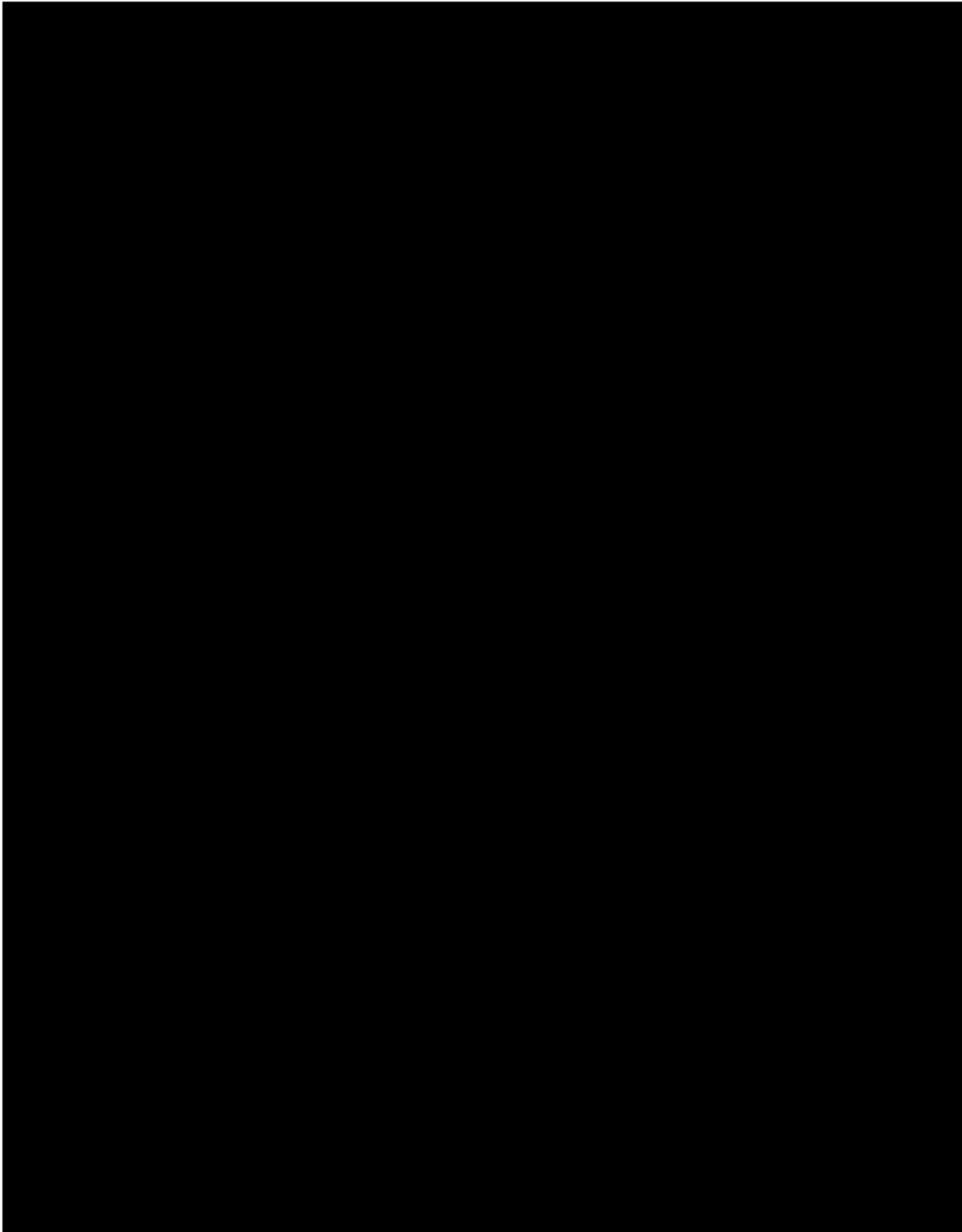








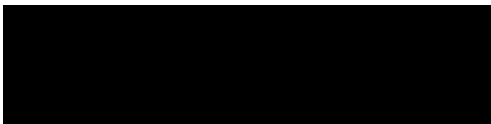


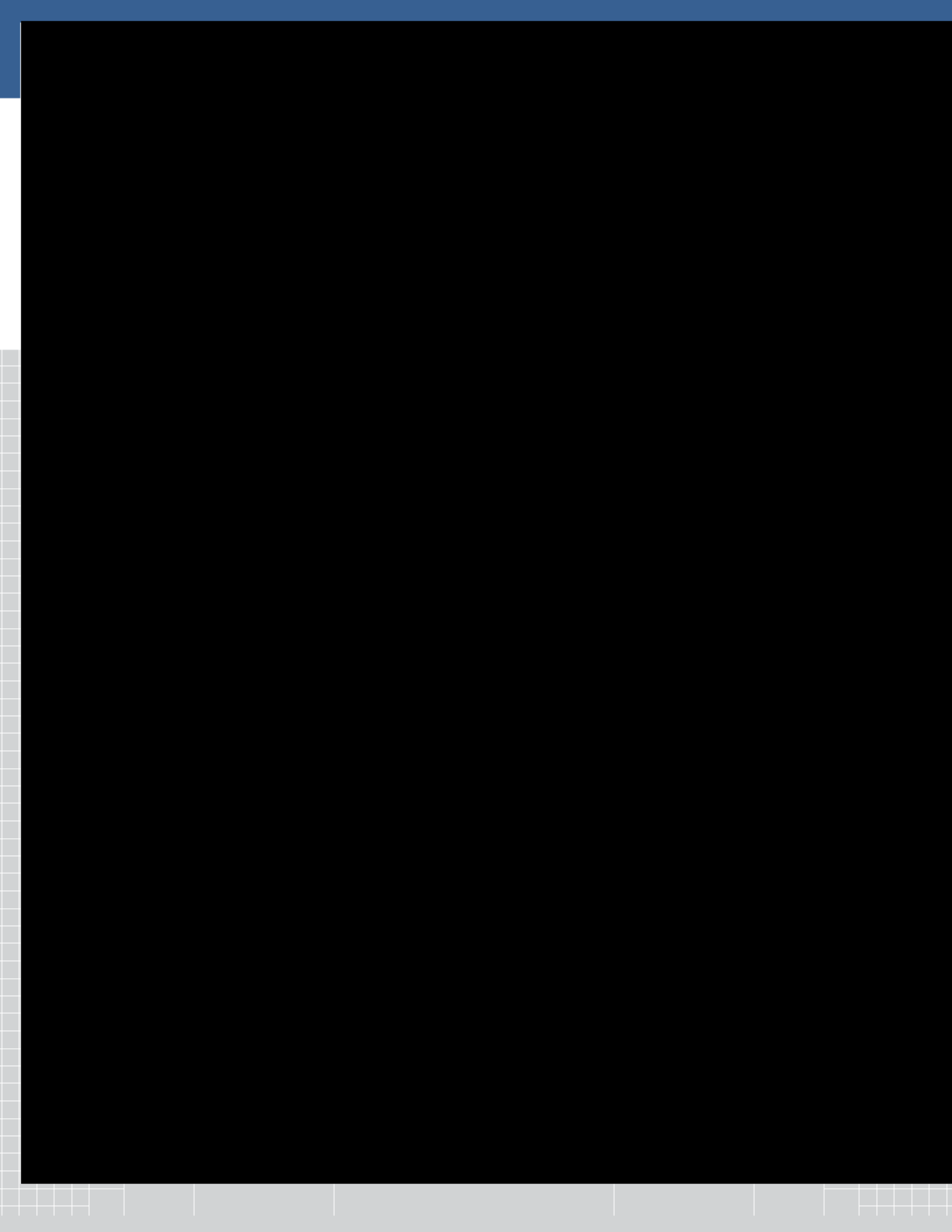


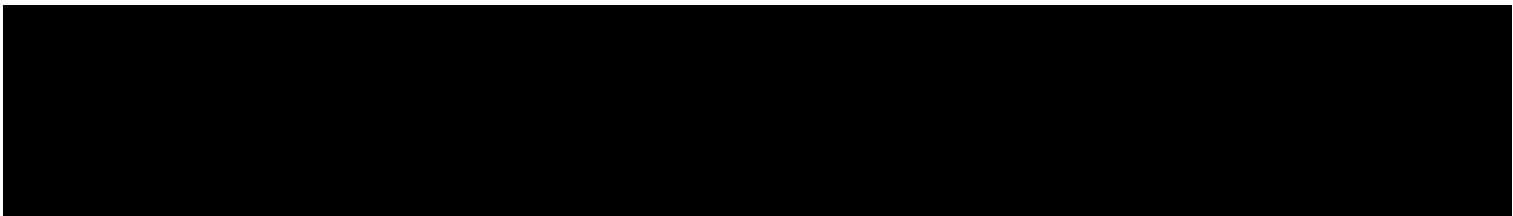
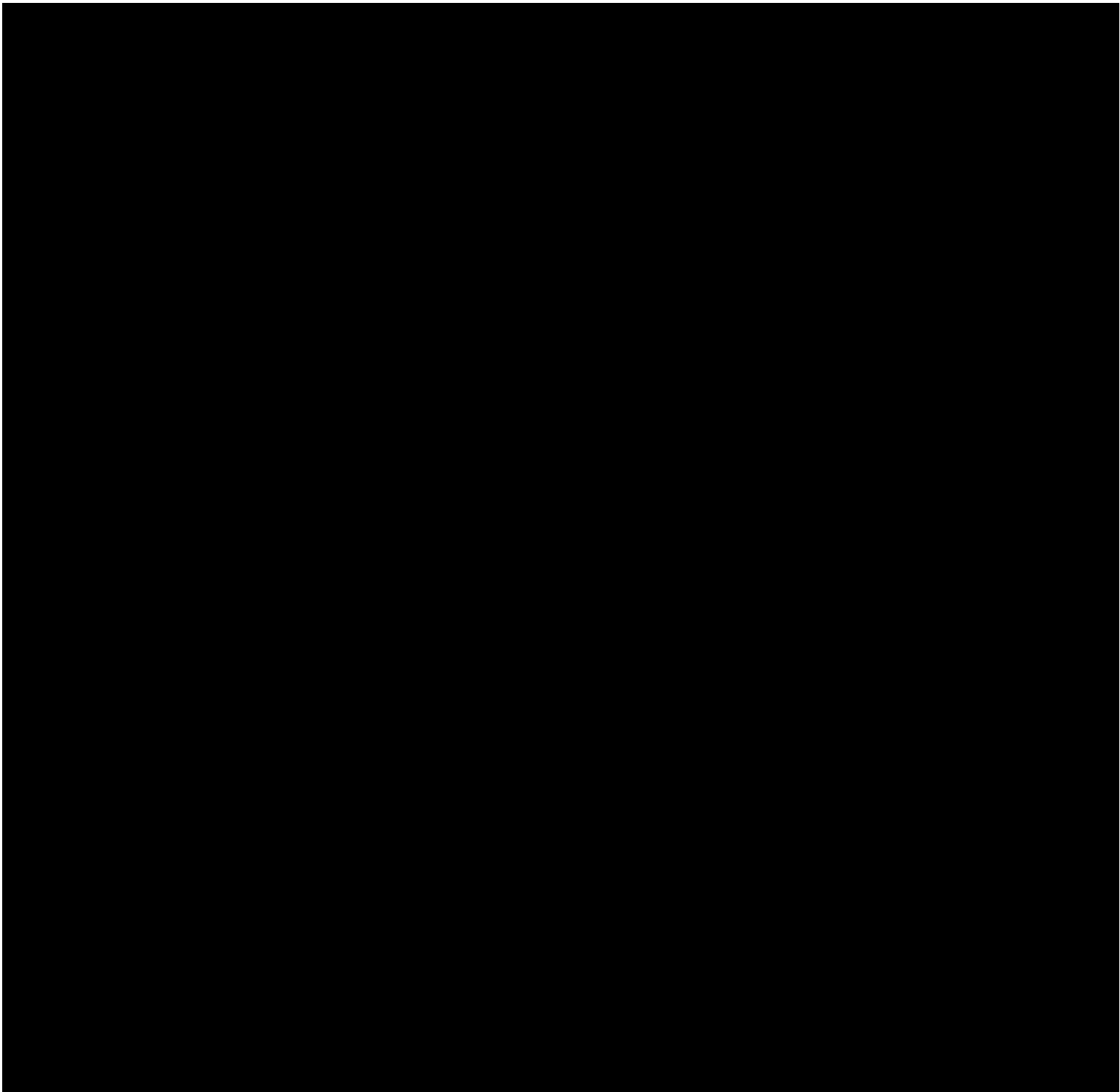


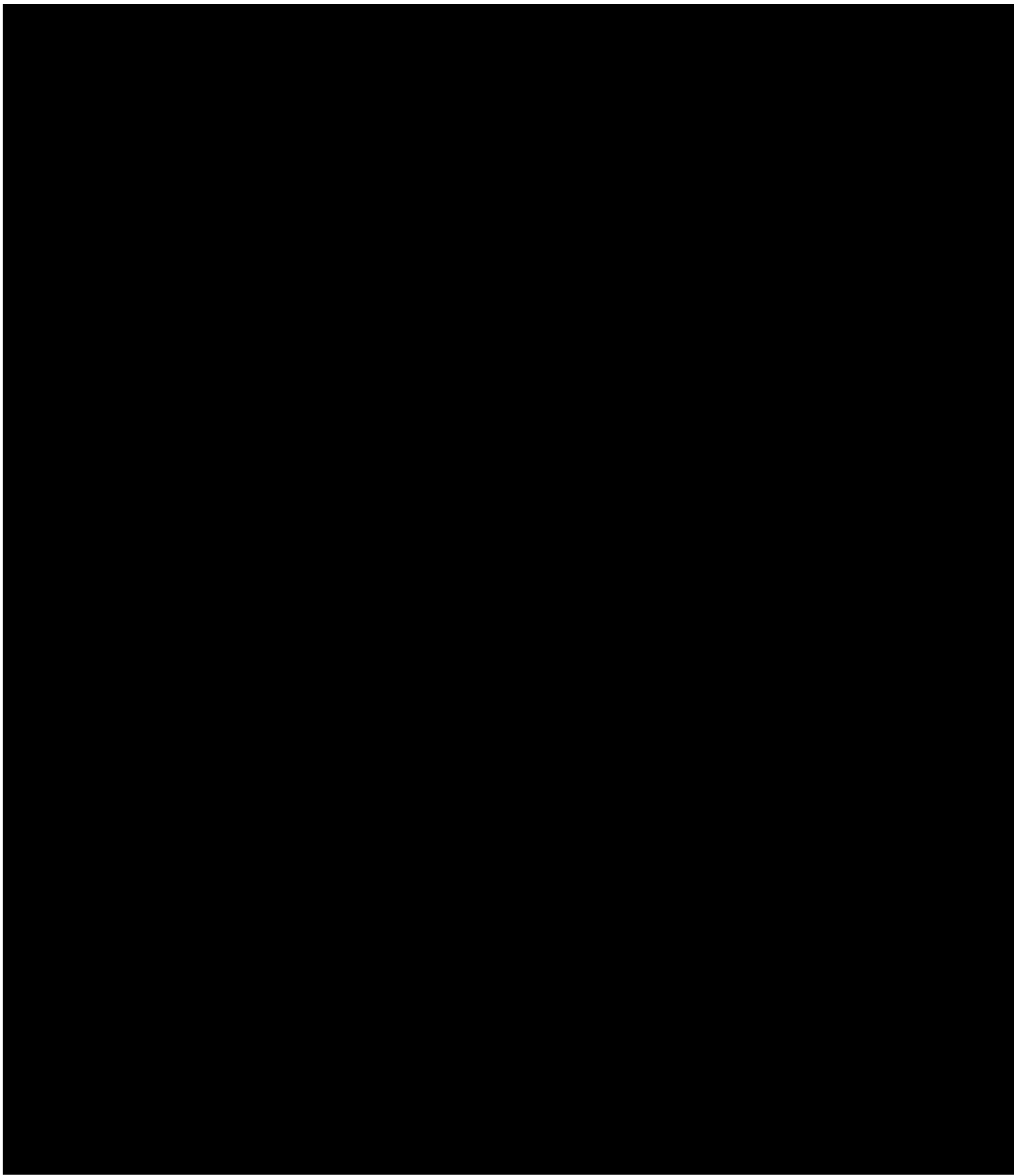
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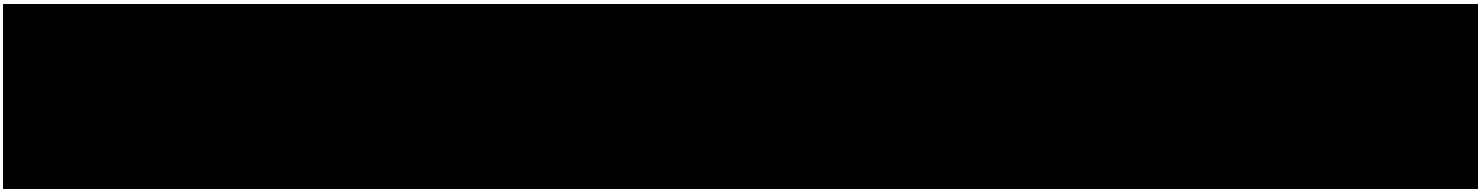
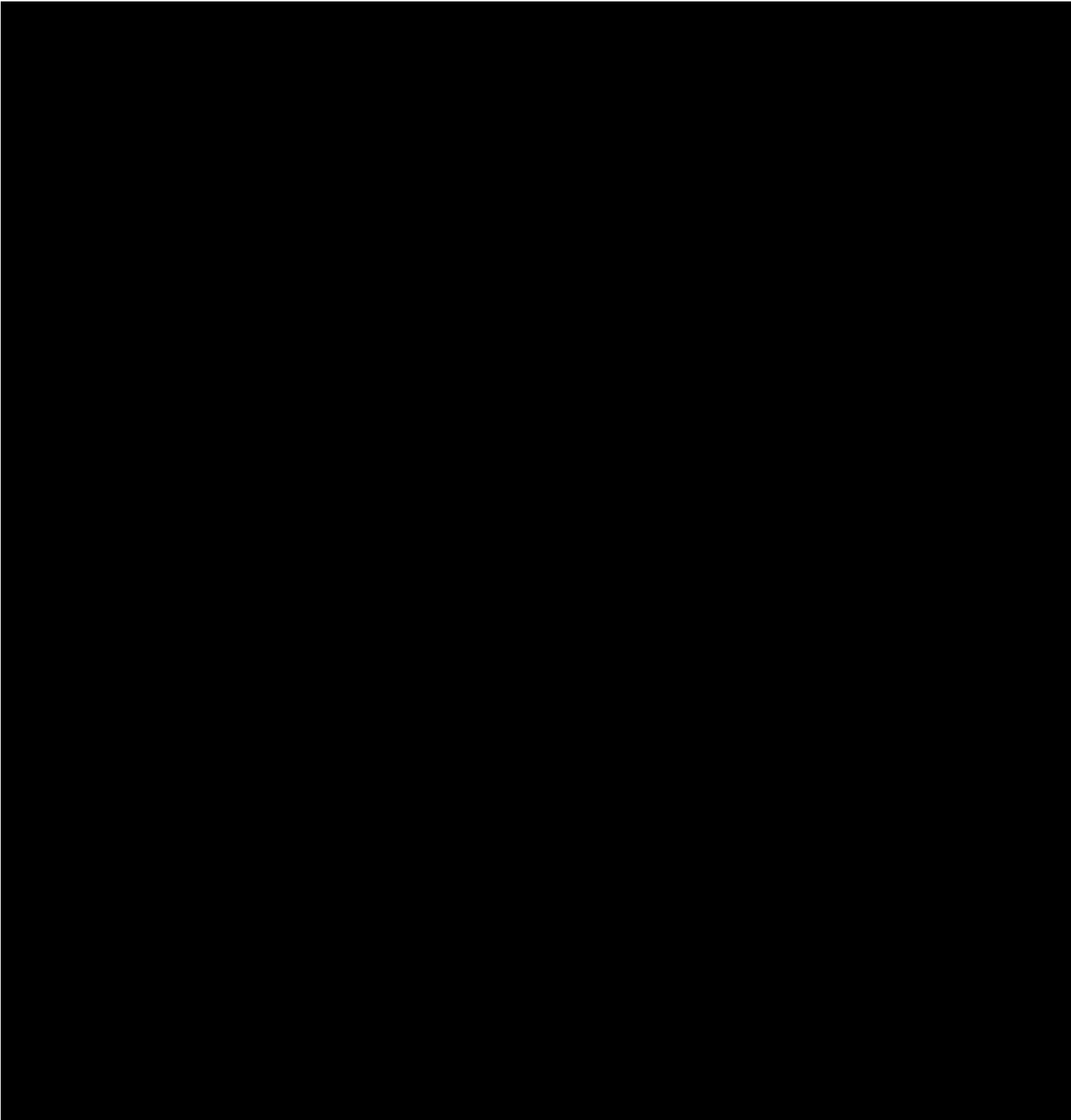
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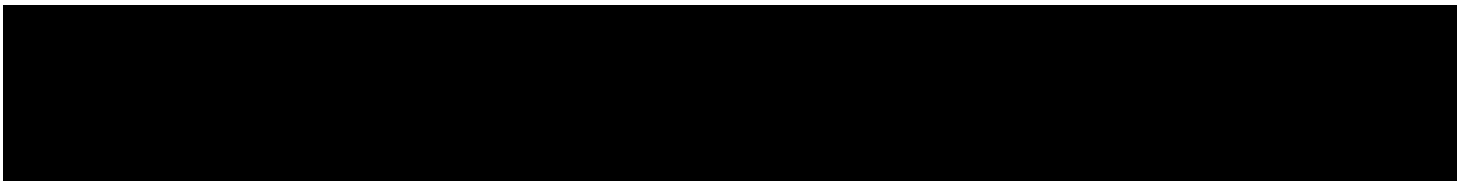
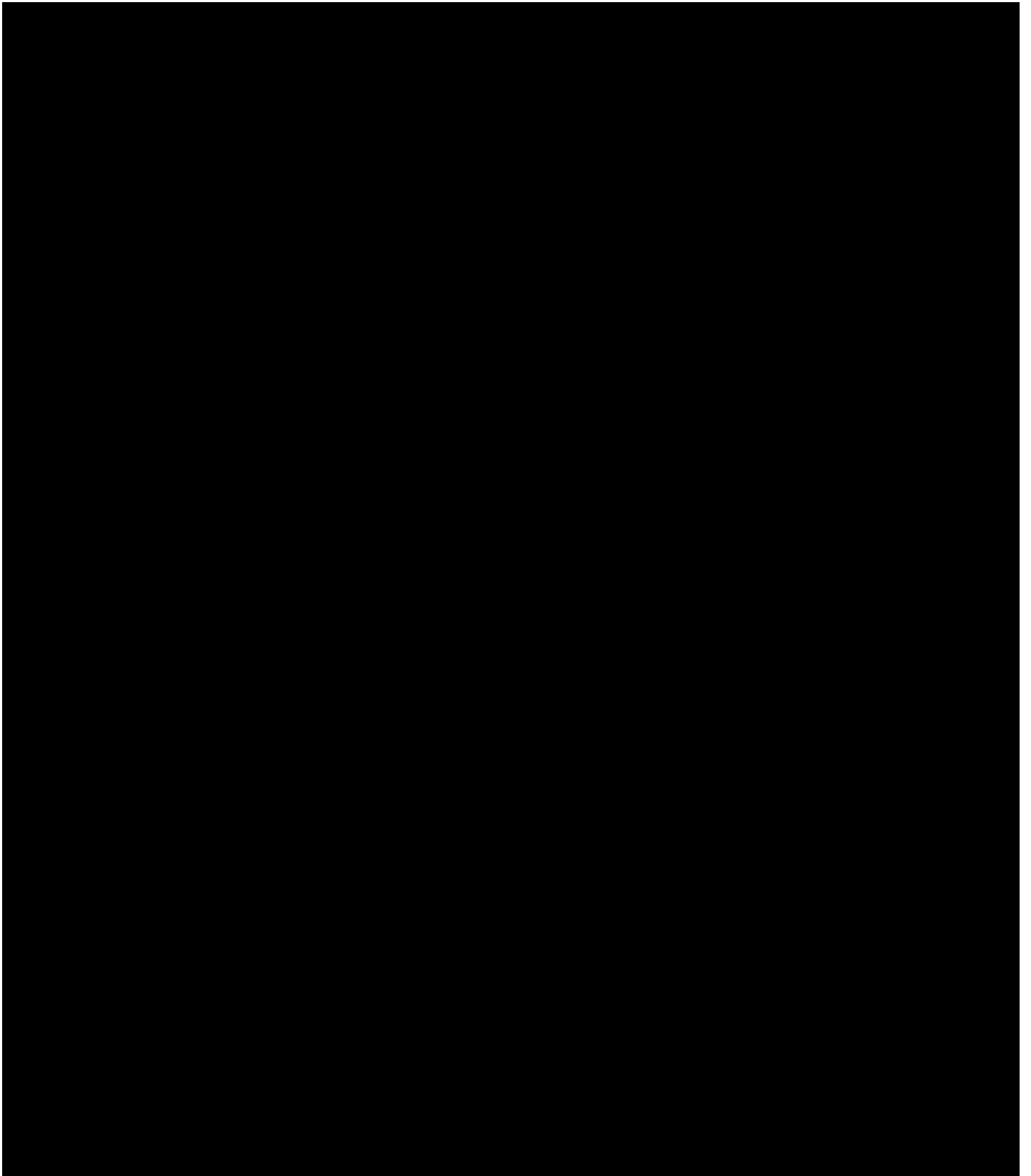


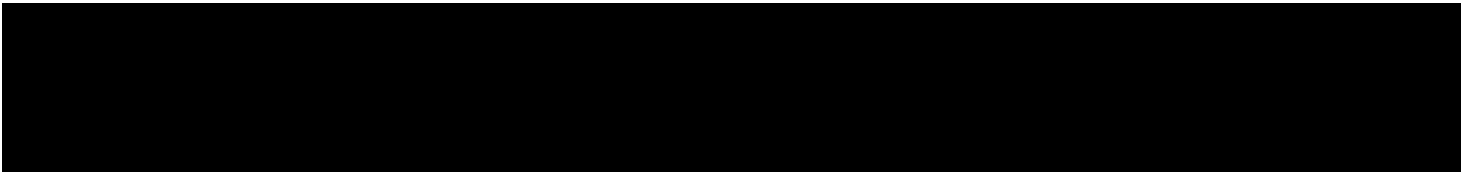
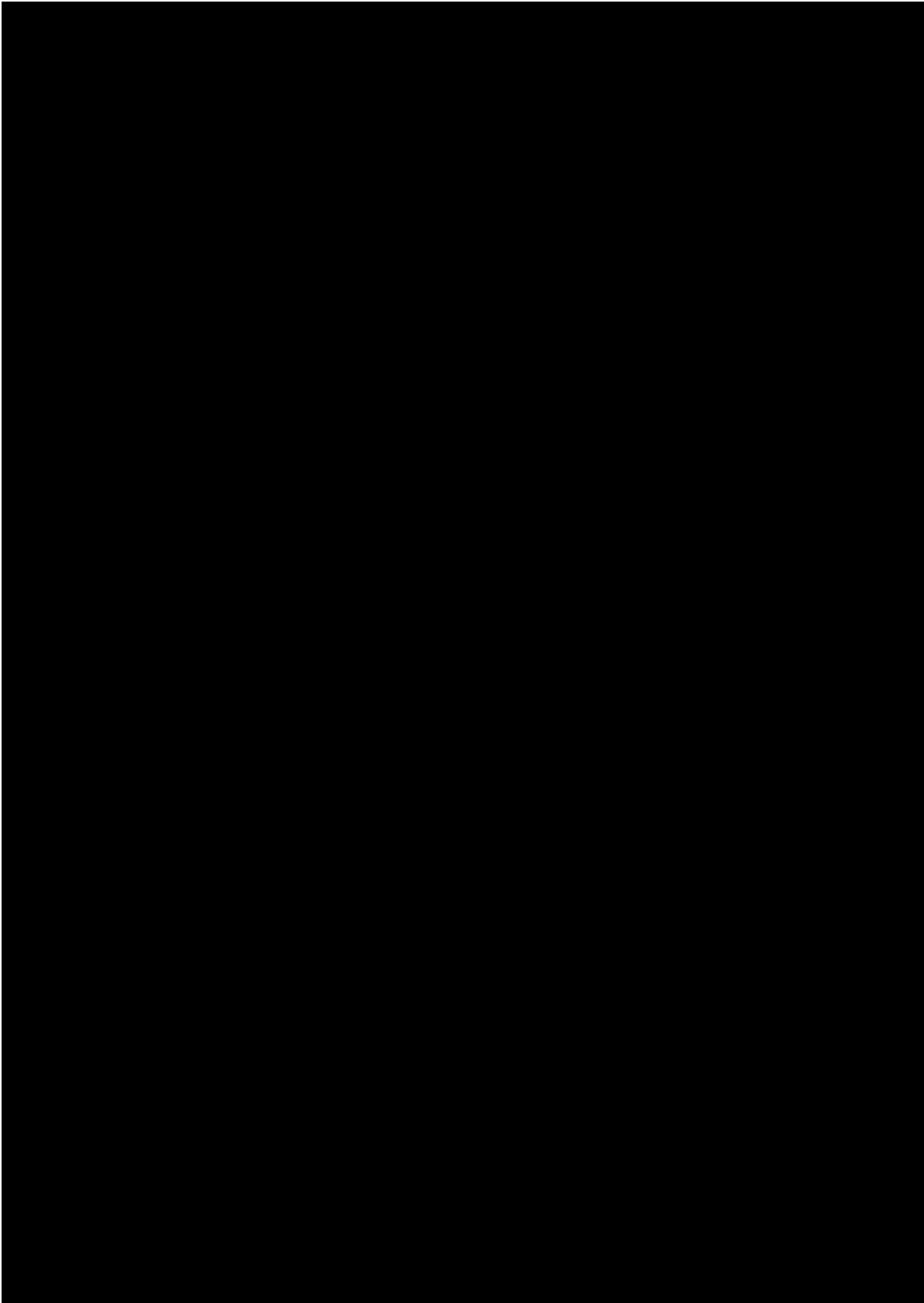


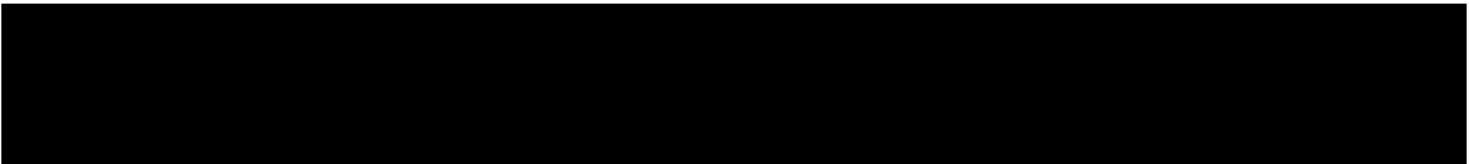
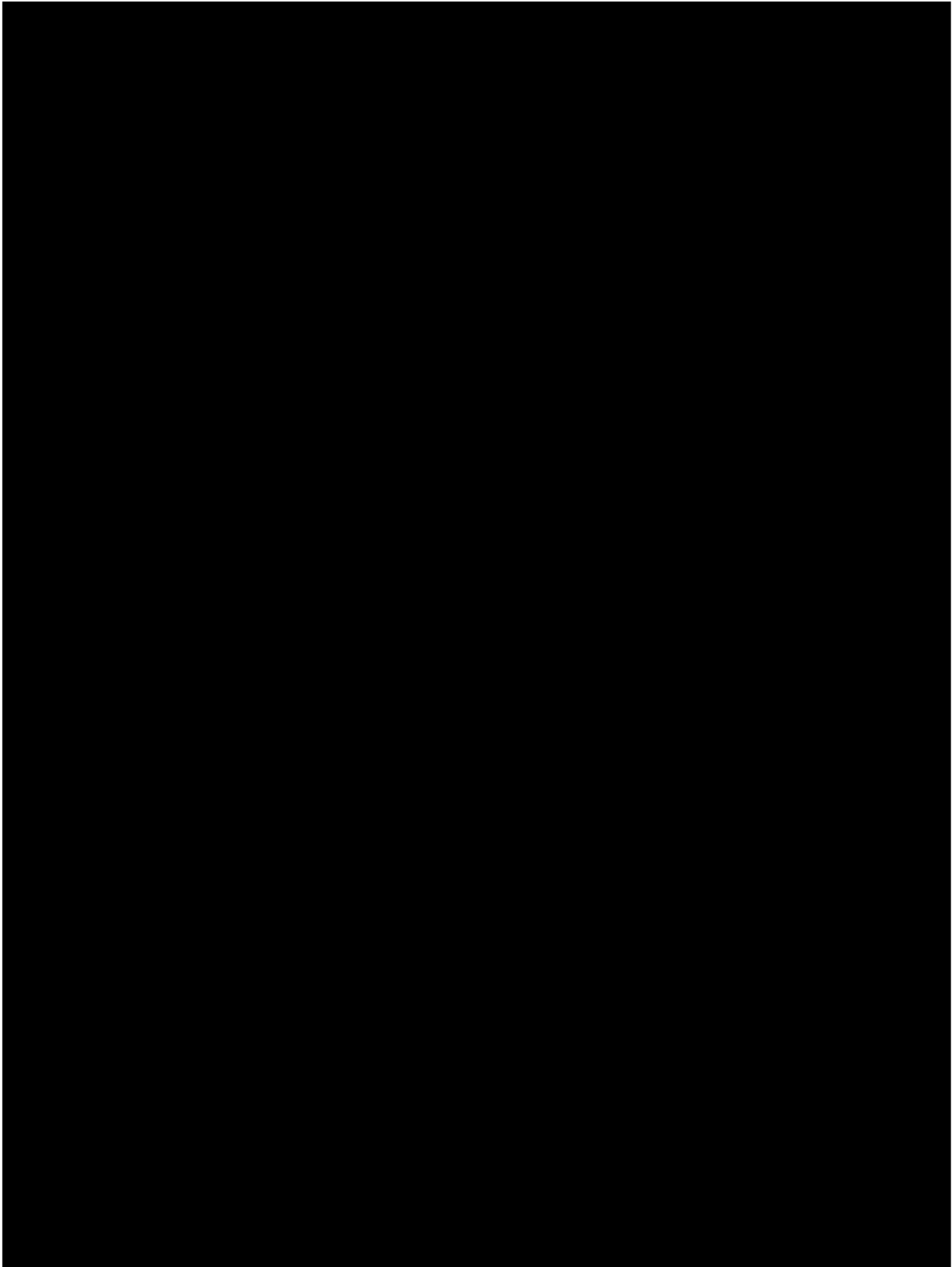


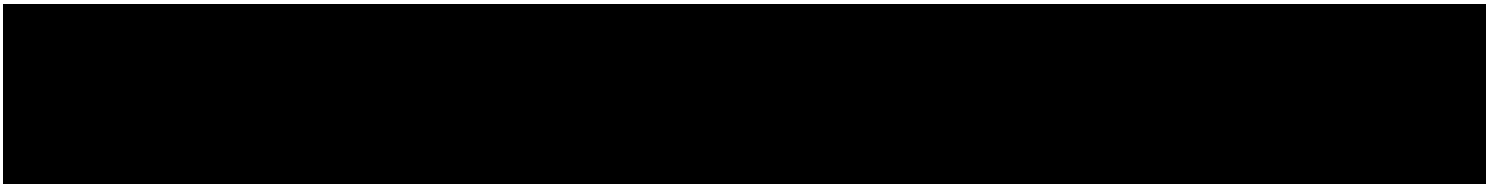
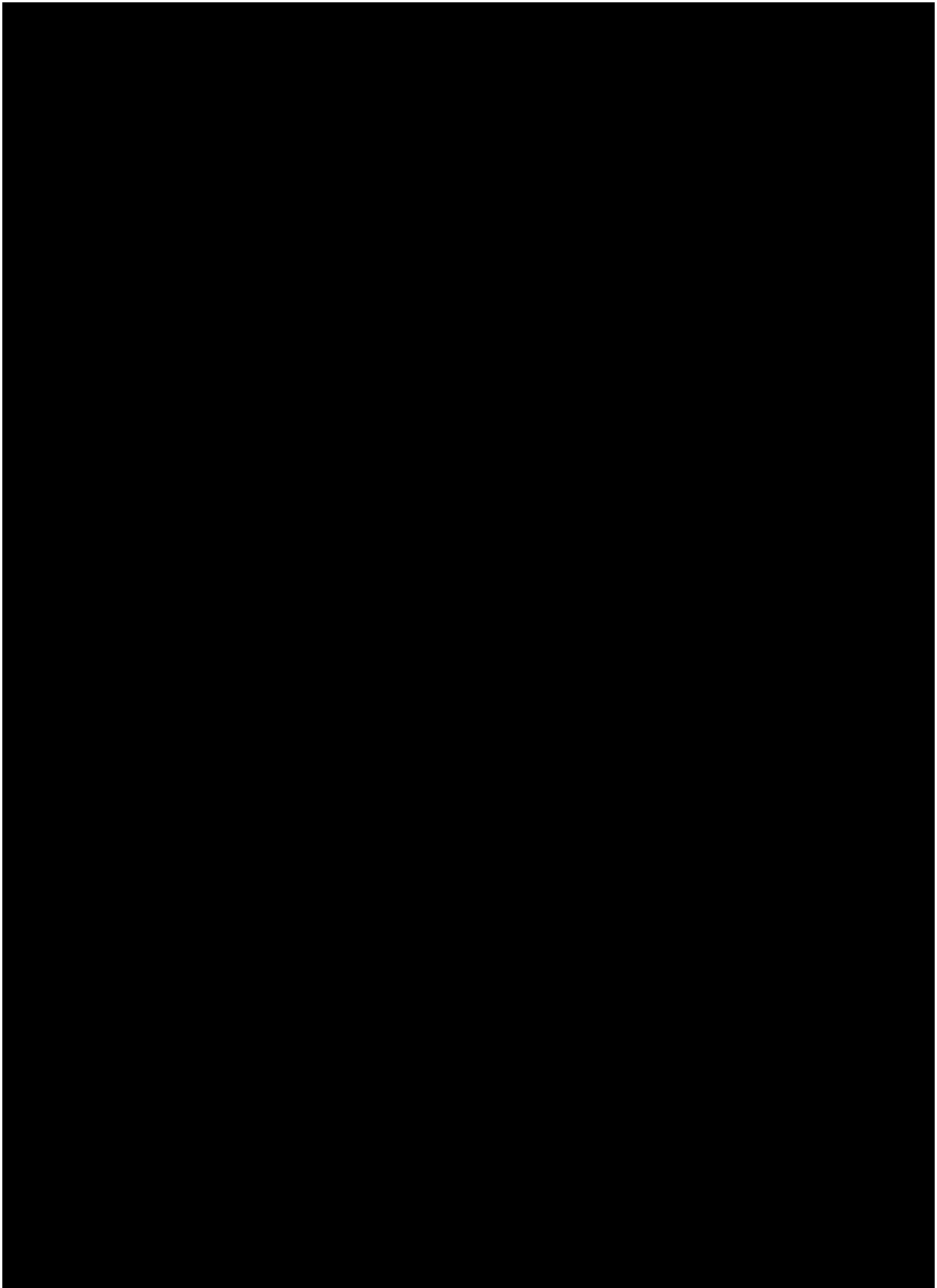


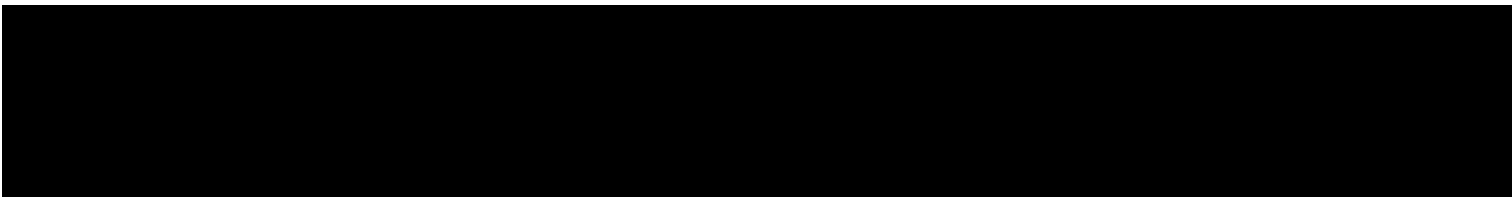
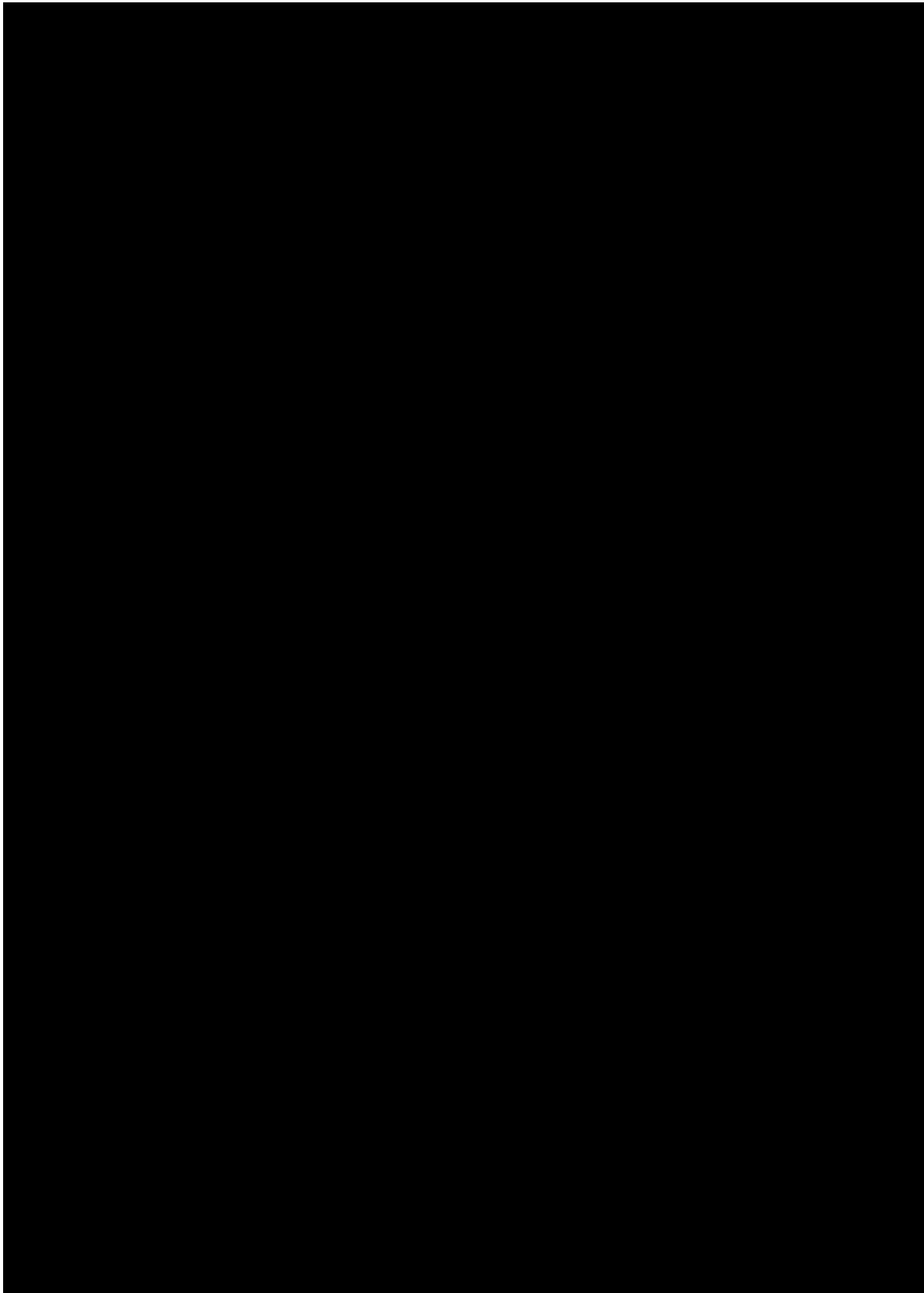


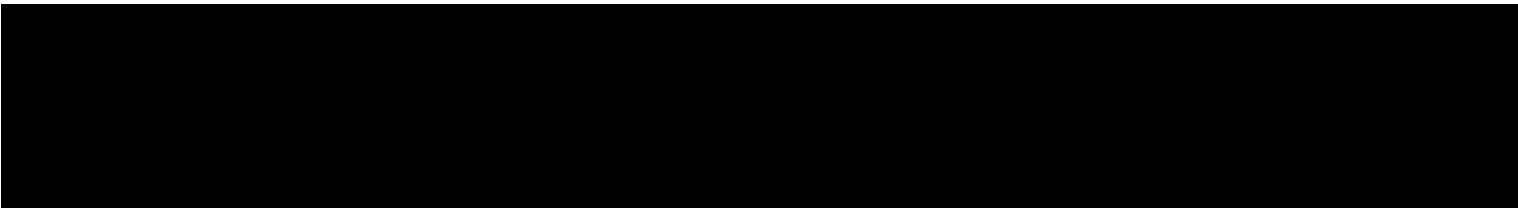
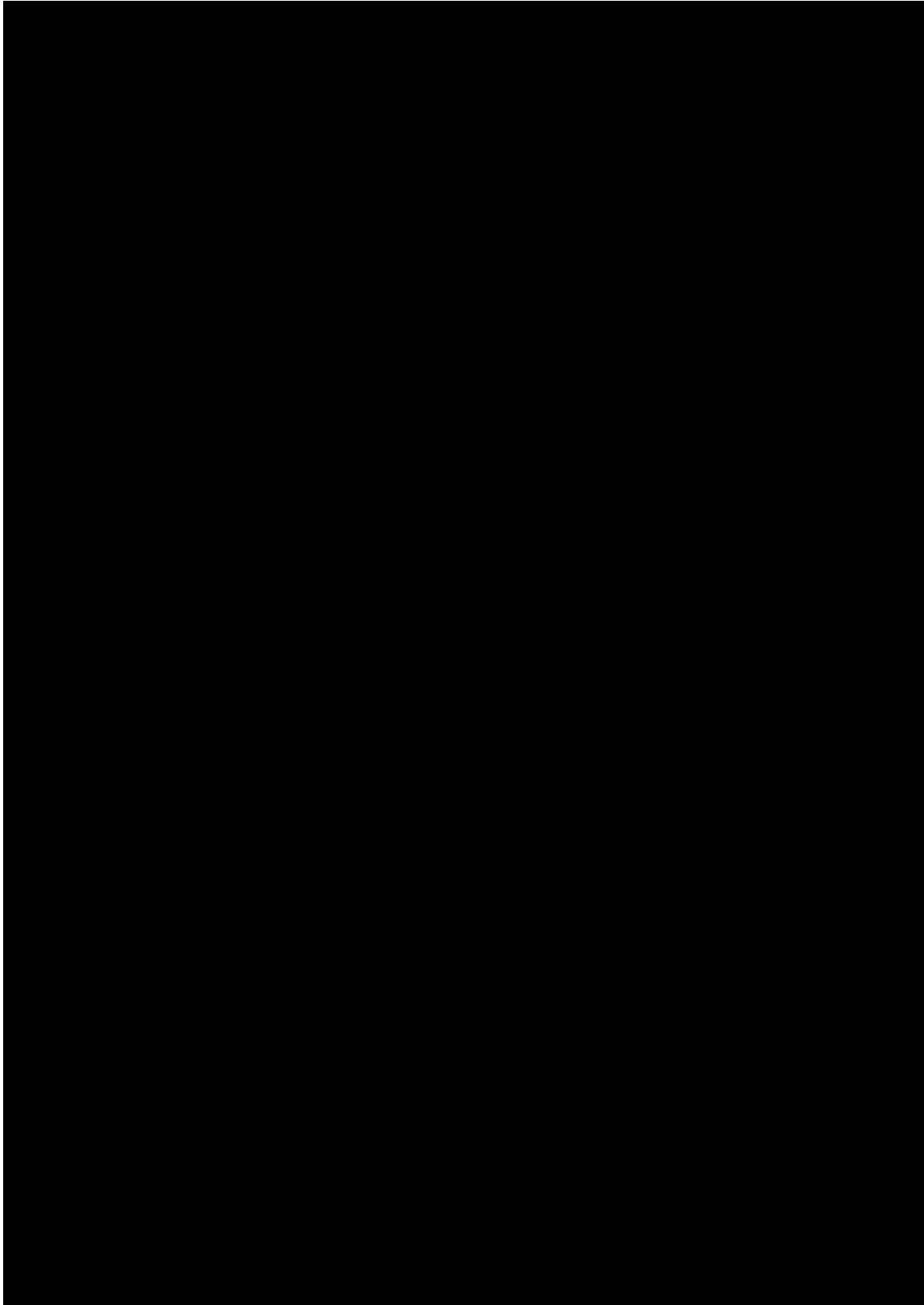


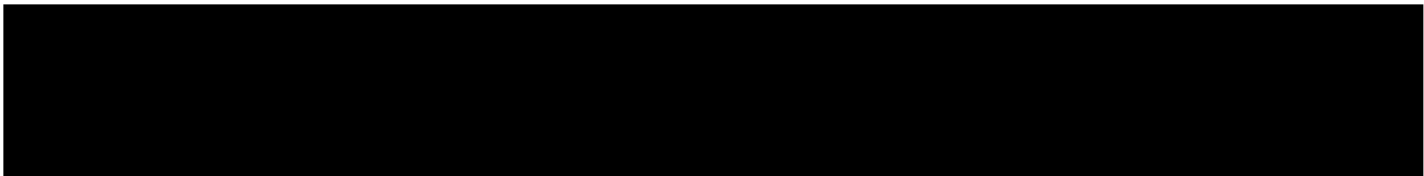
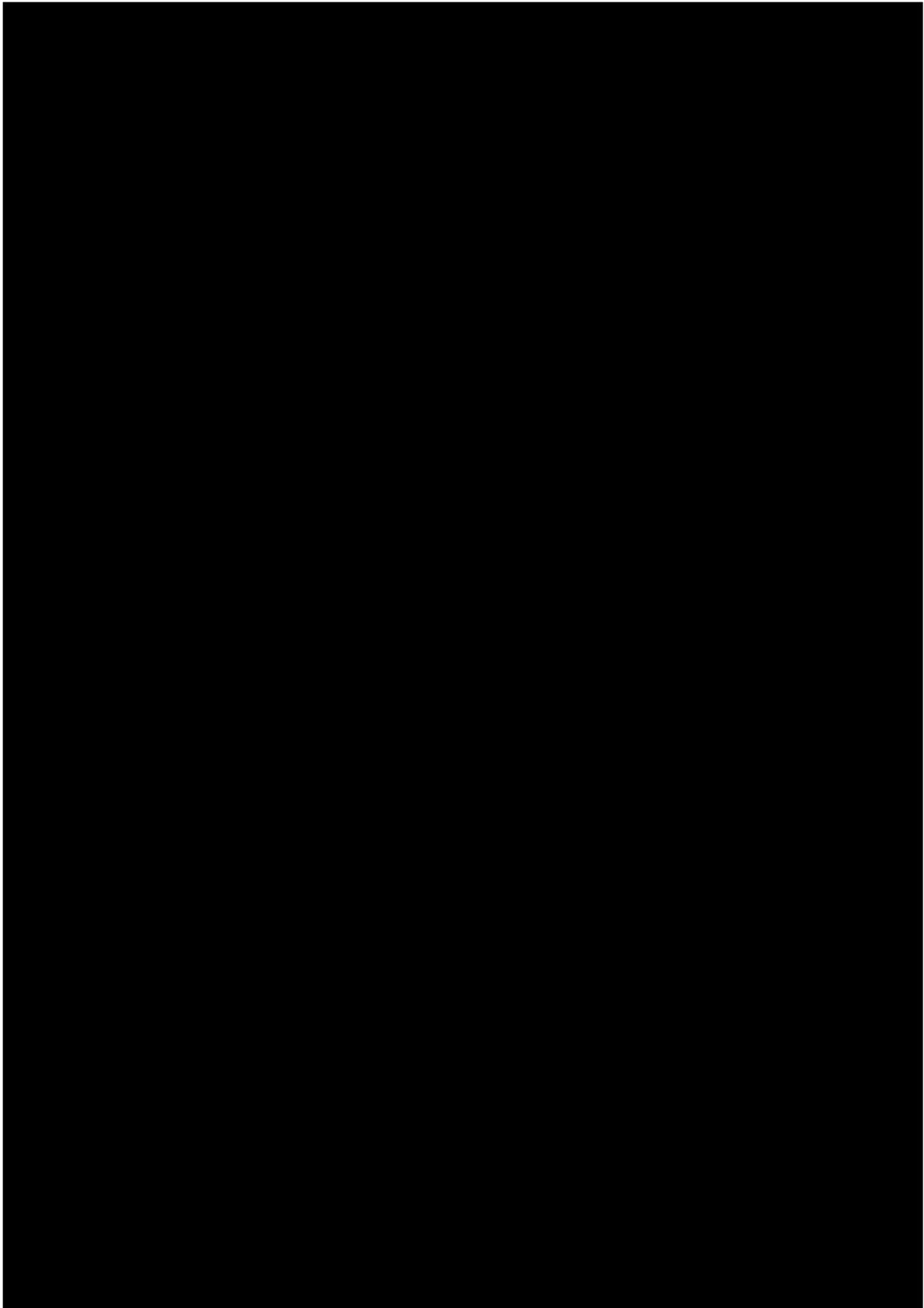


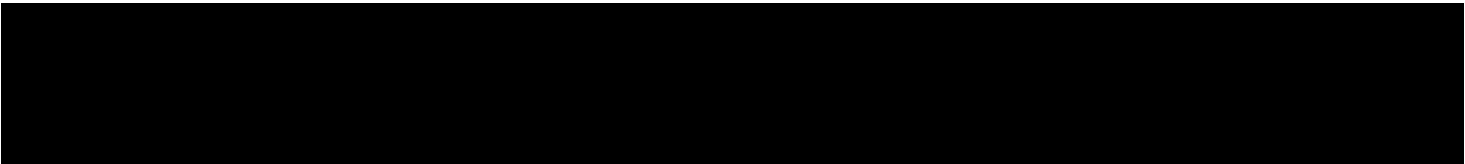
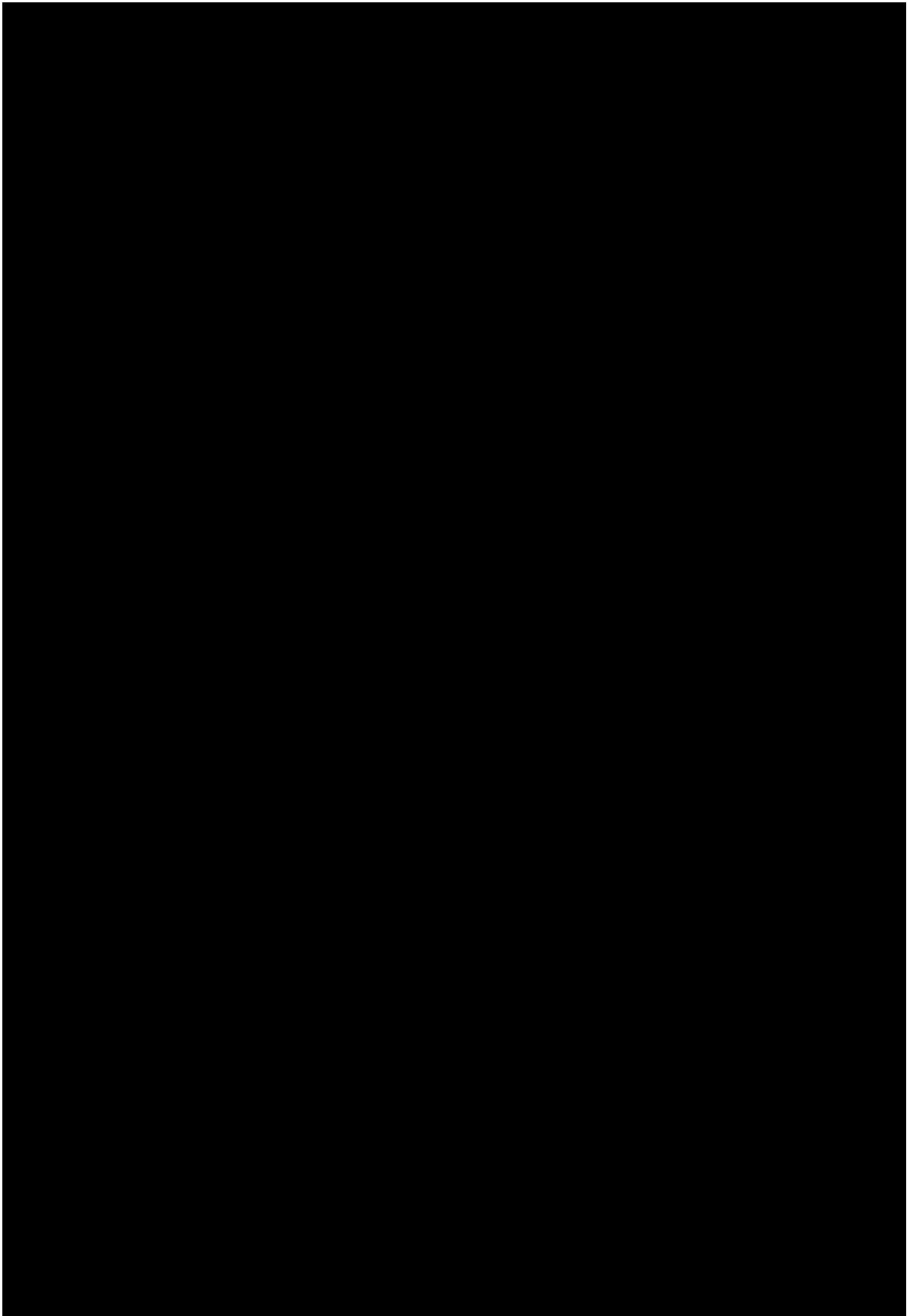


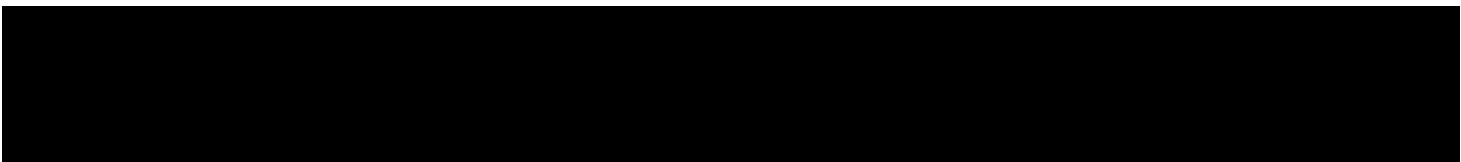
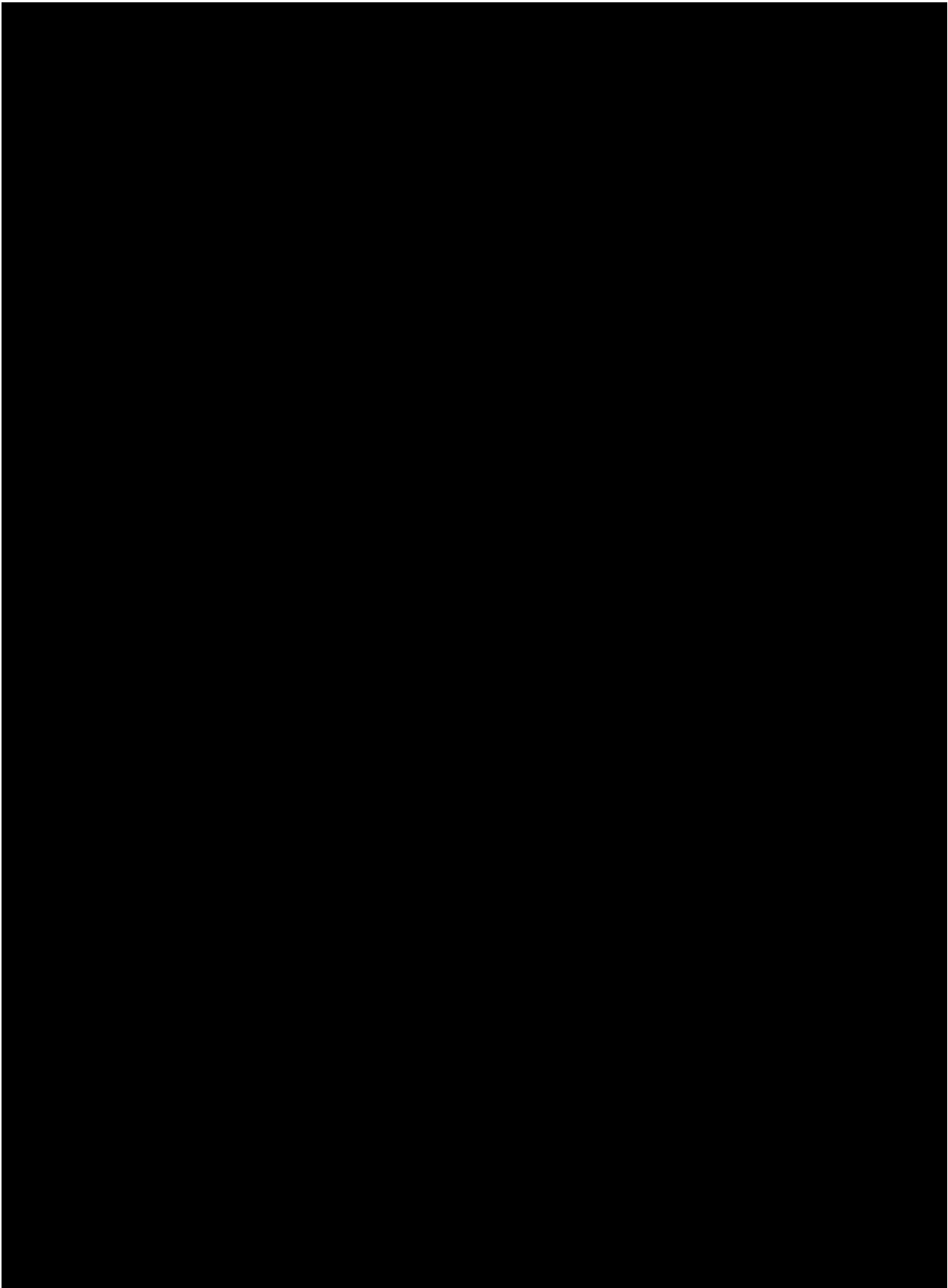


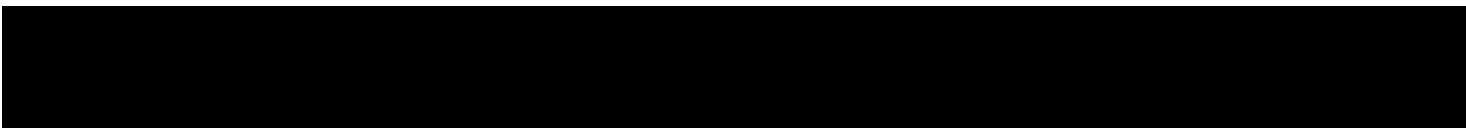
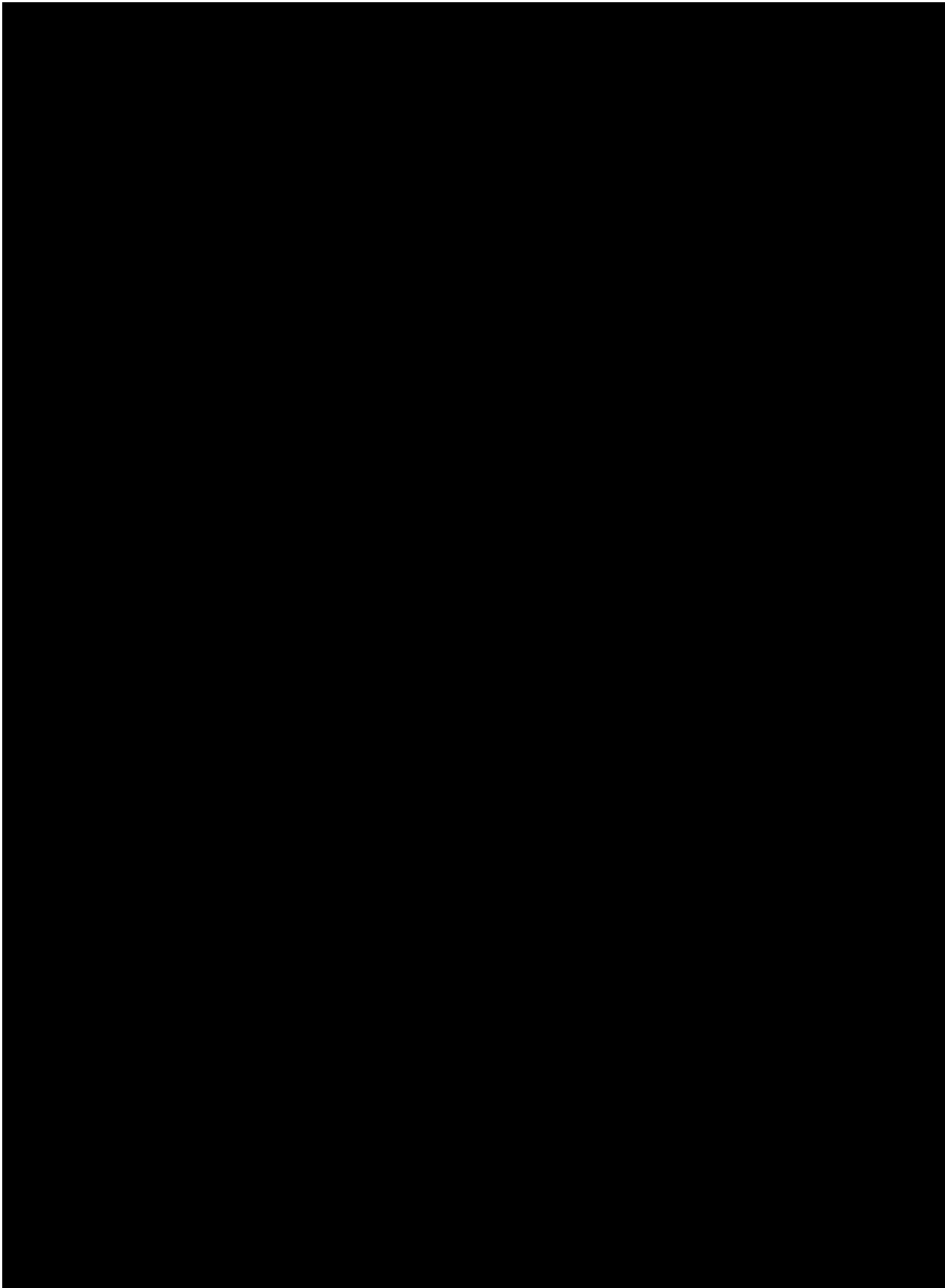


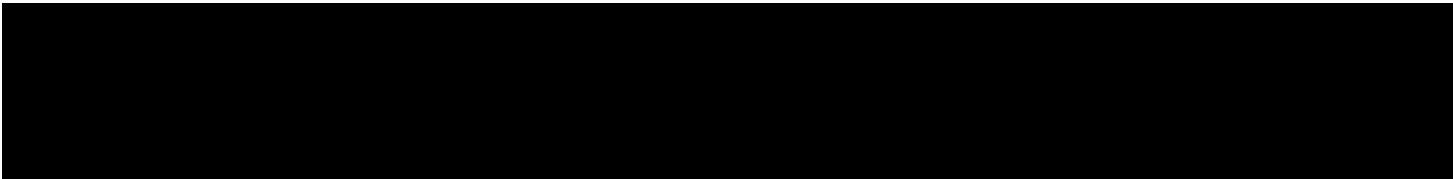
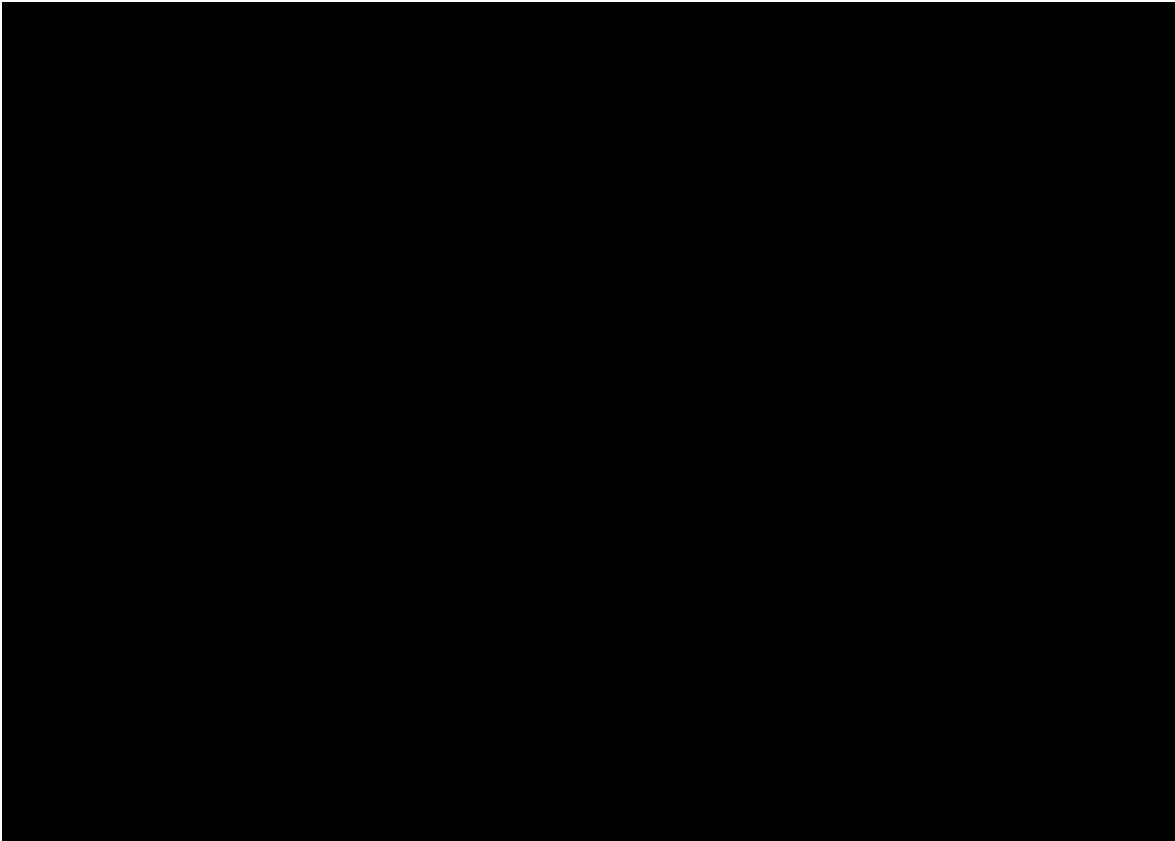


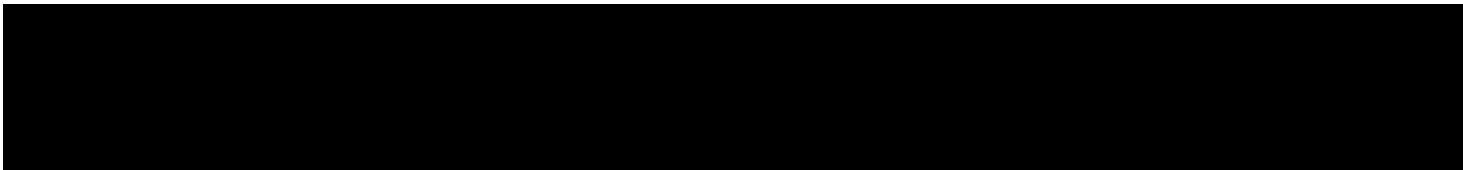


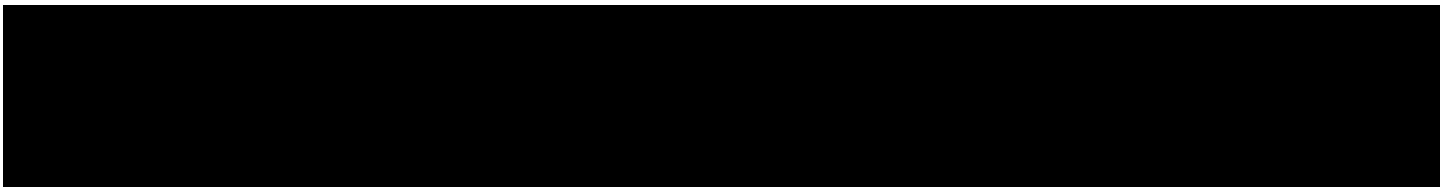
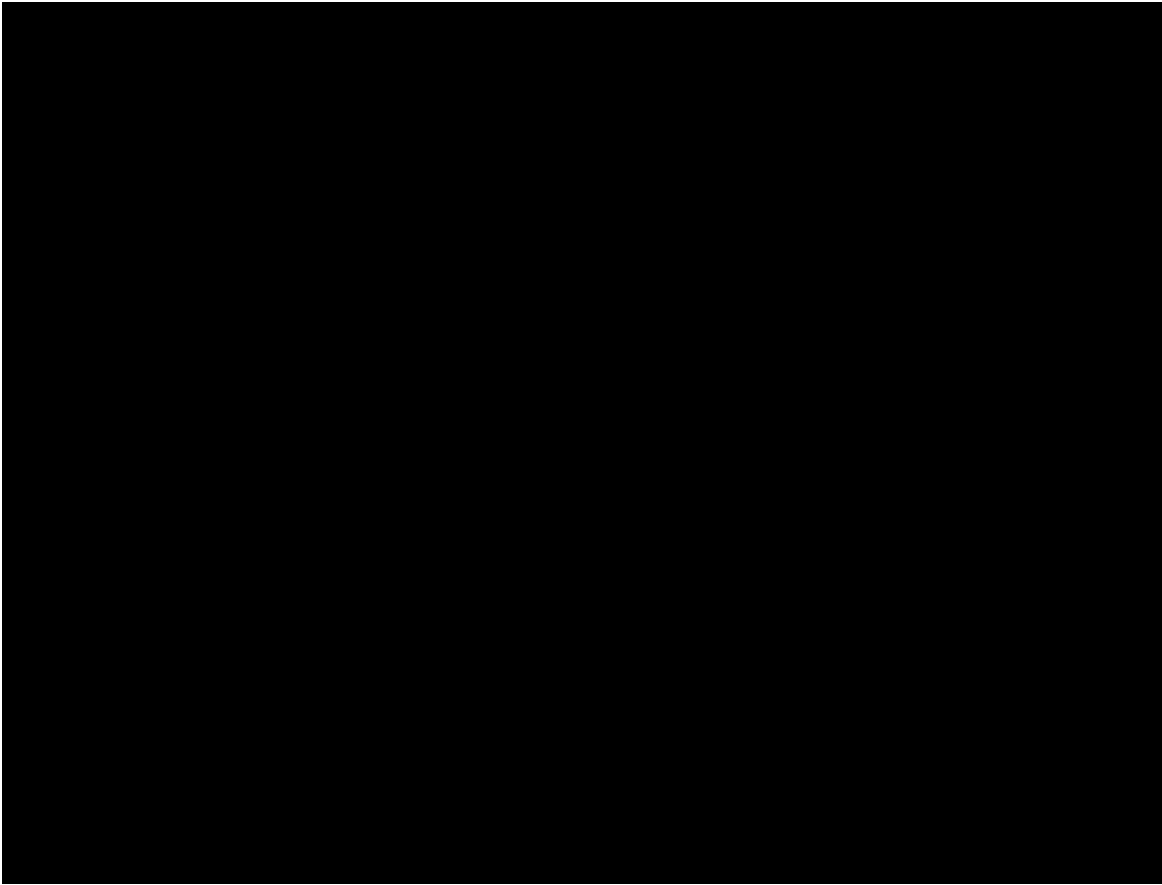














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