5.7.4 Additional habitat corridors will also be maintained between the development parcels and generally comprise existing and proposed hedgerows, treelines, ditches/streams, and woodland shaws connecting to the more significant habitat corridors discussed in *Section 5.7.3*, thereby contributing to the network of habitats facilitating the movement of wildlife across the site.

5.7.5 The development of the survey area will however result in the loss of limited areas of foraging habitat where buildings and hardstanding takes the place of areas currently dominated by grassland and arable habitats. Although the field interiors are currently of limited value for foraging bats and it is expected that the proposed gardens and areas of open space within the development phases will provide new opportunities for roosting bats as these mature, consideration should be given to the use of pollen and nectar rich species within the formal planting schemes, enhancement of woodland edge habitats, new shrub and tree planting and inclusion of areas or rough and meadow grassland within areas of open space in order to maximise opportunities for foraging and commuting bats following development.

*Lighting*

5.7.6 A Lighting Strategy (MMA Lighting Consultancy, 2018) has been produced for the site which assesses that the site currently has limited light spill from off-site residential areas (MMA Lighting Consultancy assessed the site as having an E2 – Low District Brightness Areas). The lighting assessment details measures to achieve a minimum level of lighting required for public amenity and safety whilst restricting horizontal or vertical light spill into non-target areas. A lighting strategy for the external lighting design of the survey area is detailed within *Section 6* of the Outline Site-wide Ecological Permeability Scheme (HDA, 2018), which includes the provision of 'Lighting Exclusion Zones' and 'Lighting Restriction Zones'. These lighting exclusion/restriction zones will maintain key habitat corridors for bats across the site.

5.7.7 In addition to the 'Lighting Exclusion Zones' and 'Lighting Restriction Zones', where new/replacement lighting (outside of the Lighting Exclusion Zones) is proposed within the survey area, the lighting strategy identifies measures to achieve a minimum level of lighting required for public amenity and safety whilst restricting horizontal or vertical light spill into non-target areas. Measures include:

- LED lighting with a correlated 'warm' colour temperature of 4000 Kelvin, which will be lowered to 2700 Kelvin (where practical) within the Lighting Restriction Zones). LED light sources contain no UV wavelengths and the warmer colour temperatures reduce the light emitted beyond the 550 nanometer wavelengths. These requirements are consistent with the current research on the impact of

artificial lighting on bats as published by the Bat Conservation Trust and Institution of Lighting Professionals (BCT & ILP, 2018);

- The lighting columns will be 10m for the roundabouts, 8m for the prime spine road and 6m for subsidiary roads;
- Rear spill guards can be employed to focus light onto target areas;
- LED luminaires are suitable for dimming. A Remote Monitoring System will be considered for lighting in sensitive locations to allow luminaires to be dimmed to an appropriate level and then dimmed back further after a late night curfew (c. 23:00) (or switched off entirely); and
- Pedestrian only footpaths/cycleways will be unlit with the exception of bollard lighting at nodal points, fitted with LED luminaires and rear spill guards/louvres/cowls as appropriate.

5.7.8 The lighting strategy for each Phase of the development will be re-assessed during the production of the Detailed Bat Mitigation Strategies which will be produced for each phase of the development (in accordance with Condition 24). Sensitive lighting proposals would be expected to maintain opportunities for foraging and commuting bats, and maintain connectivity between roost sites in buildings and foraging habitat in the site and its surrounds.

**5.8 Protection and enhancement of roosting, foraging and commuting opportunities**

*Roosting bats*

5.8.1 The proposed development would provide opportunity to enhance the value of the survey area for roosting bats in the long-term in accordance with the 2021 NPPF and the 2006 NERC Act through the provision of additional opportunities for roosting bats to those described above. The detailed design and location of such features will be determined during the production of the Detailed Bat Mitigation Strategies which will be produced for each phase of the development (in accordance with Condition 24), but in addition to the mitigation measures described above, consideration should be given to inclusion of additional roosting opportunities including:

- Erection of additional bat boxes on mature trees; and/or
- Creation of additional bat roosting opportunities on new/refurbished buildings within the survey area e.g. through the use of bat bricks within the external walls of buildings, raised tiles, accessible roof voids etc.

5.8.2 These will be located away from areas most affected by construction and operational phase noise and lighting and will integrate the location of suitable retained trees and habitat connections with avoidance of areas subject to significant levels of light spill as detailed within the Outline Site-wide Ecological Permeability Scheme (HDA, 2018).

5.8.3 By providing a variety of roosting opportunities in different locations and orientations within the new/refurbished buildings across the survey area, a range of roost spaces with varied microclimates will be provided that will offer long-term roosting opportunities for bats throughout the year.

*Foraging and commuting bats*

5.8.4 In addition to the above measures to maintain opportunities for foraging and commuting bats within and adjacent to the developed areas of the site, the proposed areas of informal public open space will provide extensive opportunities to enhance these areas of the site for bats through the creation and enhancement of meadow grassland, scrub, orchard, wetland and woodland habitats. In order to maximise future opportunities for foraging and commuting bats within these areas of open space, it is recommended that the following measures are included in the landscape strategy:

- Retention of the majority of trees within the site containing suitable features to support roosting bats.
- Enhancement and creation of rough/meadow grassland, woodland, scrub, hedgerows, tree planting, wetland and marginal habitats across the site will provide a variety of high quality foraging habitat for bats. Bat commuting routes will also be maintained.
- Formal planting schemes in residential areas should seek to include pollen and nectar-rich species in order to encourage invertebrate prey for bats.
- A sensitively designed lighting scheme on the edges of the adjacent residential development to ensure minimal impact on bat commuting routes and foraging areas.

## 6 CONCLUSION

6.1 Measures to ensure the protection of individual bats during construction works and maintenance of opportunities for roosting bats in the long-term, including provision of a range of new bat roosting opportunities and suitable timing of activities, are described in *Section 5* of this report.

6.2 Measures are also described for the maintenance and enhancement of current opportunities provided by the site for foraging and commuting bats. These include sensitive lighting design and planting and habitat creation works. The site is currently dominated by farmland of limited value for foraging bats and it is likely that these measures could enhance the value of the site in the long-term for this group.

6.3 Subject to the implementation of the measures described in *Section 5*, it is considered that the favourable conservation status of the local bat population would be maintained and, through long-term provision of higher quality roosting and foraging habitats,

potentially enhanced. This would ensure compliance with the nature conservation objectives of the EC Habitats Directive, the 2006 NERC Act and the guidance underpinning the 2021 National Planning Policy Framework.

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**HDA Document Control and Quality Assurance Record**

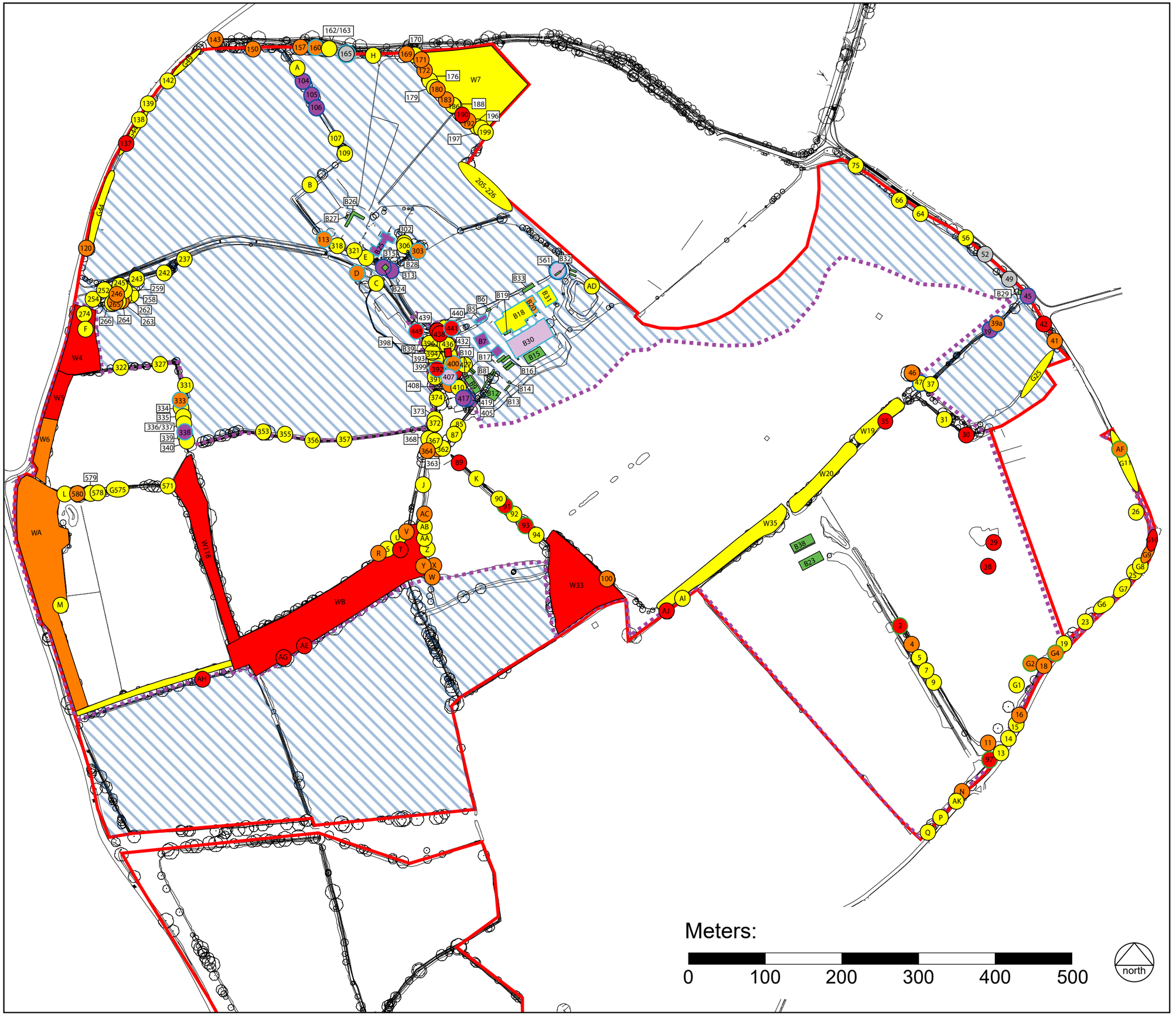
Project Title: Arborfield Eco
Project Reference: 868.1
Document Title: 2022 Bat Survey Report
Commissioning Party: CALA Homes (Thames) Ltd

| Issue | Description | Date of Issue | Signed |
|---|---|---|---|
| 1 | 2022 Bat Survey Report | February 2023 | [redacted] |

| | Personnel | Position |
|---|---|---|
| Author | Fiona Muir | Assistant Ecologist |
| Approved for issue | Clare Bird MCIEEM | Principal Ecologist |

**APPENDIX A**

**Bat Roost Survey Summary Plan**




## KEY

- Site boundary
- 2022 survey area boundary
- Not subject to updated survey in 2022
- Tree/building subject to emergence/ re-entry survey in 2020 by HDA
- Tree/building subject to emergence/ re-entry survey in 2020 by Stantec
- Tree/building subject to emergence/ re-entry survey in 2022 by HDA

BUILDINGS

- Confirmed roost
- Probable roost
- High bat roost potential
- Moderate bat roost potential
- Low bat roost potential
- Negligible bat roost potential

TREES

- Confirmed roost
- Probable roost
- High bat roosting potential
- Moderate bat roosting potential
- Low bat roosting potential
- Negligable bat roosting potential
- Tree removed under bat licence (before Feb 2023)

The highest bat roosting potential recorded are shown for the groups(G)/woodlands(W).

All other trees/tree groups within the survey area are regarded as having 'Negligible' potential to support roosting bats.

Roosting categories relate to roost potential in accordance with the BCT 2016 guidelines.

CLIENT:
CALA Homes Thames Ltd.

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
Bat Roost Survey Summary Plan

SCALE AT A3:
See scale bar

DATE:
February 2023

868.1/67



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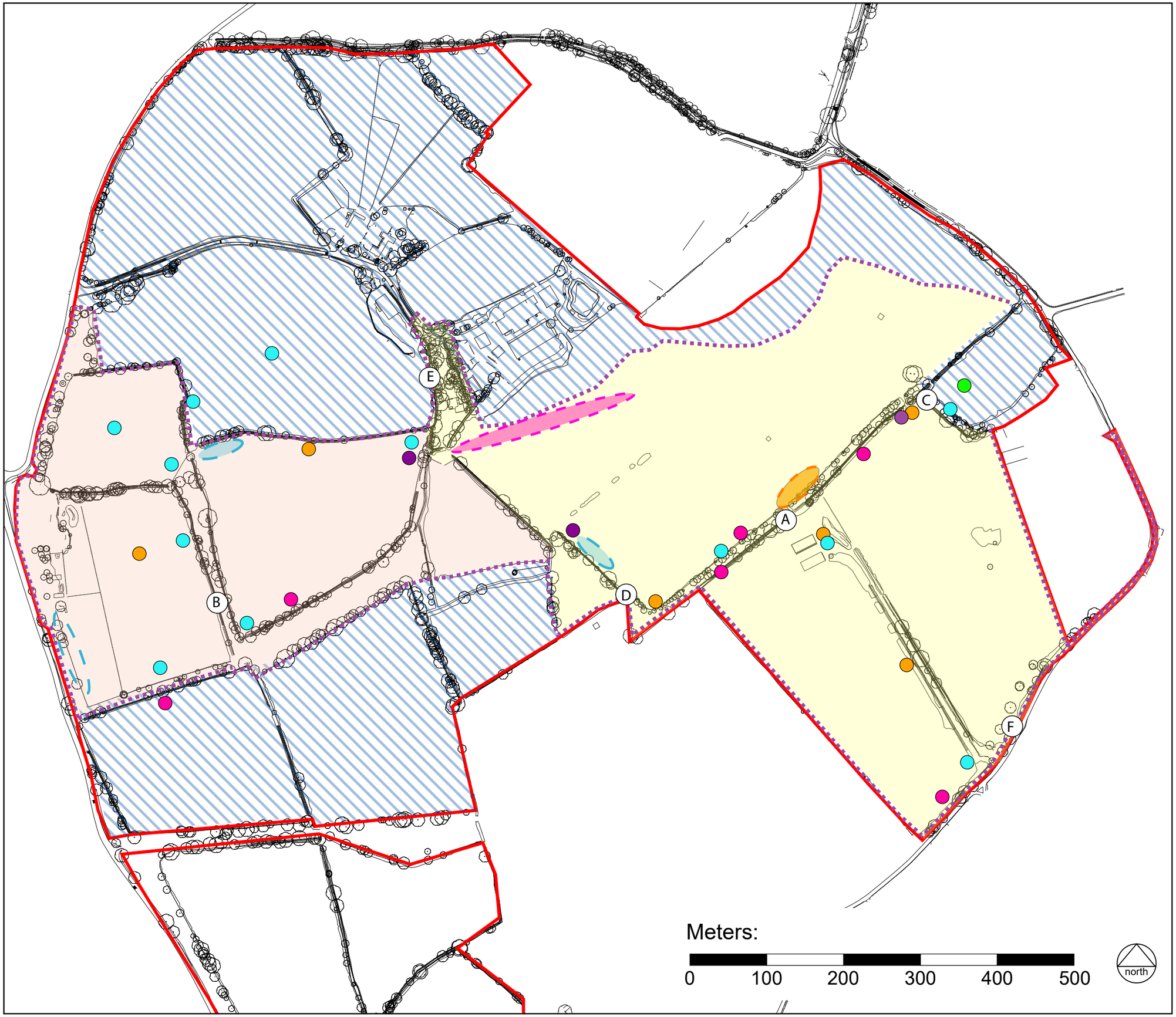
**APPENDIX B**

**Bat Activity Survey Summary Plan**




## KEY

- Site boundary
- 2022 survey area boundary
- Not subject to updated survey in 2022
- (A) Automated detector location
- Transect 1
- Transect 2

### Phase 2 Activity Transect Survey Results

Common Pipistrelle
- Single bat pass
- Occasional bat pass/foraging
- Moderate bat foraging

Soprano Pipistrelle
- Single bat pass
- Moderate bat foraging

Noctule
- Single bat pass
- Moderate bat foraging

Brown Long-eared bat
- Single bat pass

*Myotis* sp. bat
- Single bat pass

CLIENT:
CALA Homes Thames Ltd

PROJECT:
Hogwood Farm, Finchampstead

TITLE:
2022 Bat Activity Survey Summary Plan

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**APPENDIX C**

**Building Photographs**

**Photo 1.** Northern and eastern elevations of B23.

**Photo 2.** Southern and western elevations of B38.

**Photo 3.** Southern and western elevations of B39.

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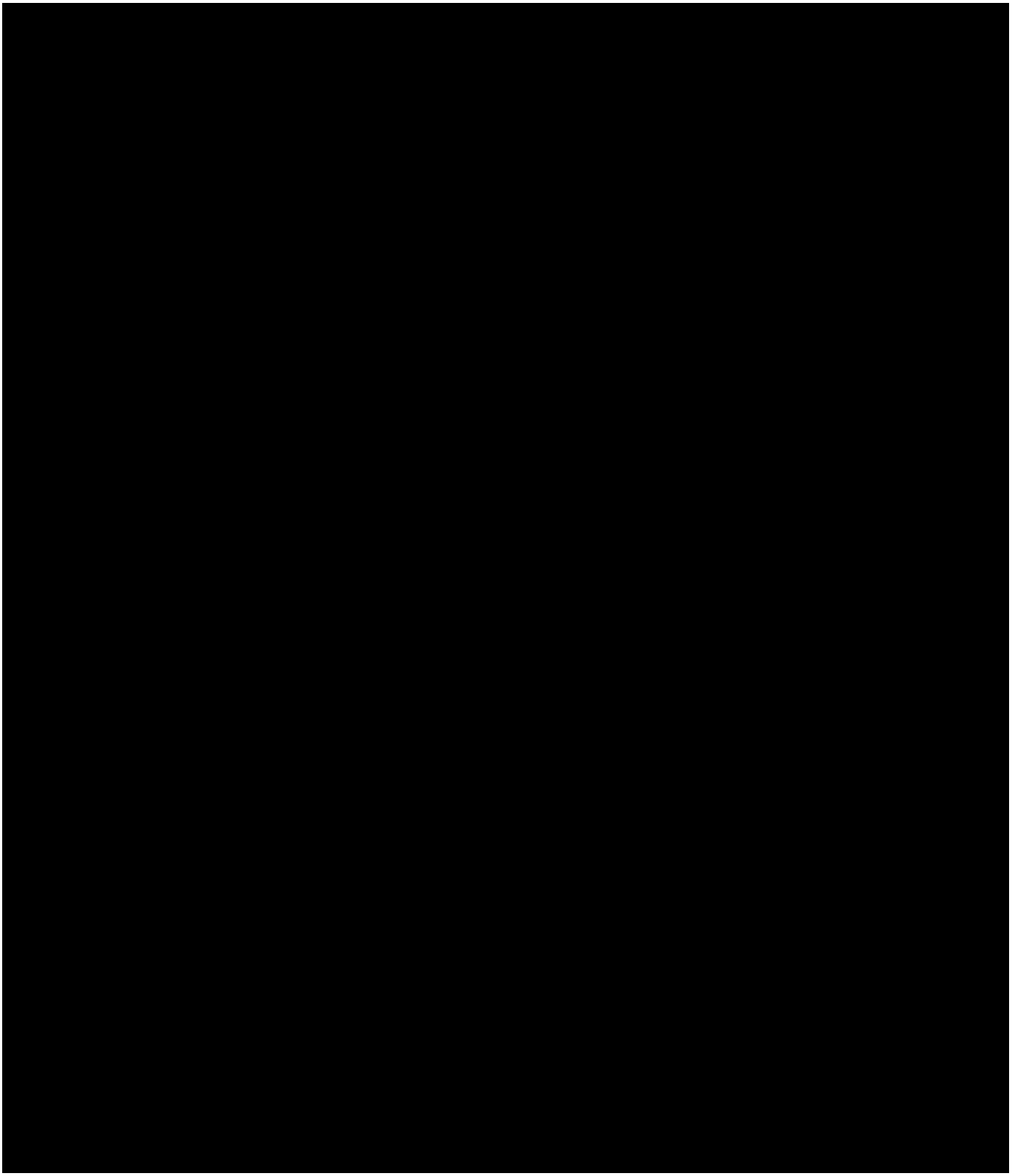

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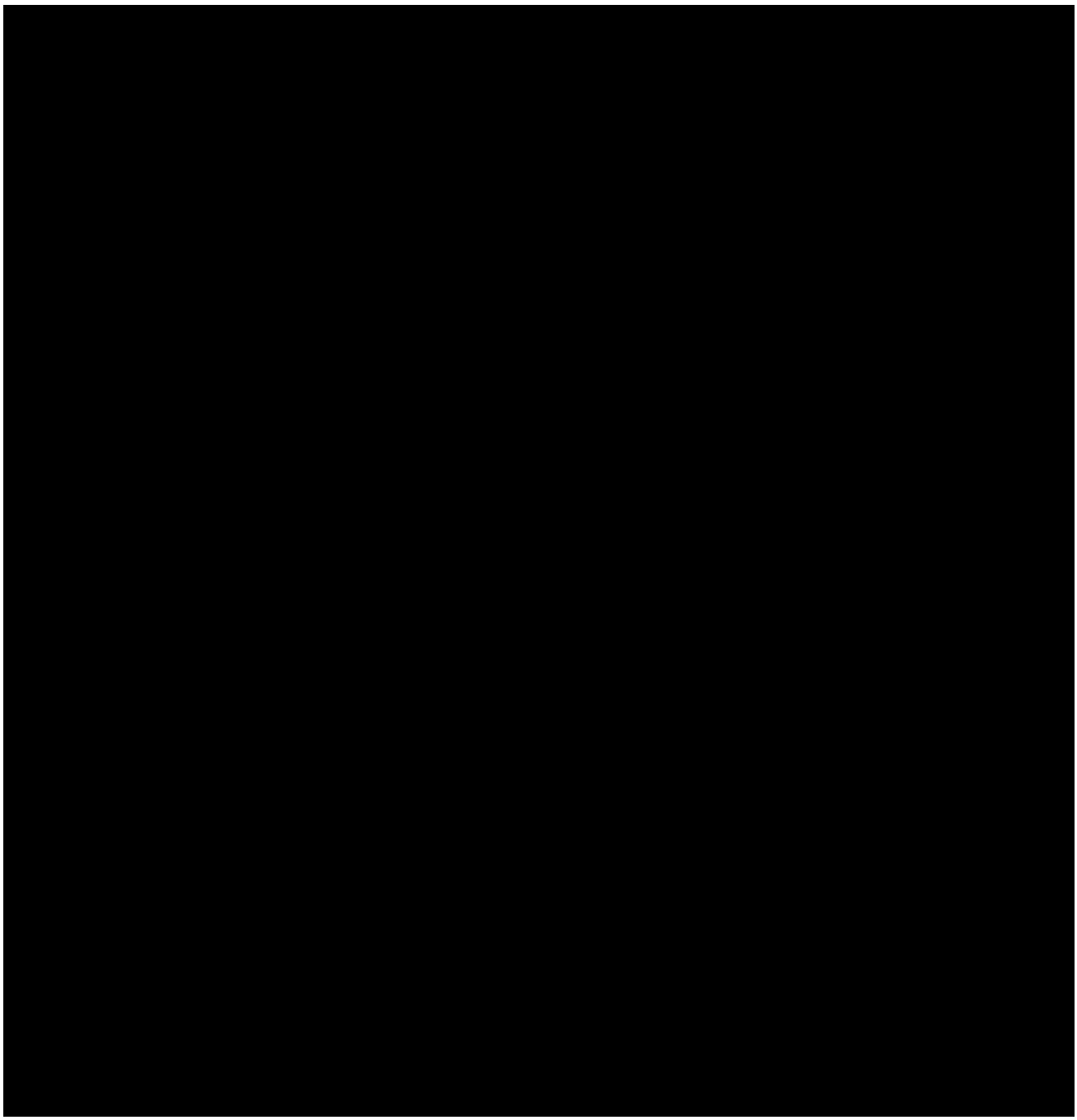

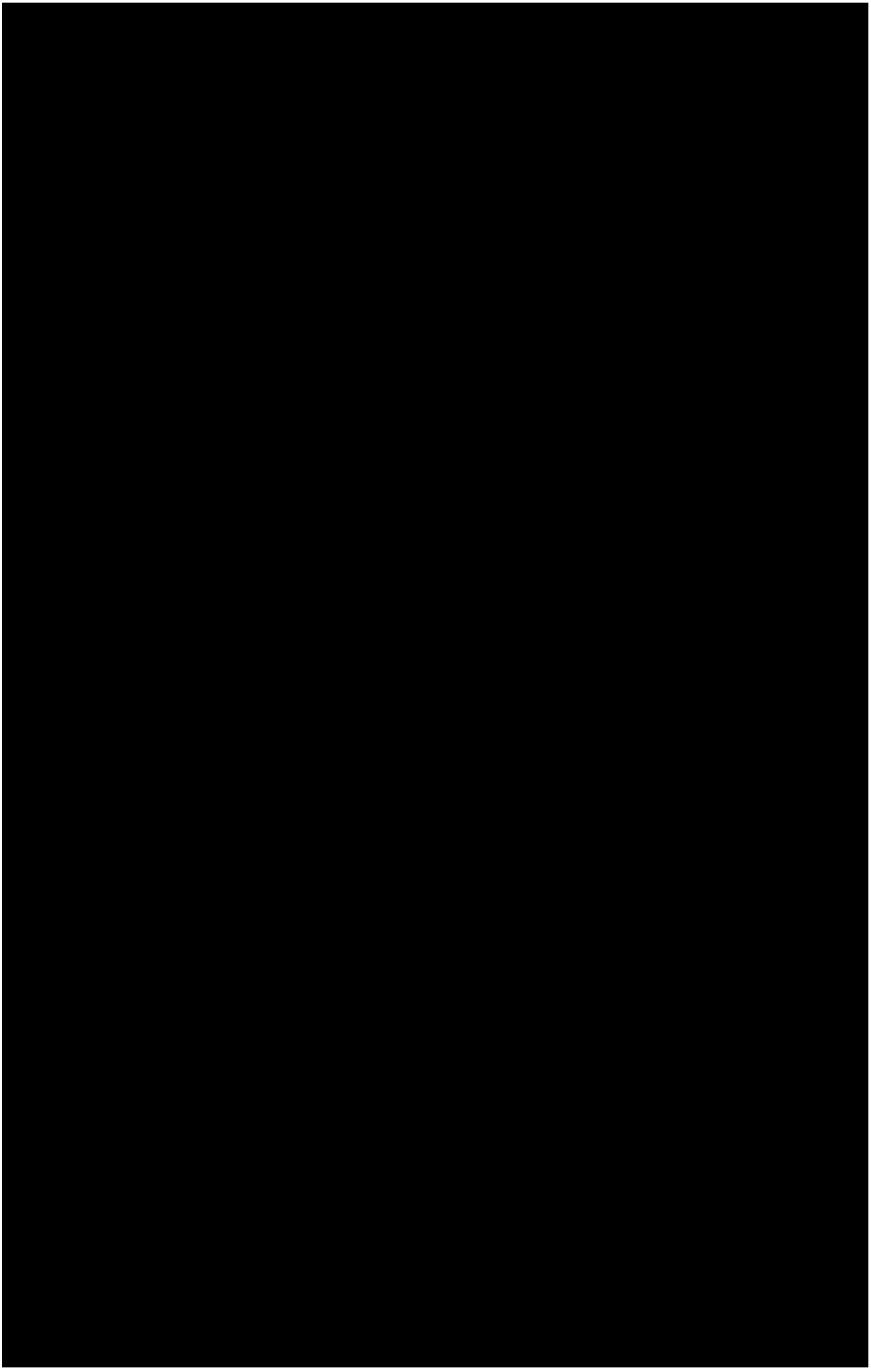

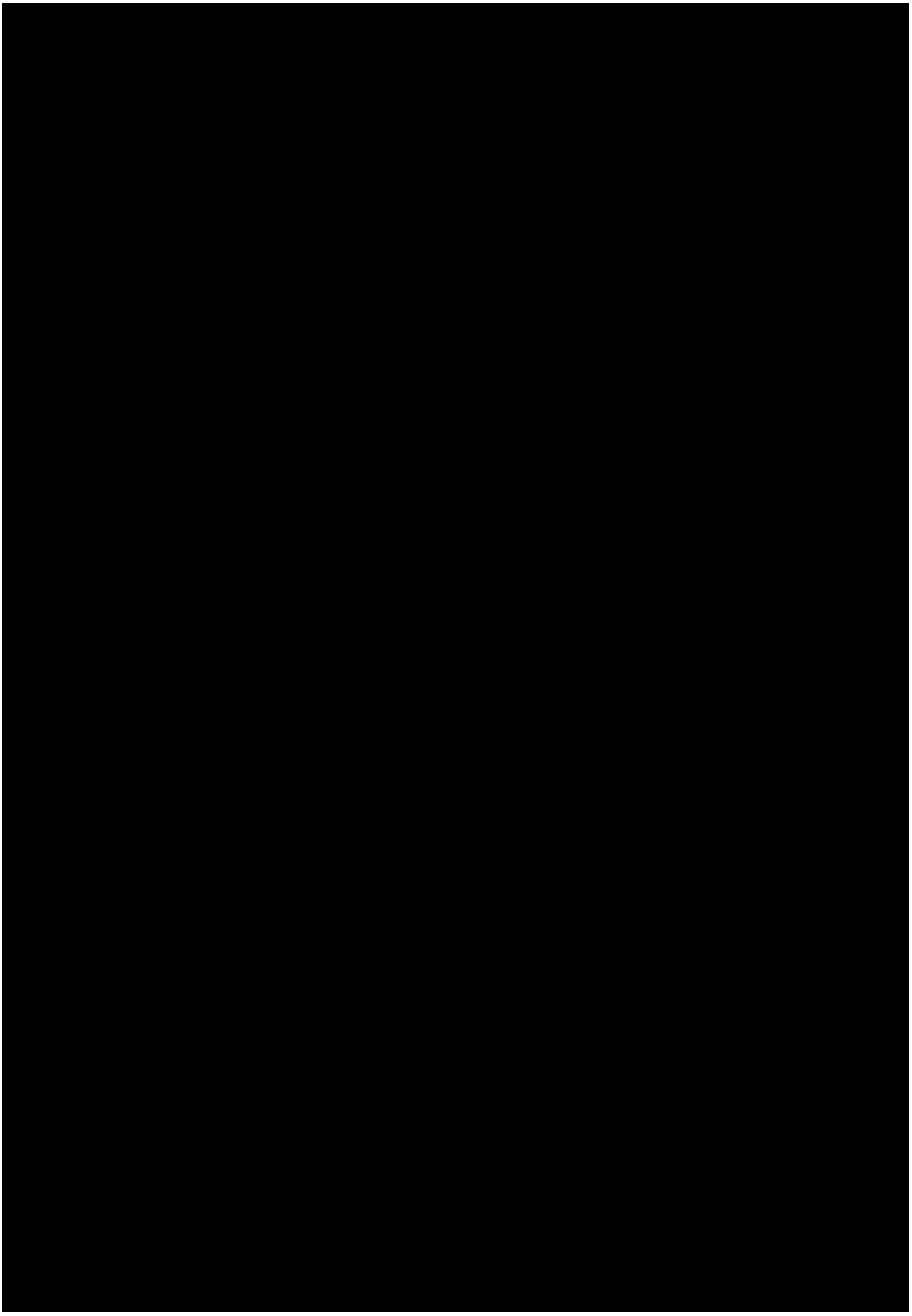

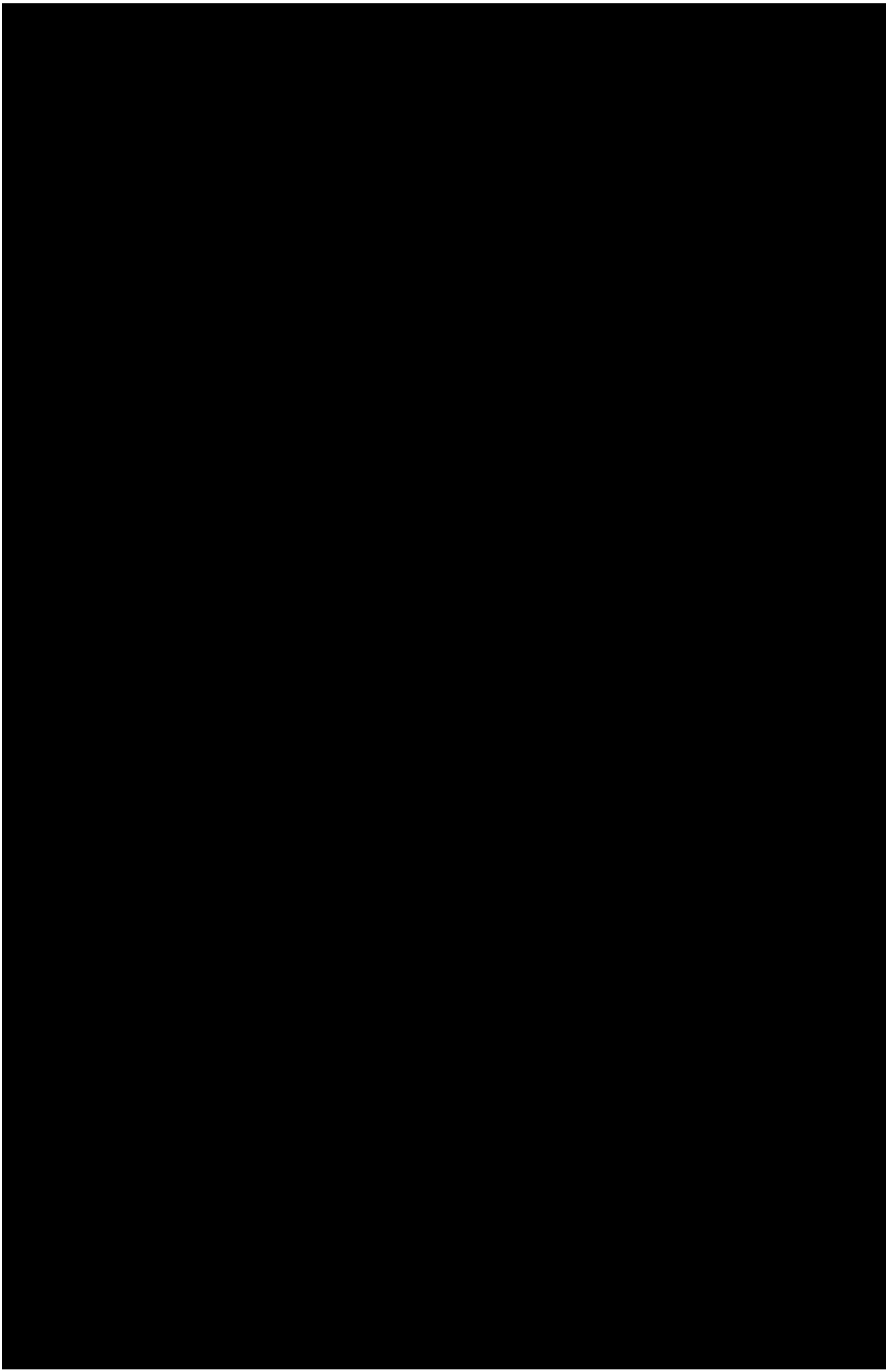

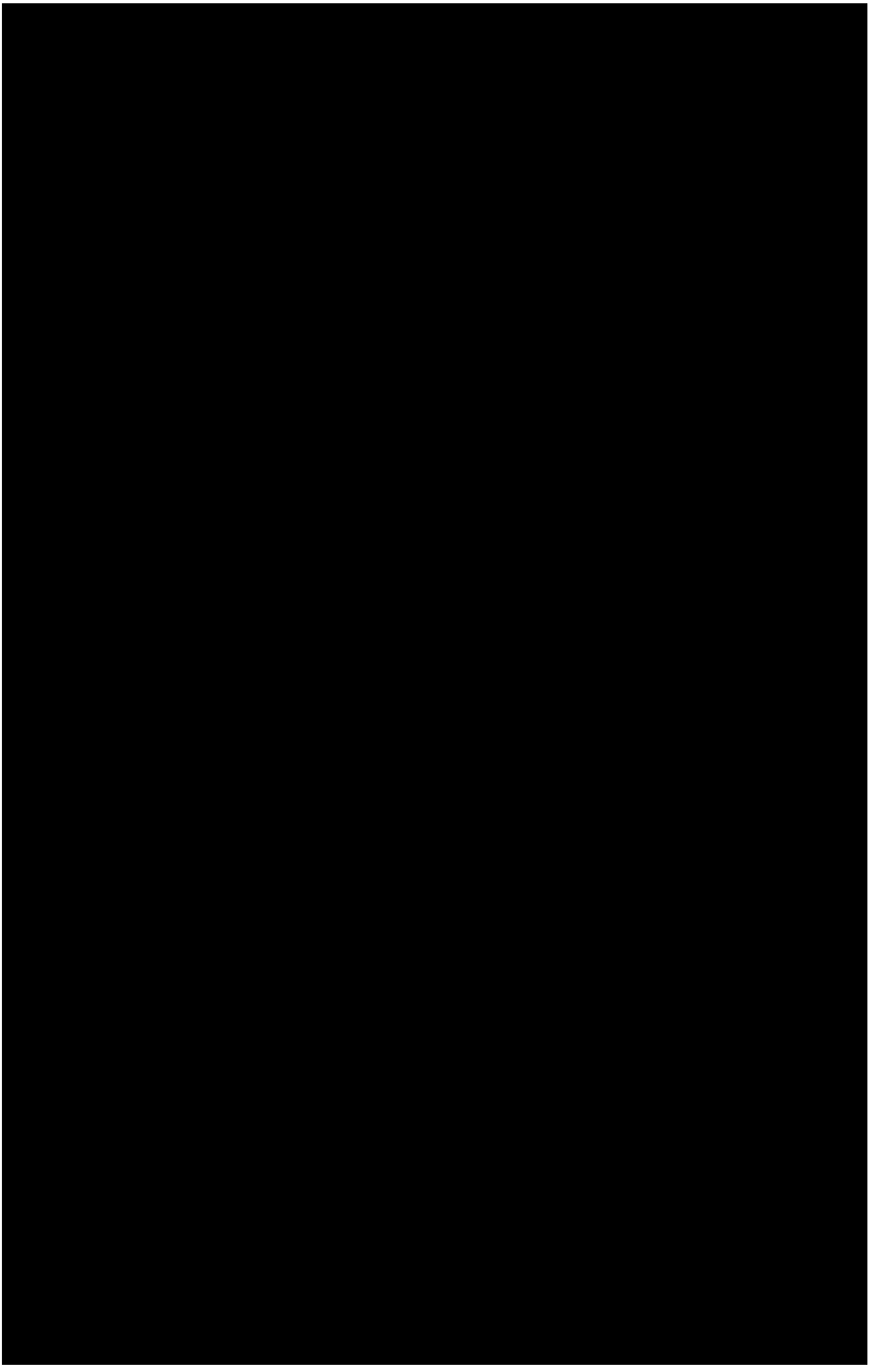

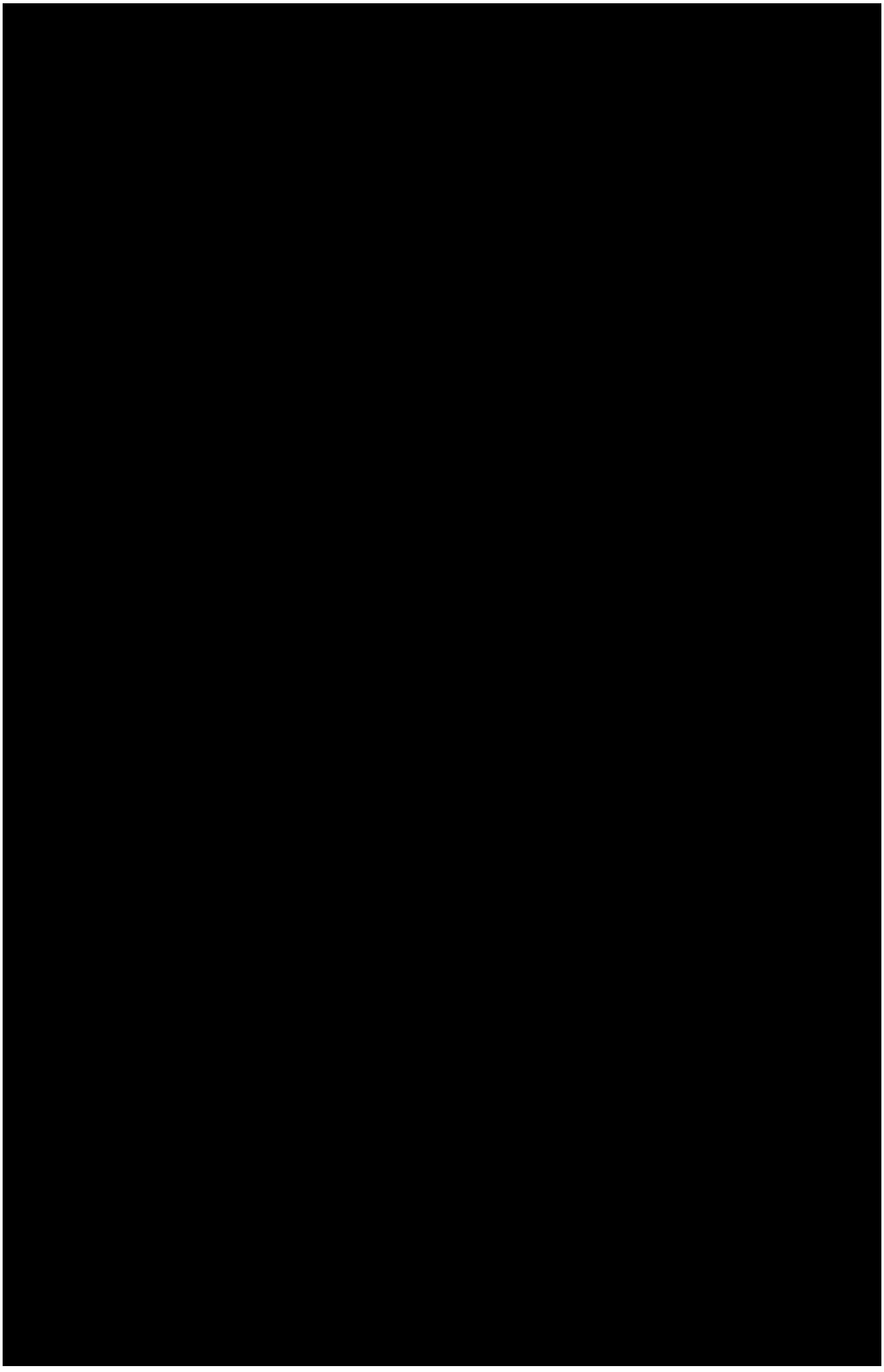

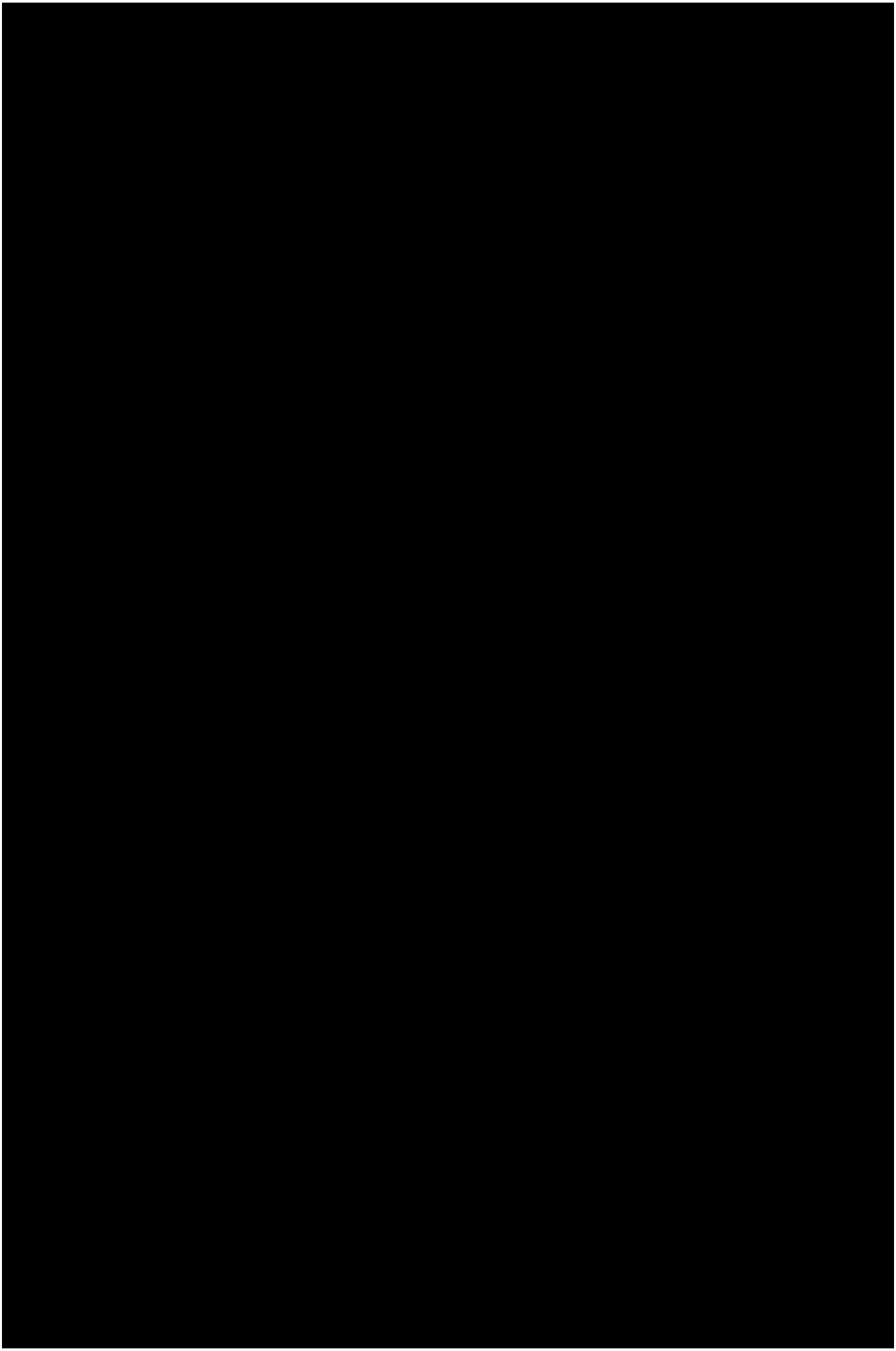

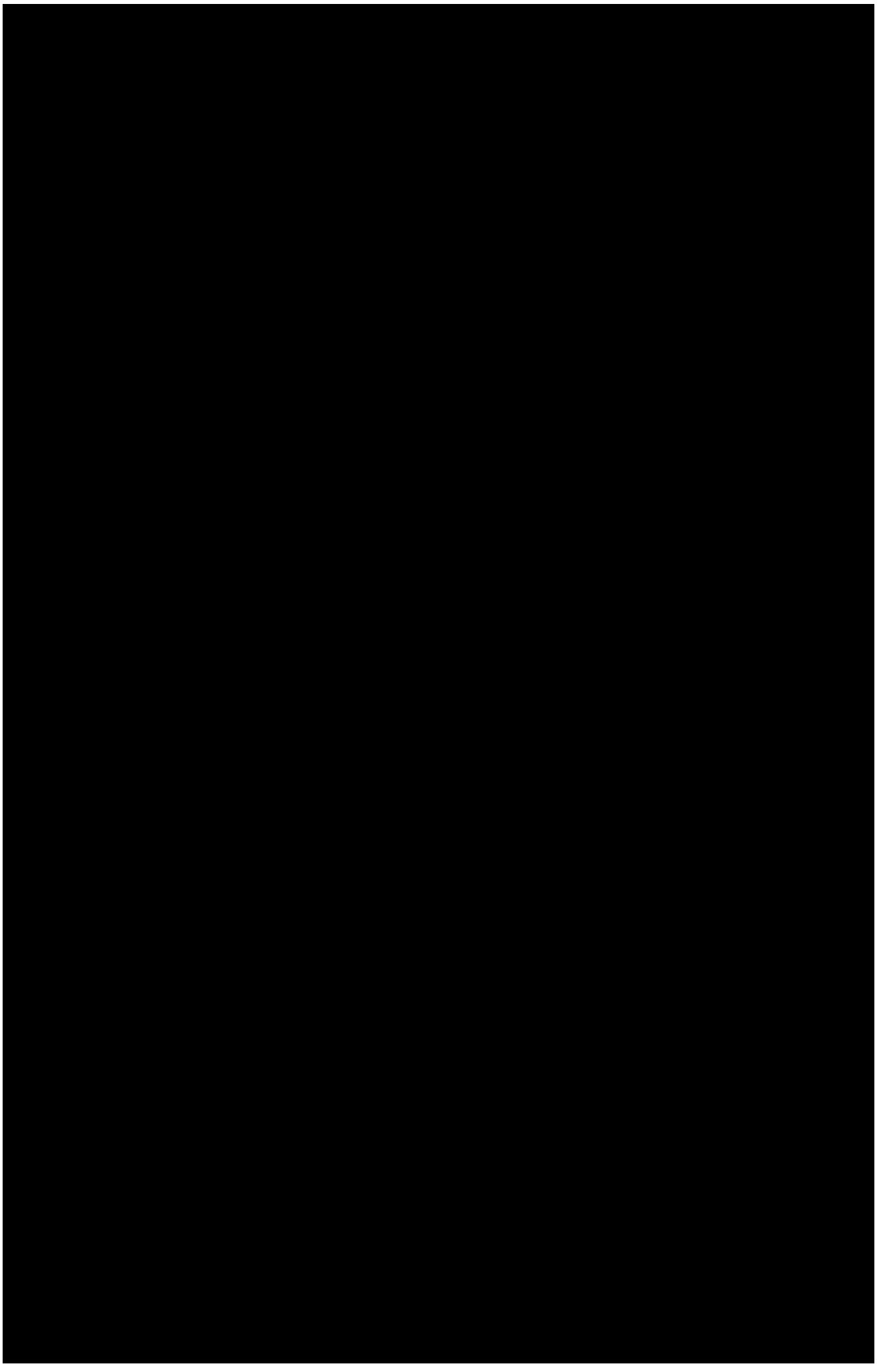

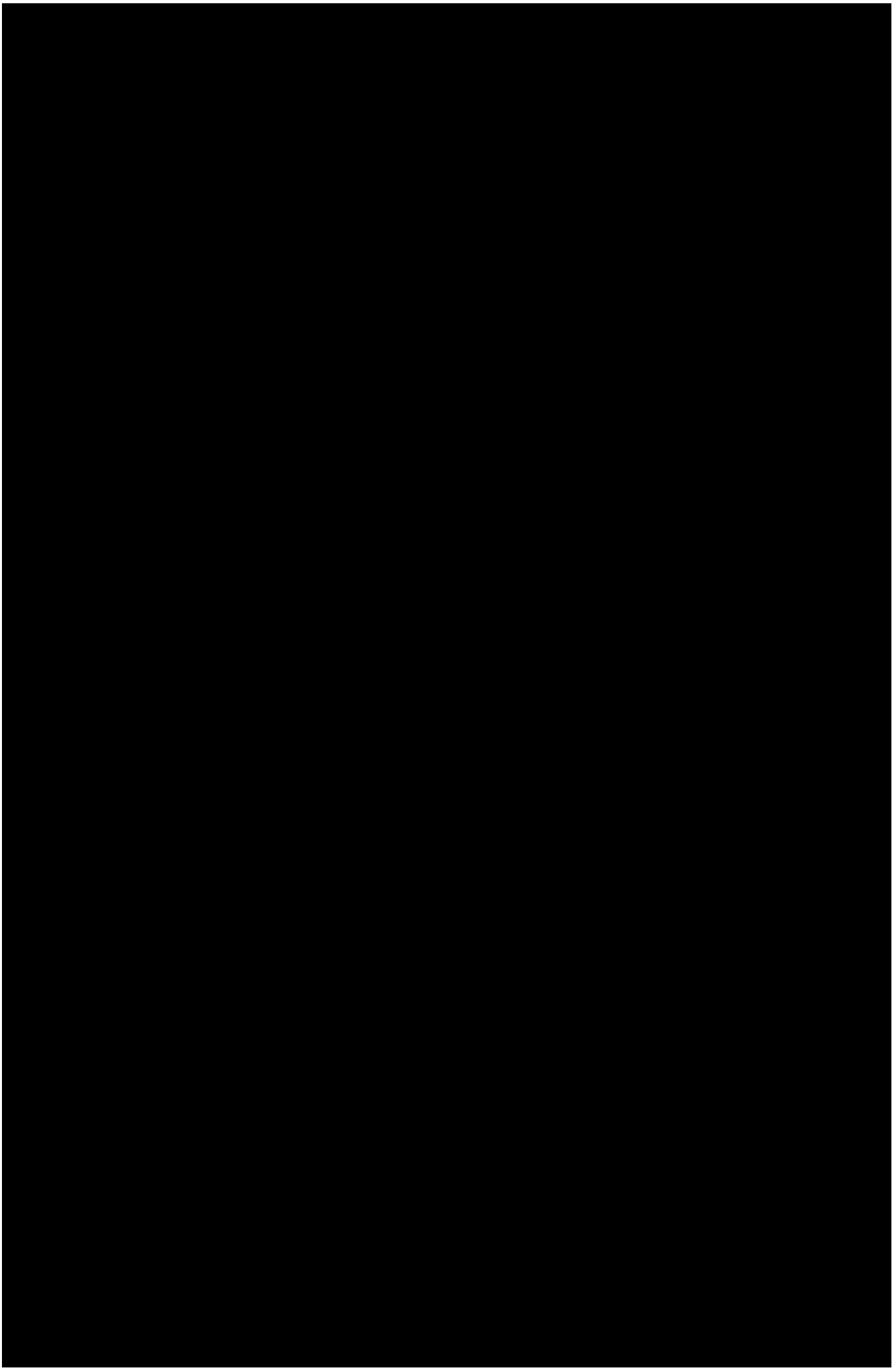

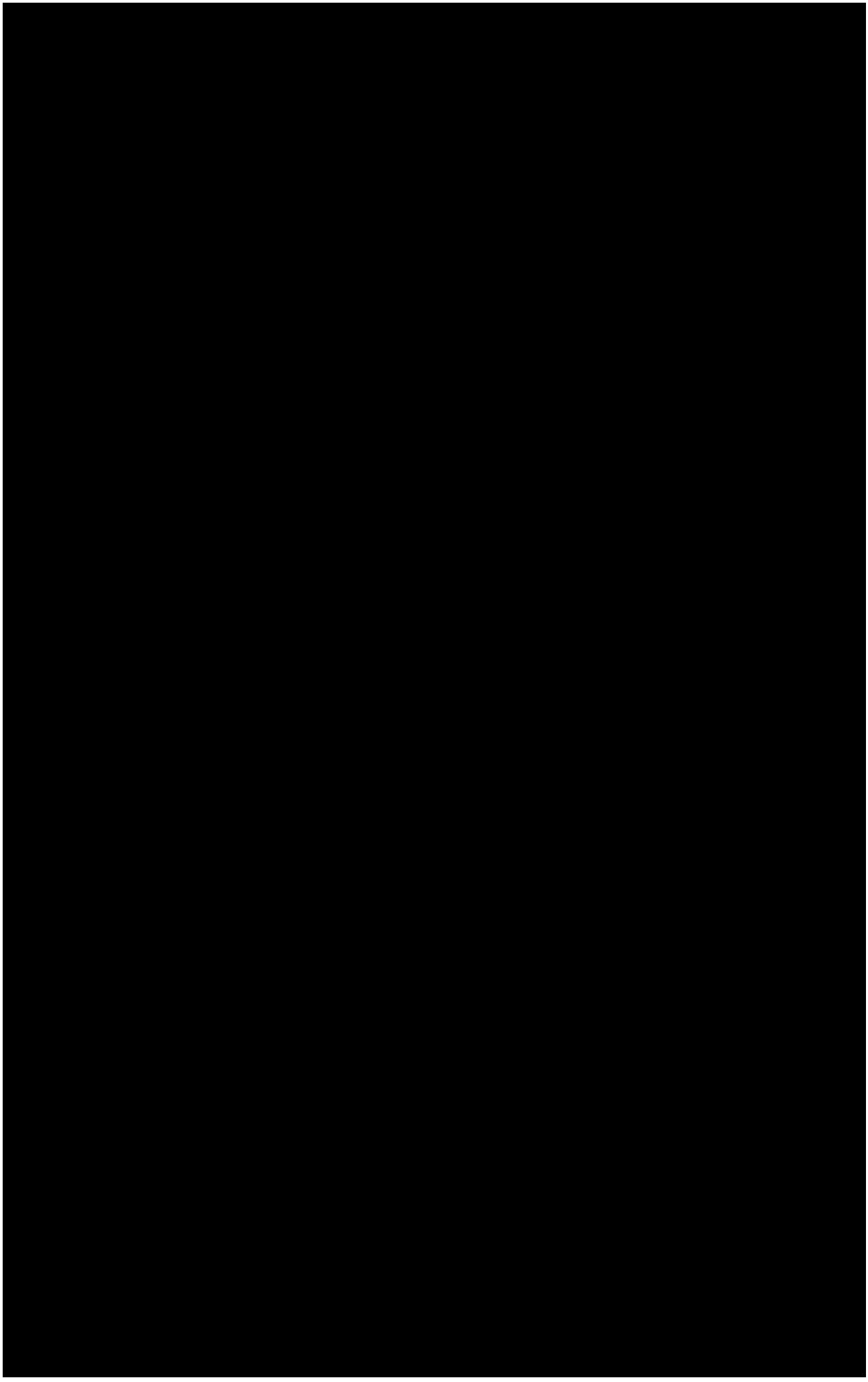

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Project Title: Arborfield Eco
Project Reference: 868.1

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| | Personnel | Position |
|---|---|---|
| Author | Bob Goldsmith | Assistant Ecologist |
| Approved for issue | Clare Bird MCIEEM | Associate Ecologist |



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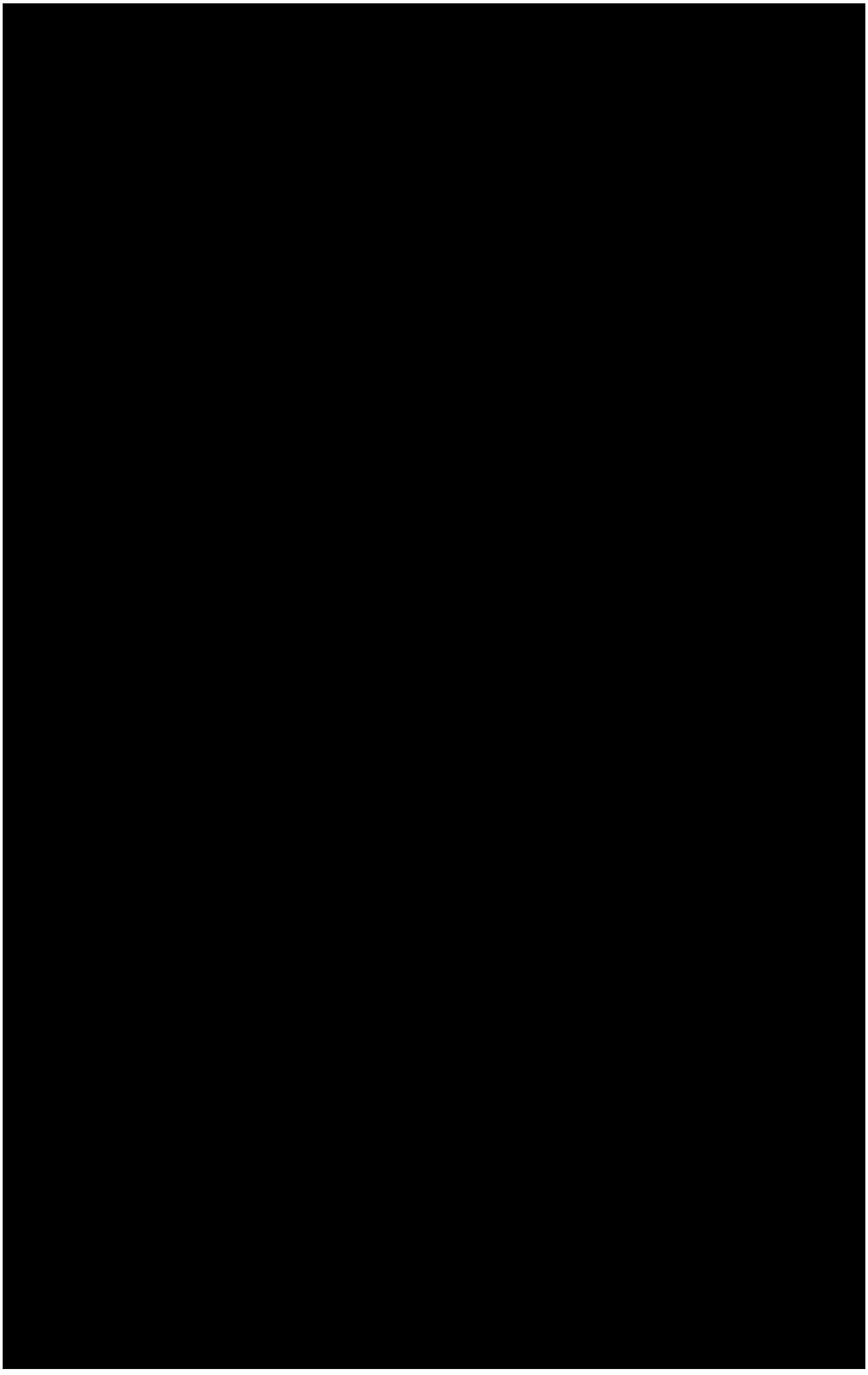

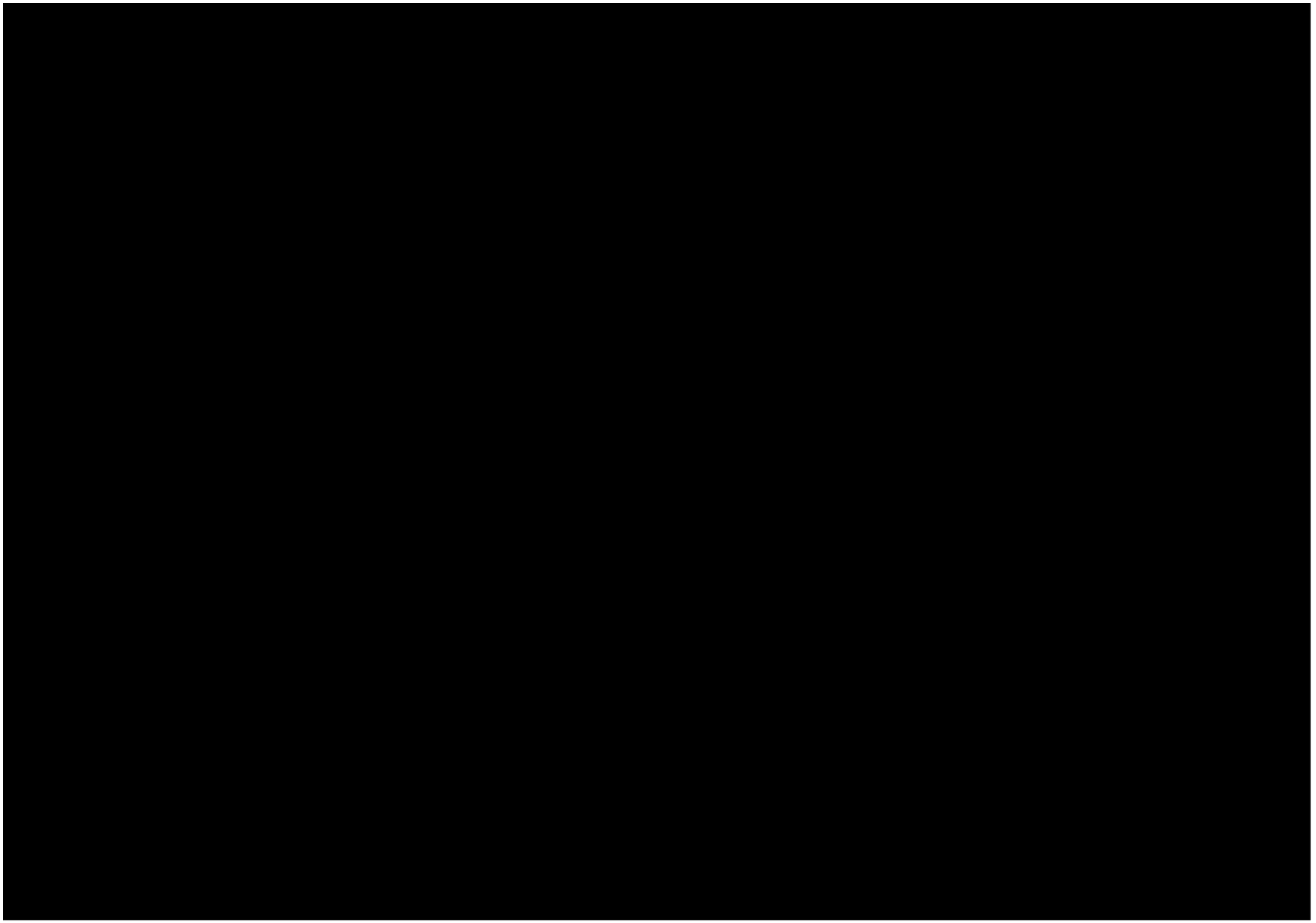

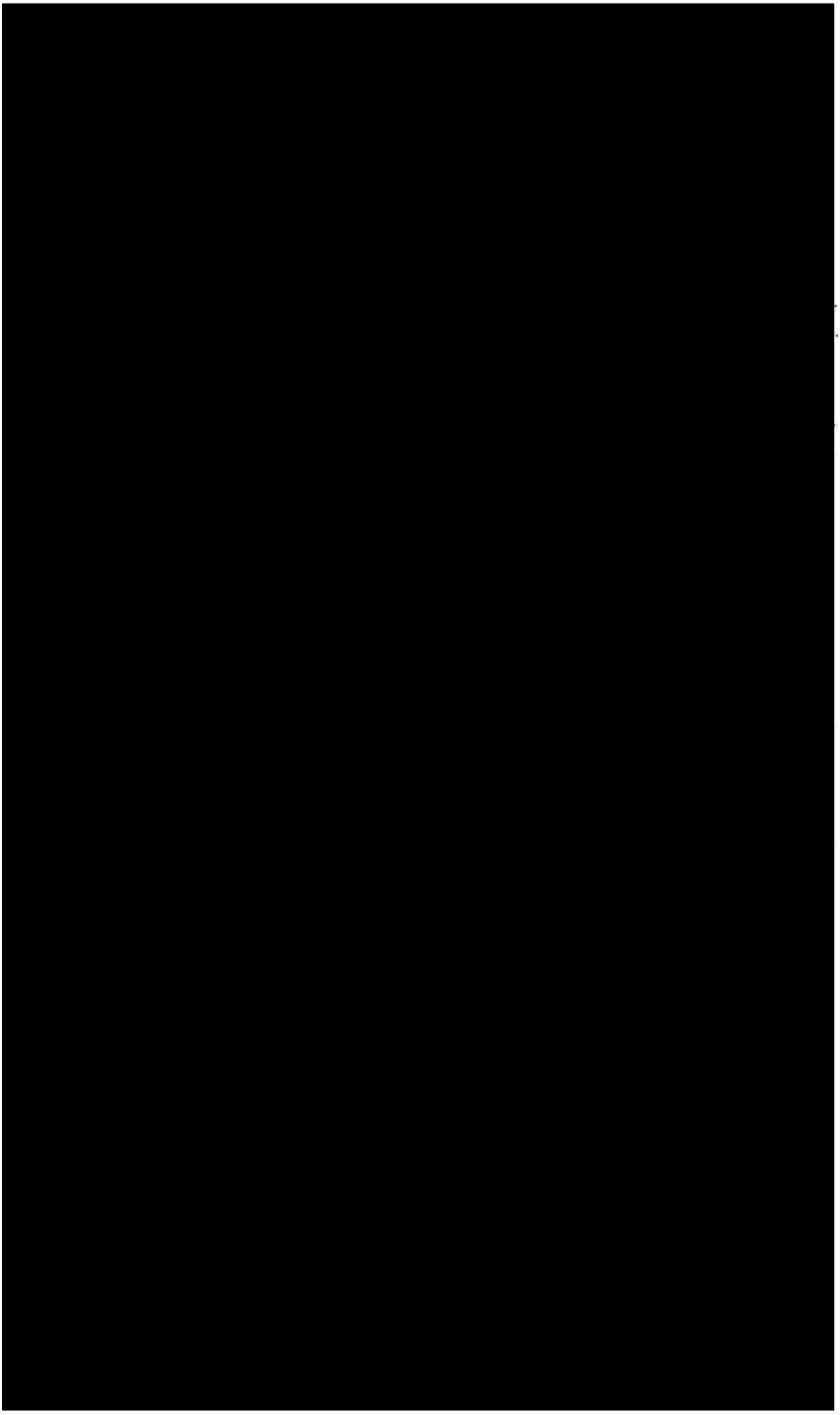

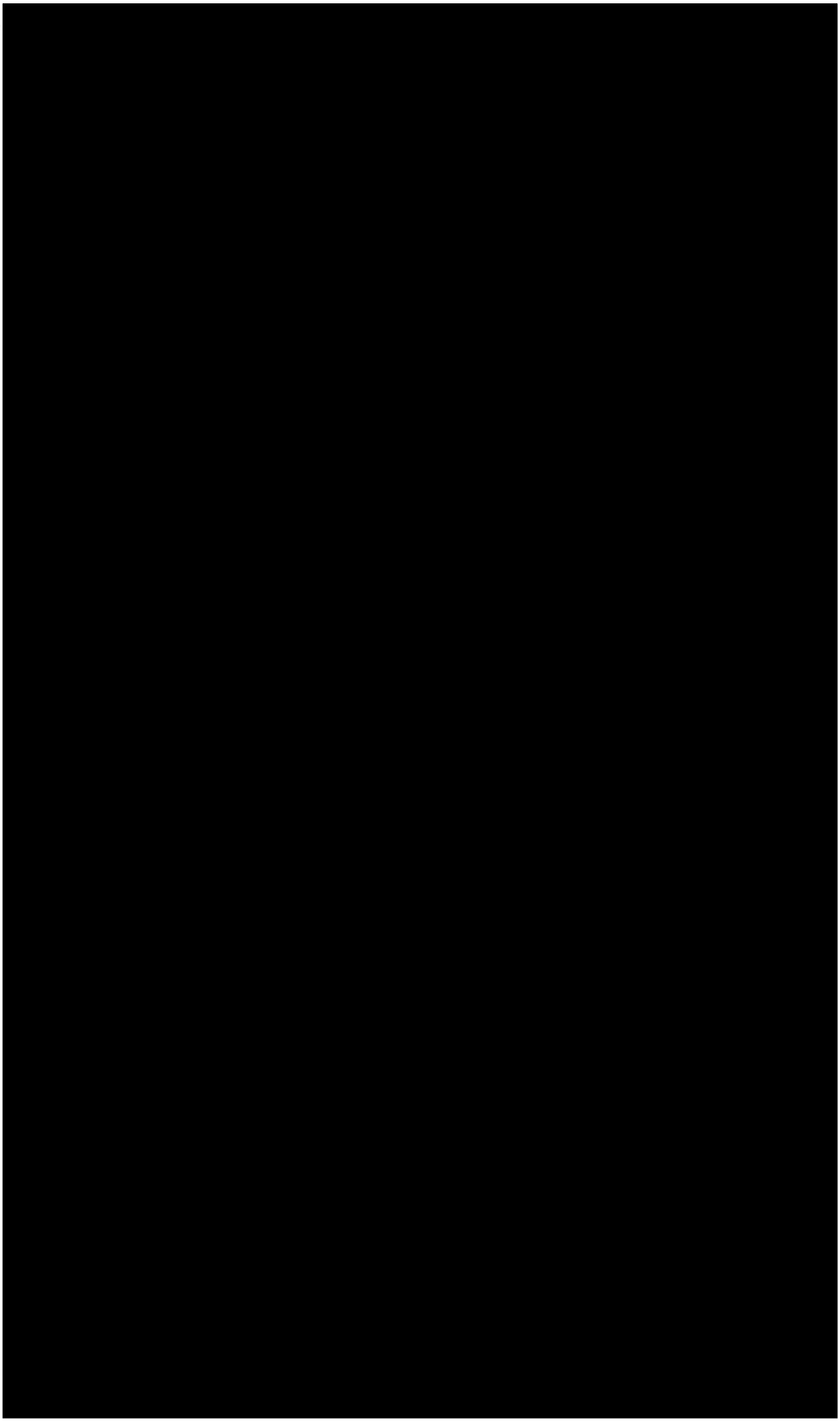

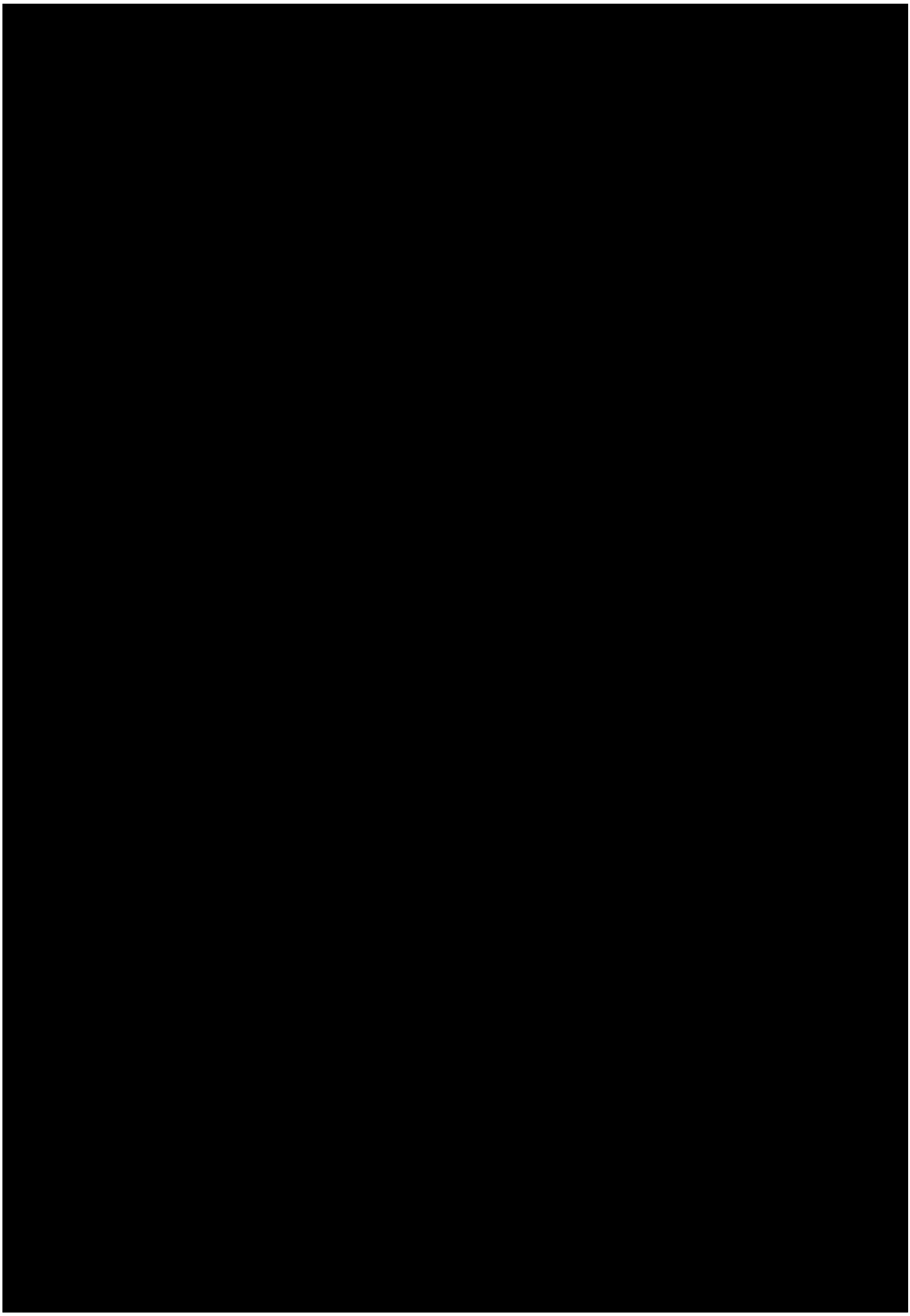

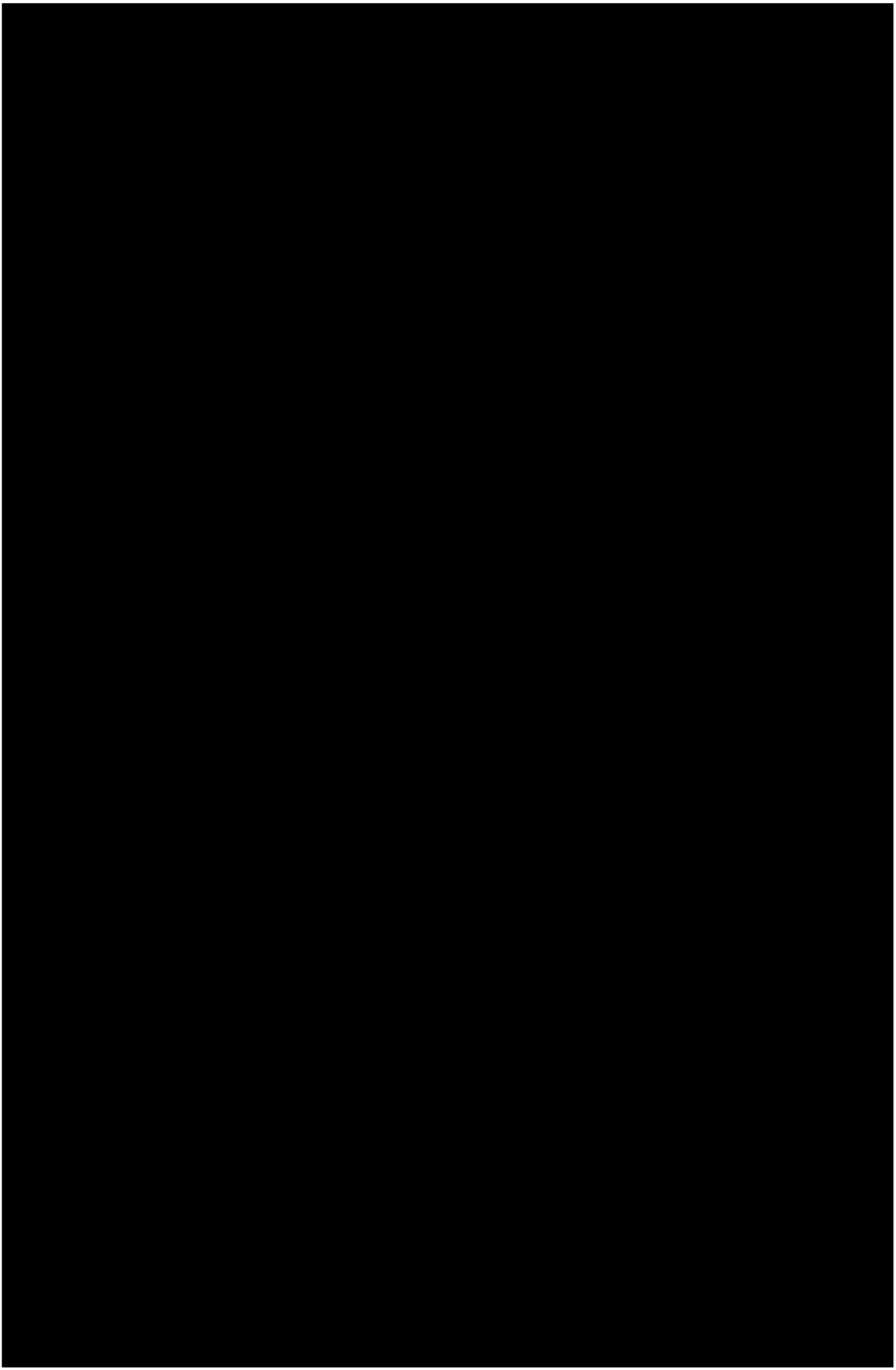

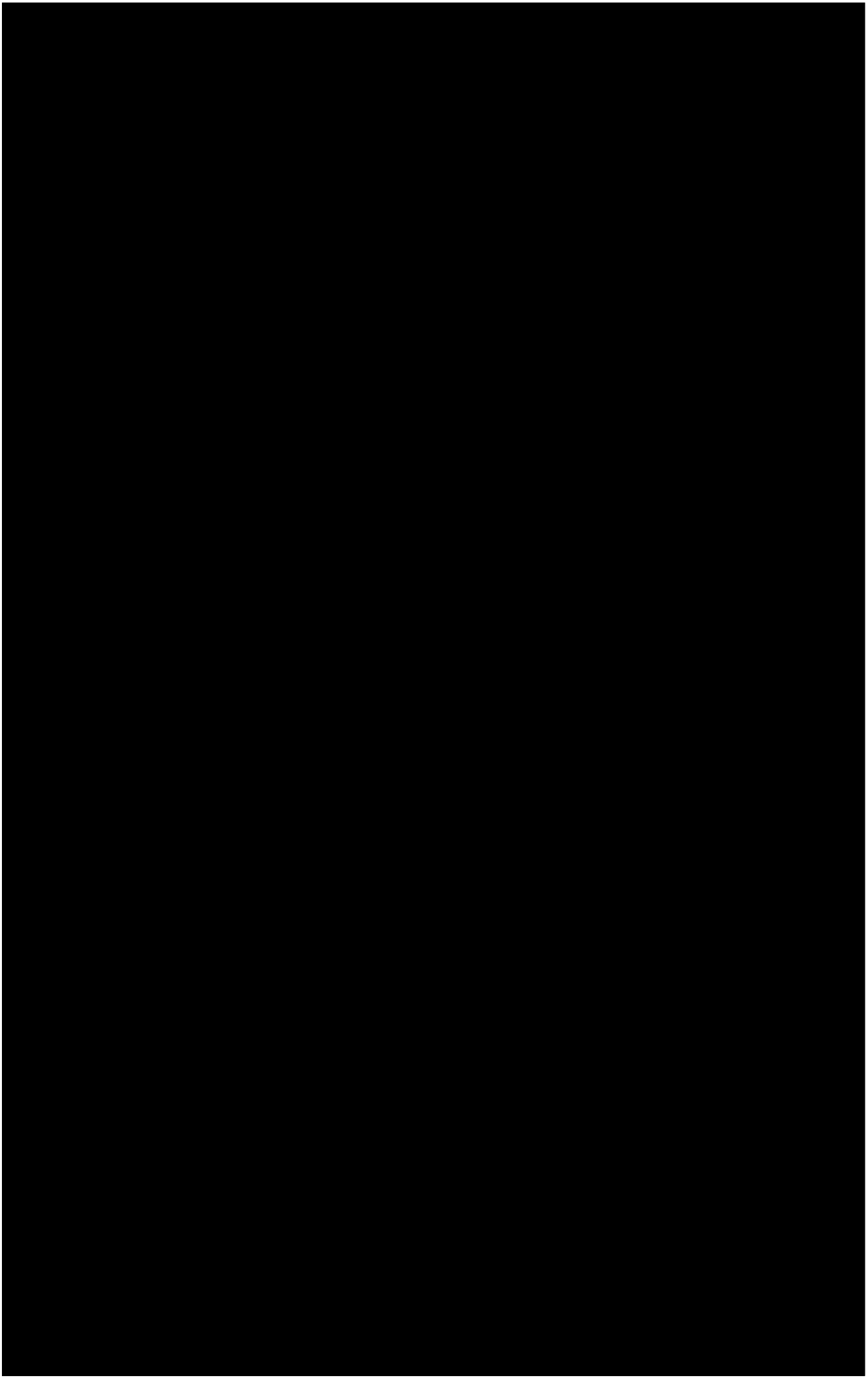

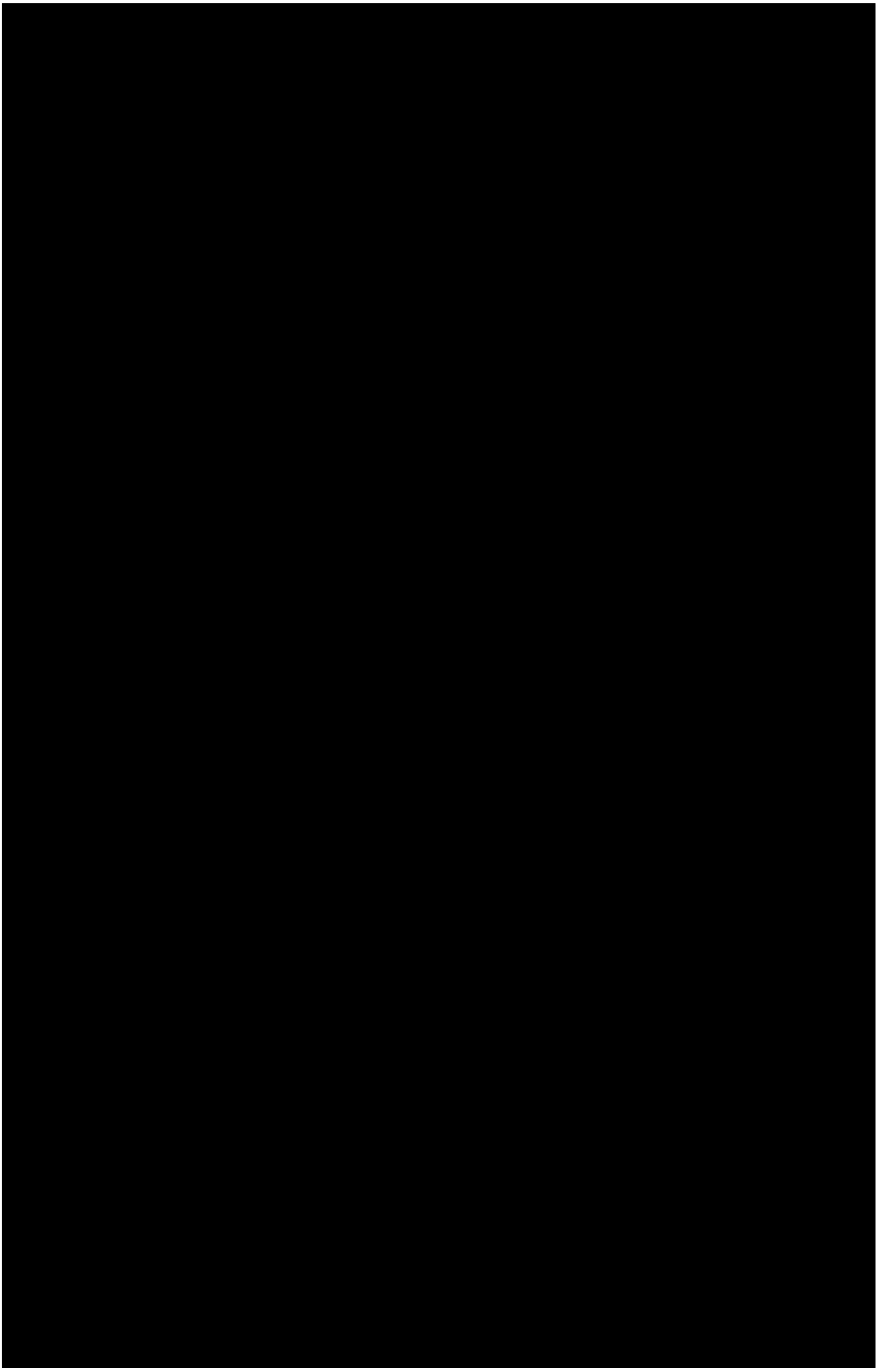

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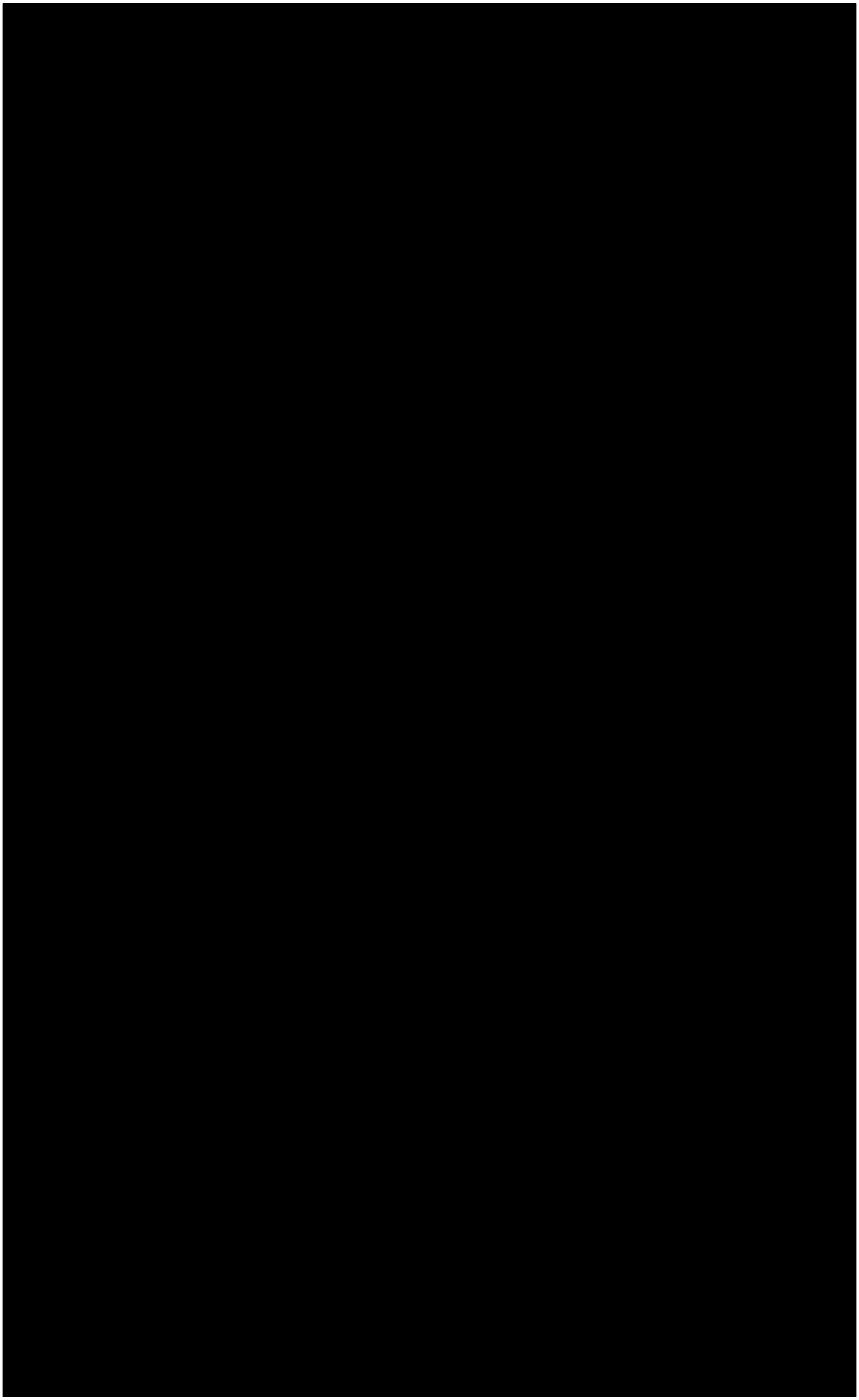

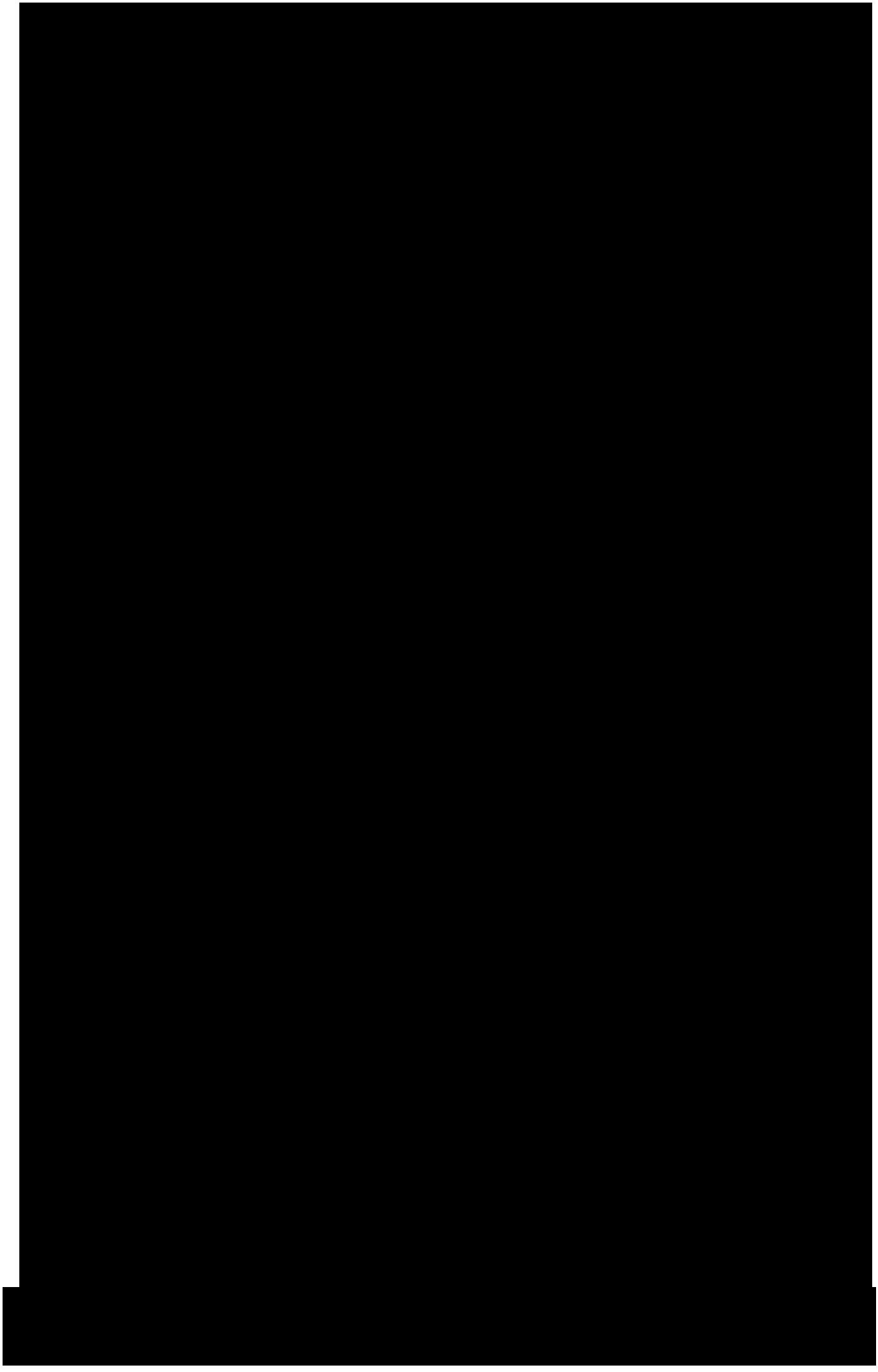

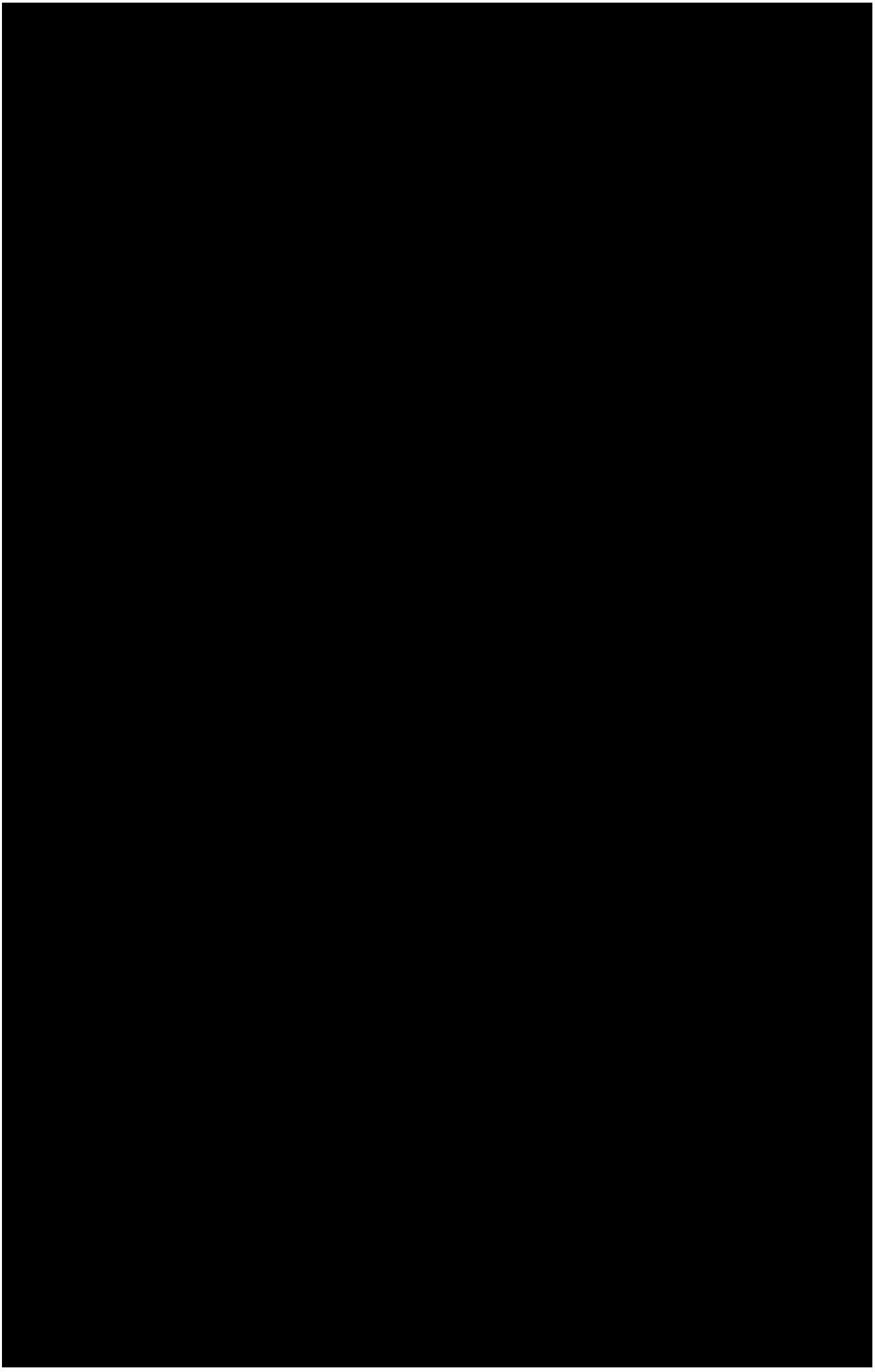

**APPENDIX E**

**2023 Reptile Survey Report and Site-wide Outline Mitigation Strategy**

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# HOGWOOD FARM, FINCHAMPSTEAD

## 2023 REPTILE SURVEY REPORT AND SITE-WIDE OUTLINE REPTILE MITIGATION STRATEGY

**Prepared for CALA Homes (Thames) Ltd**

**by**

**Hankinson Duckett Associates**

**HDA ref: 868.1**

**May 2024**

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**APPENDICES**

# 1 INTRODUCTION

## 1.1 Site location and summary description

1.1.1 This report describes an updated reptile survey and a Site-Wide Outline Reptile Mitigation Strategy of the proposed Phase 4, 5, 6, 10, 11, 12, 13, Neighbourhood Centre and Sports Pitches/Allotment Parcels located within approximately 110ha of land at Hogwood Farm, Finchampstead hereinafter referred to as 'the site'. The centre of the site is located by National Grid Reference SU 76969 64399. The study was commissioned by CALA Homes (Thames) Ltd in May 2023.

1.1.2 The site is located to the north-west of the village of Finchampstead, Berkshire. In general terms, the western area of the site is comprised of three fields of disturbed ground dominated by short ruderal vegetation with scattered areas of tall ruderal vegetation and large spoil heaps bordered by mature trees and woodland with scrub field margins. The central and eastern areas of the site are comprised of areas of hardstanding and construction/disturbed ground bordered by mature treelines and woodland. The south-eastern area of the site comprises two fields of semi-improved grassland fields intersected by a ditch with associated scrub and scattered trees. A species-rich hedgerow with trees adjacent to Park Lane is present along the southern boundary. Woodland shaws and copses are located in the northern, western and central areas of the site, including mixed, broadleaved and broadleaved plantation woodland types, some of which are included in Natural England's Inventory of Ancient Woodland. Wetland habitats within the site include drainage ditches and small streams associated with the field boundaries and several ponds in poor condition are located across the site. Further information on the extent and composition of habitats across the site is provided in the Phase 1 Habitat Survey and Target Notes (HDA, 2024).

1.1.3 The site is part of a larger area covering a total of 110ha, hereinafter referred to as the 'wider site'. The wider site comprises residential dwellings associated with Parcels 1 and 2 in the north-west, construction sites associated with Parcels 14 and 15 in the east and the Nine Mile Ride Extension (NMRE) and the SANG which comprises a mix of wetland, grassland, scrub and woodland habitats which is located in the south of the wider site.

1.1.4 The site and wider site are bordered to the north by residential dwellings, the Bohunt School and the Hogwood Industrial Estate; to the east by Park Lane beyond which lie residential dwellings and park homes; to the south by Park Lane and farmland; and to the west by A327 Reading Road and Sheerlands Road beyond which lie farmland and woodland. The wider area is dominated by agricultural land interspersed with woodland and residential properties. The location and boundary of the site and wider site are shown in *Appendix A*.

## 1.2 Background and legislative context

1.2.1 Four species of reptile are widespread in England: Grass Snake *Natrix helvetica*, Slow-worm *Anguis fragilis*, Common Lizard *Zootoca vivipara* and Adder *Vipera berus*. The Sand Lizard *Lacerta agilis* and Smooth Snake *Coronella austriaca* are restricted to certain sand dune and heathland sites.

1.2.2 Reptiles can be found in a range of habitats and typically require a mosaic of vegetation types. Habitat interfaces are important with reptiles requiring woodland, scrub or hedgerow for shelter, with adjacent longer vegetation for hunting and patches of sheltered short turf, bare ground or log piles for basking areas. Areas which catch the sun (i.e. those with a southerly aspect) are preferred over those where direct sunlight is absent for most of the day. In addition, Grass Snakes favour damp habitats such as those associated with still and running water, grazing marshes, mires etc.

1.2.3 All species of reptile are protected through Sections 9(1) and 9(5) of the 1981 Wildlife and Countryside Act (as amended). It is an offence to:

- Intentionally kill or injure any reptile; and/or
- Sell, offer for sale, possess or transport for the purposes of sale or publish advertisements to buy or sell any reptile.

Due to their rarity, Sand Lizards and Smooth Snakes have additional protection.

1.2.4 Reptiles across the UK have undergone significant declines in recent years and all native species of reptile are listed as priority species on the UKBAP and identified as Species of Principal Importance under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act. Section 40 of the Act requires that these species are a material consideration in the planning process.

## 1.3 Development proposals

1.3.1 Planning permission (O/2014/2179 and 140764) was granted in January 2017 for a hybrid application. This comprises:

- Outline permission for demolition of all existing buildings on site; up to 1,500 new dwellings; employment floor space; a Neighbourhood Centre; a primary school; sports pitches and associated pavilion building; highways infrastructure; associated landscaping, public realm, open/green space and sustainable urban drainage systems; and
- Full permission for a 29.7ha Suitable Alternative Natural Greenspace (SANG) in the south of the site.

The hybrid planning permission was subsequently amended by a Section 73 application (181194) which was approved in November 2018.

## 1.4 Scope and purpose of the report

1.4.1 Reptile surveys of the site and wider site were conducted by HDA in 2017 (HDA, 2018a) and 2021 (HDA, 2021). During the 2021 surveys, a low number of Slow-worm were recorded within the site and the presence of Grass Snake was identified within the wider site in 2017 and 2021. This updated previous surveys of the site and wider site undertaken by Entec in 2008 and Amec in 2012 which identified 'low' populations of Common Lizard, Slow-worm and Grass Snake (Royal Haskoning DHV, 2014).

1.4.2 The Reptile Survey Report and Site-Wide Outline Reptile Mitigation Strategy (HDA, 2018a) was produced in response to Planning Condition 26, which states:

*"Prior to submission of any Reserved Matters applications other than pertaining to the Nine Mile Ride Extension South an outline reptile mitigation strategy shall be submitted to and approved in writing by the local planning authority. All sub phases of the development shall thereafter be designed to incorporate the requirements identified in the approved outline reptile mitigation strategy. All Reserved Matters applications for any sub phase of the development shall include a detailed reptile mitigation strategy that demonstrates how the relevant sub phases have been designed to incorporate the provisions of the outline reptile mitigation strategy and the detailed mitigation strategies shall be implemented in accordance with the approved details unless otherwise approved in writing by the local planning authority."*

1.4.3 In recognition of the known reptile presence at the site and surrounding area and the time that has passed since the reptile surveys were carried out in 2017 and 2021, an updated reptile survey was conducted by HDA in 2023 to confirm the current status and distribution of reptiles within areas potentially affected by the proposed development. The survey results were also used to inform this updated version of the Site-wide Outline Reptile Mitigation Strategy. Specifically, the aims of the updated reptile survey are:

i. To confirm the current presence/ probable absence of reptiles at the site;
ii. To assess the relative importance of different parts of the site for reptiles; and
iii. To provide a updated Site-Wide Outline Reptile Mitigation Strategy to ensure impact avoidance, minimisation and mitigation measures for reptiles are implemented across the overall scheme.

# 2 METHODOLOGY

2.1 The methodology has been devised to accord with the requirements of all relevant legislation and good practice guidance, including the Herpetofauna Worker's Manual (JNCC, 1999), Reptile Survey guidance (Froglife, 1999) and Surveying for Reptiles (Froglife, 2016).

2.2 The site was surveyed on seven occasions by Robert Goldsmith of HDA. Surveys were generally carried out during optimum temperature and weather conditions (intermittent or hazy sunshine, temperature between 9°C and 20°C and low winds). Dates of survey visits, with survey timings and weather conditions, are shown in *Table 1* below:

**Table 1:** Survey times and weather conditions

| Survey visit | Date | Time of Visit | Weather conditions | Temp (°C) |
|---|---|---|---|---|
| 1 | 12/09/2023 | 9:40 - 13:30 | 100% Cloud cover, light breeze | 18.5 |
| 2 | 15/09/2023 | 10:00 – 12:15 | 0% Cloud cover, light breeze | 19.5 |
| 3 | 19/09/2023 | 09:25 – 11:35 | 100% Cloud cover, light breeze, after light rain | 17.5 |
| 4 | 21/09/2023 | 12:45 – 14:40 | 80% Cloud cover, no wind | 17.0 |
| 5 | 27/09/2023 | 11:25 – 13:15 | 60% Cloud cover, light breeze | 18.0 |
| 6 | 29/09/2023 | 14:20 – 16:20 | 0% Cloud cover, light breeze | 19.0 |
| 7 | 05/10/2023 | 10:10 – 13:45 | 60% Cloud cover, no wind | 17.0 |

2.3 Two methods of surveying were used. Firstly, artificial refugia (squares of roofing felt 0.5m x 0.5m) were placed, in advance of the survey commencing, at potential basking areas throughout the site. A total of 166 refugia were placed, giving a total density of 7.5 refugia per hectare for areas considered to provide suitable reptile habitat (22 ha), as much (17 ha) of the site had been stripped to bare ground at the time of the survey and was considered unsuitable for reptiles. This density is within the recommended density of 5 to 10 refugia per hectare of suitable reptile habitat. The locations of the refugia are shown on the plan in *Appendix A*.

2.4 During each of the seven subsequent visits, each refugium was inspected for any reptiles basking on the upper side, then lifted and checked for sheltering animals before being carefully replaced. A different route was taken for each of the survey visits to ensure that there was no bias due to the time of survey.

2.5 The second survey method involved transect searches across suitable habitats within the site. This ensured that all areas were represented in the survey, and that the survey was not biased towards those reptiles more likely to use refugia. Transect searches involve walking slowly around the site, visually searching potential basking areas and marking the locations of any reptiles observed on a map. Potential reptile refuges already present on the site such as dead logs and building material were also lifted to check for the presence of animals.

2.6 The following information was recorded for each reptile survey: species seen, number of animals seen, location (refugium number), date, start and finish times, temperature and weather.

### 2.7 Limitations

2.7.1 The reptile surveys were carried out at a time of year when reptiles are active during suitable weather conditions. It is therefore considered that no significant limitations were encountered during the survey and the survey findings form a robust basis for an assessment of the impact of the proposed development on reptiles and the identification of recommendations for impact avoidance, minimisation and mitigation.

## 3 RESULTS

### 3.1 Habitat assessment

3.1.1 The majority of the western section of the site consists of disturbed ground with short ruderal vegetation and the southern section of the site consists of semi-improved rough grassland which provides low to moderate quality habitat for reptiles. Higher quality habitat for reptiles is provided by the tall ruderal vegetation, scrub and hedgerow field margins, and woodland edge habitat. The majority of the central and eastern sections of the site consist of disturbed bare ground which was considered to be unsuitable for reptiles.

### 3.2 Refugia and visual searches

3.2.1 Despite the presence of suitable habitat within the site, no reptiles were recorded during the 2023 reptile surveys or incidentally on other site visits for ecological surveys carried out at the site in 2023/2024.

## 4 SITE EVALUATION

4.1 A number of guidelines are used to evaluate the importance of a site for reptiles, based on both the population density and number of species present, in addition to historical factors.

4.2 The Guidelines for Biological Selection of SSSIs (JNCC, 2022) identifies that for the more common and widespread species of reptile (Adder, Grass Snake, Common Lizard and Slow-worm) the following criteria should be considered for candidate SSSIs:

- The best 5 locations supporting established populations of Adder in any area of search; and/ or
- The best localities in which three or more common and widespread reptile species occur.

The presence of populations of one or two common and widespread reptile species, should also count positively in the evaluation of potential SSSIs chosen largely on other grounds, especially where populations are large, located in areas where the species concerned is rare or at the geographical limits of its range.

4.3 The Herpetofauna Workers' Manual (JNCC, 1998) suggests that sites falling outside of the SSSI selection criteria should be designated as Sites of Importance for Nature Conservation (SINCs) if they meet the following criteria:

- Any site with a large population of a single species;
- Any site with a moderate population of two species;
- Any site at the edge of the geographical range of a species; and
- Any site with a long documented history.

4.4 The Key Reptile Site register is a mechanism designed to promote the safeguard of important reptile sites. To qualify for the register, the site in question must meet at least one of the following criteria (Froglife, 1999):

- Supports three or more reptile species;
- Supports two snake species;
- Supports an exceptional population of at least one species (*Table 3*);
- Supports an assemblage of species scoring at least 4 (*Table 3*); and
- Does not satisfy the above criteria but is of particular regional importance due to local rarity (e.g. in the East Midlands, Adders are very rare so even "low" populations should be designated as Key Sites).

The criteria for scoring populations of the four common reptile species for the purposes of the Key Reptile Register are given in *Table 3* below.

**Table 3:** Population parameters for the Key Reptile Sites register

| Reptile species | Low population Score 1 | Good population Score 2 | Exceptional population Score 3 |
|---|---|---|---|
| Adder | <5 | 5-10 | >10 |
| Grass Snake | <5 | 5-10 | >10 |
| Common Lizard | <5 | 5-20 | >20 |
| Slow-worm | <5 | 5-20 | >20 |

*Figures in the table refer to maximum number of adults seen by observation and/or under tins (placed at a density of up to 10 per hectare) by one person in one day.*

4.5 Despite the presence of suitable habitat within the site, no reptiles were recorded during the 2023 reptile surveys.

4.6 Notwithstanding this, the presence of Slow-worm and Grass Snake were identified within the site and/or wider site in 2021 (HDA, 2021) and Grass Snake was recorded in 2017 (HDA, 2018a). In addition, low numbers of Slow-worm, Grass Snake and Common Lizard were identified in 2017 (Royal Haskoning DHV, 2014). On this basis, it is conceivable that the site and wider site may support very low populations of Slow-worm, Grass Snake and

Common Lizard on at least an occasional or transitory basis. Although this would mean that the site supports three species of reptile, due to the apparent very low populations and density of all three species it is considered highly unlikely that the site would qualify as a SSSI, SINC or Key Reptile Site on the basis of its reptile assemblage. Slow-worm, Grass Snake and Common Lizard are all common and widespread species in Southern England and suitable habitat for these species is abundant in the wider area, including in the recently established SANG which lies immediately to the south-west of the site. The site is therefore considered to be of no more than low local value for Grass Snake and Slow-worm and site value for Common Lizard.

4.7 Notwithstanding the limited reptile interest of the site, nature conservation legislation afforded to all reptiles will apply which includes the protection of individuals and consideration of reptile populations in the planning process. Measures to safeguard individual reptiles and maintain and enhance the reptile interest of the site through the proposed development are therefore identified in the updated Site-Wide Outline Mitigation Strategy described in *Section 5* below.

## 5 SITE-WIDE OUTLINE REPTILE MITIGATION STRATEGY

5.1 This section describes the methodology that will be carried out to ensure that the proposed development maintains compliance with nature conservation legislation afforded to reptiles and maintains the favourable conservation status of the local reptile population. This methodology will be employed during construction of the proposed development unless otherwise agreed with the Local Planning Authority.

5.2 Although no reptiles were recorded at the site during the updated 2023 reptile surveys, previously low numbers of Slow-worm, Grass Snake and Common Lizard have been recorded within the site and wider site. On this basis it is conceivable that very low numbers of Slow-worm, Grass Snake and Common Lizard remain present at the site. The site is therefore considered to support a very low number of Slow-worm, Grass Snake and Common Lizard and as such does not qualify as a SSSI, SINC or Key Reptile Site. The site is considered to be of no more than low local value for Slow-worm and Grass Snake and site value for Common Lizard. Notwithstanding this, the legal protection afforded to all reptiles still applies.

5.3 Although only very low numbers of Grass Snake, Slow-worm and Common Lizard are likely to be present within suitable habitat throughout the majority of the site, in view of the size of the reptile populations recorded, the retention of habitat corridors around the site (including in the areas where reptiles were formally recorded) a full translocation exercise is unlikely to be required, however this should be reassessed during the production of the Detailed Reptile Mitigation Strategies which will be produced for each phase of the

development in accordance with Condition 26. The detailed reptile mitigation strategy for each phase of the development will either implement a precautionary approach to vegetation clearance (detailed in *Section 5.4* below) or implement a full translocation exercise (detailed in *Section 5.5* below). The approach taken will depend on the extent, location and distribution of the habitat affected and the status of reptiles in any given area. Where appropriate the approach to be taken will be based on updated surveys where more than two years has passed since the 2023 survey was undertaken and/or the extent or character of habitat within any given area has undergone significant change. The advice of a suitably qualified consultant will be sought on the approach to updating of survey work and the approach to be taken agreed with Wokingham Borough Council.

## 5.4 Habitat manipulation

5.4.1 If only relatively small areas of suitable reptile habitat will be impacted by the works, which are connected to suitable reptile habitat in the wider site or wider area, or the likelihood of encountering reptiles is limited then a cautious approach to site clearance will be employed. Suitable reptile habitat includes areas of scrub and ruderal vegetation, rough grassland, pond margins, hedgerow bases and woodland and refuge opportunities such as rubble piles. This cautious approach will involve manipulation of habitats to displace reptiles present into areas of contiguous and improved habitats, following the stages set out below:

<u>Stage 1: Creation/enhancement of reptile receptor habitat and maintenance of long-term opportunities for reptiles following development</u>

A SANG supporting a mix of wetland, grassland, scrub and woodland habitats has been created in the south of the wider site which comprises the main area of reptile receptor habitat within the site. Further areas of suitable reptile habitat will however be created in other areas of public open space within the site, especially where these have good habitat connectivity to the SANG or suitable habitat elsewhere within the site or wider area. The prescriptions for creation/enhancement of reptile habitats within the site and the management of these areas are detailed within the *Outline Site-wide Landscape and Ecological Management Plan* (HDA, 2018b) and shown on the *SANG Masterplan* (RPS, 2018a) and *Overarching Landscape Strategy* (RPS, 2018b). The following habitat enhancement works include:

*Meadow, rough and wet grassland*

Areas of meadow and rough grassland with a species-rich native sward have been established within the SANG and Phase 1 and 2 of the development and will be established in other areas of informal open spaces. In addition, the margins of ponds and ditches and seasonally wet areas associated with the attenuation basins and swales will be sown with a native species-rich wet grassland mix. Prescriptions of benefit to reptiles include:

- Some of the grass cuttings will be used to create ‘habitat piles’ which will provide further opportunities for egg laying Grass Snakes;
- On rotation, selected areas of the grassland will be left uncut during each mowing period in order to provide additional refuge habitat for reptiles; and
- The rough grassland areas will only be cut every 2 – 3 years (cutting no more than 50% in any one year). This will allow a rough tussocky sward to establish as refuge for reptiles and benefiting other groups, such as invertebrates.

*Scrub*

Areas of native species-rich scrub species have/will be planted adjacent to hedgerows and along woodland edges to create ecotones which provide a gradation from woodland/hedgerow to scrub to rough and meadow grassland habitats which are noted for the high diversity of species and biomass they support, including reptiles. Scalloped edges along south, west and east facing margins will provide ideal basking opportunities.

*Hedgerows*

As part of the development proposals, the majority of existing hedgerows have/will be retained and enhanced, and new lengths of hedgerow have/will be established. These will contribute towards maintenance of habitat connectivity across the site in addition to providing suitable reptile habitat in their own right. Arisings from hedgerow management have/will be used in the creation of refugia and hibernacula (see below). The number of crossing points across hedgerows and other linear habitat features (e.g. treelines) will be minimised and where appropriate measures such as reptile/amphibian underpasses and dropped kerbs have/will be provided to maximise connectivity and reduce risk of mortality.

*Waterbodies*

A number of waterbodies will be enhanced or created within the site as part of the drainage strategy and as stand-alone features. These will provide habitat favoured by Grass Snakes, which include fish and amphibians within their diet.

*Refugia and Hibernacula*

A minimum of 5 hibernacula have/will be constructed within areas of rough grassland, scrub, hedgerows and woodland within the SANG and other areas of informal open space to provide refuge and hibernation opportunities for reptiles. Construction measures will include:

- Each hibernaculum will have a minimum area of 200cm x 250cm.
- Each hibernaculum will be constructed on elevated ground to prevent flooding, with a thin layer of gravel along the base to aid drainage.
- A pit will be excavated and filled with rocks, logs, dead wood and other suitable rubble to an above ground height of 50-100cm.

- The mound will be capped with a layer of topsoil, turf or moss at a thickness of 510mm.
- The addition of a geotextile membrane beneath the capping layer may be used to prevent soil or other loose material from collapsing into the void below.
- Gaps will be left in the capping material at ground level to allow reptile access.

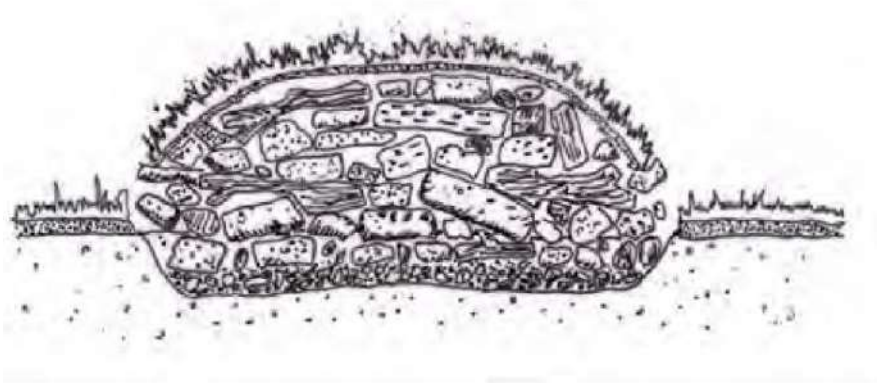

**Figure 1:** Example cross-section through hibernaculum

In addition, a minimum of thirty log and brash piles have/will be created within the SANG and other areas of public open space, using arisings from site clearance works. These will be maintained by adding the arisings from ongoing site maintenance, and piles of grass clippings from the mowing regime will provide further opportunities for egg laying Grass Snakes.

*Connectivity*

The development proposals have been designed to maintain a network of habitats suitable for the movement of wildlife, including reptiles, across the site.

The number of crossing points across hedgerows and other linear habitat features such as woodland shaws and treelines have been minimised and where appropriate measures such as wildlife underpasses and dropped kerbs have/will be provided to maximise connectivity and reduce risk of mortality. This is discussed further in the *Outline Site-wide Ecological Permeability Scheme* (HDA, 2018c).

Stage 2: Habitat manipulation

Following the initial enhancement of areas of suitable reptile habitat within areas of public open space associated with each Phase, detailed in Stage 1 above, where appropriate the following habitat manipulation measures will be undertaken under an ecological watching brief by a suitably experienced ecologist. The habitat manipulation measures will be undertaken where suitable habitat is to be lost/damaged, in order to encourage the movement of reptiles into suitable habitats in the surrounding area, including the newly

created and enhanced habitats within the receptor site and other open space described above. The extent of habitat manipulation works associated with any given phase of development will be identified within the Detailed Mitigation Strategies described in *Section 5.3*.

- Firstly, vegetation cover will be reduced to minimum height of 150mm. This will ideally take place at a time avoiding the bird breeding season (typically between March and September inclusive) or otherwise be preceded by a check of suitable habitat for active nests immediately prior to commencement of works by a suitably qualified ecologist or appropriate other.
- Where potential for reptiles to be present remains, a minimum period of 5 days with daytime temperatures of >12$^{o}$C will then be allowed to pass prior to the second stage of vegetation clearance (see below).
- The second stage will involve clearance of all suitable vegetation to ground level (i.e. <75mm) by hand during mild temperatures (>14$^{o}$C) at a suitable time of year when reptiles are likely to be active (generally mid-March to early October inclusive). At this time any potential hibernacula or refugia encountered will be carefully dismantled by hand. This stage of clearance will be undertaken under the supervision of a suitably qualified ecologist who would capture and relocate any reptiles encountered to areas of retained habitat on the margins of the development phase or the pre-established refugia in the reptile receptor area or other established informal open space as appropriate.
- Where potential for reptiles to be present remains, a further 5 days with daytime temperatures of >12$^{o}$C will then be allowed to elapse to enable any remaining reptiles to disperse from the area of works, prior to the destructive search.
- Following clearance of vegetation to ground level and removal of any refugia by hand, no suitable reptile habitat would remain and it is expected that any remaining reptiles would disperse from the area of works into adjacent habitat on their own accord.
- In order to be certain that no reptiles are present within the area of works, topsoil will then be progressively stripped from the area of works under the supervision of a suitably qualified ecologist, if required.
- In the event that the destructive search is delayed, vegetation will be maintained at ground level until the destructive search is carried out. Similarly, following the destructive search, the land will be maintained as unsuitable for the recolonisation of reptiles prior to and throughout the proposed works.

### 5.5 Reptile translocation

5.5.1 Translocation of reptiles may be required for phases of development where it is not possible to displace reptiles through habitat manipulation due to: (i) loss of extensive areas of suitable reptile habitat; (ii) the absence of connective habitats between the development

phase and suitable retained reptile habitat in the wider site or wider area; and/or (iii) the future presence of higher numbers of reptiles to those currently recorded at the site. In such instances, in order to protect individual reptiles in accordance with nature conservation legislation and to conserve the populations of reptiles present it may be necessary to translocate reptiles to the receptor area prior to the commencement of works. This would follow the procedure outlined below.

Stage 1: Initial creation/enhancement of reptile receptor habitat and maintenance of long-term opportunities for reptiles following development

This will follow the same methodology as detailed within Stage 1 of the precautionary approach detailed above. The receptor area will be established in a timely manner before translocation commences in order to ensure that appropriate habitat is present into which reptiles can be transferred.

Stage 2: Capture and exclusion

- Temporary reptile-proof fencing would be installed around the perimeter of the development phase (or associated reptile habitat) under the supervision of a suitably qualified ecologist and maintained until completion of works.
- Where necessary, to prevent reptiles climbing over the fencing and recolonising the development phase, the vegetation adjacent to the fencing, both inside and outside the development phase, should be kept short either by strimming or herbicide application.
- Once the fencing is installed, refugia would be laid out at an average density of 50-100 refugia/ha across the development phase. Trapping would then commence, to be carried out between the months of March and September/early October, until results indicate that all reptiles have been excluded (i.e. a minimum of 5 successive trapping days having been completed with no captures, depending on capture record and time of year).
- If removal of scrub is required to facilitate this work, this should avoid the bird breeding season (typically between March and September inclusive) or otherwise be preceded by a check of suitable habitat for active nests immediately prior to commencement of works by a suitably qualified ecologist.
- During the trapping period, artificial refugia and any existing refuges on site would be searched in suitable weather conditions i.e. temperatures between 9°C and 20°C and low winds. All captured reptiles would be relocated to the receptor area described above.
- Once capture rates have declined, the remaining vegetation and reptile habitat within the development area to be lost would be progressively removed. This would be carried out in stages using hand held tools, successively lowering the height and reducing vegetation to displace any reptiles present. Ground level vegetation