SELWYN DISTRICT PLAN CHANGE - DAIRY  PROCESSING MANAGEMENT AREA

# LANDSCAPE AND VISUAL ASSESSMENT - APPENDICES

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Prepared for Synlait Milk Limited by Beca Ltd
JUNE 2014

FINAL

## Revision History

| Revision No. | Prepared By | Description | Date |
|---|---|---|---|
| A | Anne Braithwaite | Final draft for SDC review | April 2014 |
| B | Anne Braithwaite | Final | May 2014 |
| C | Anne Braithwaite | Final | June 2014 |
| | | | |
| | | | |

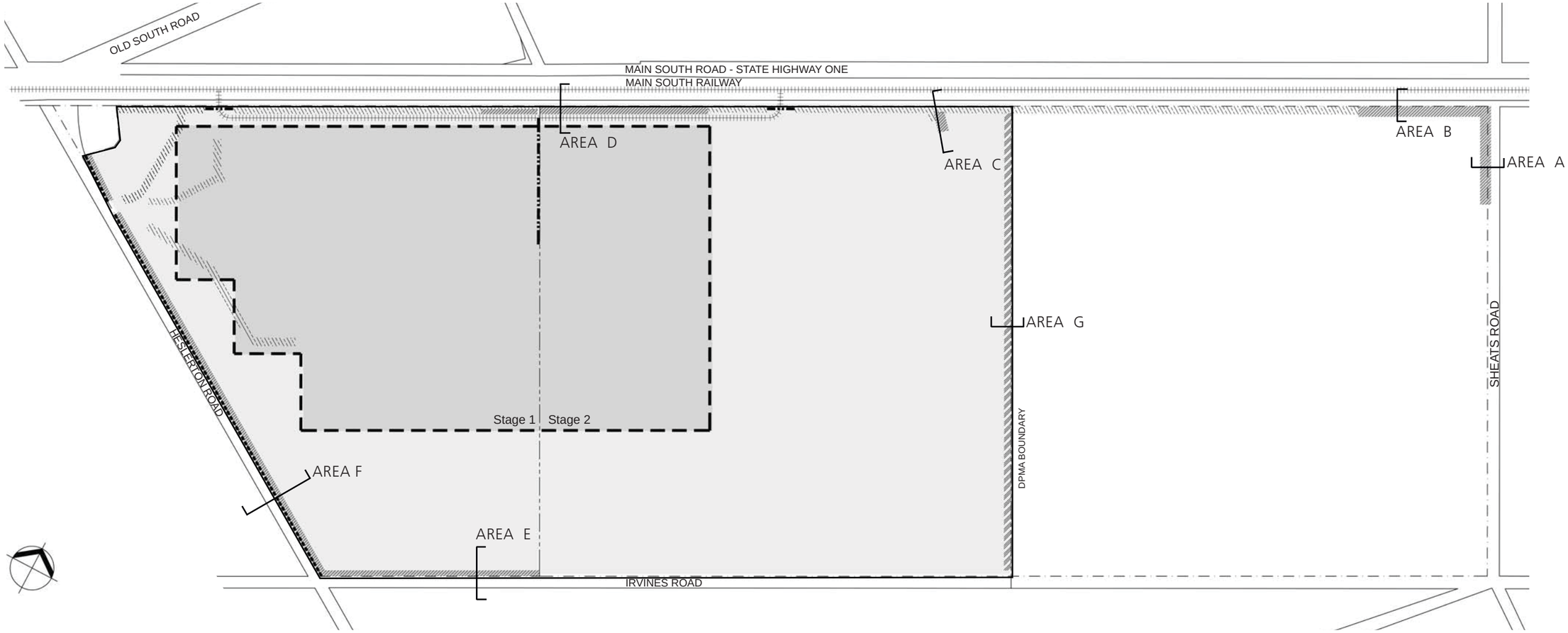
## Document Acceptance

| Action | Name | Signed | Date |
|---|---|---|---|
| Prepared by | Anne Braithwaite |  | June 2014 |
| Reviewed by | Wade Robertson |  | June 2014 |
| Approved by | Jeremy Cooke |  | June 2014 |
| on behalf of Beca Ltd. | | | |

This document should be printed at A3.

Images in this document: Unless otherwise noted, drawings, illustrations, photos and other images have been provided directly by Beca. In all other instances, best efforts have been made to reference the image to its original source.

# APPENDIX 1 - APPENDIX 26A - ODP - LANDSCAPE




Scale 1:7500 @ A3

## KEY

- Dairy Processing Management Area (DPMA)
- Height Control Area
- Stage 1 landscape treatment
  - Area A - Sheats Road boundary near intersection with SH1
  - Area B - SH1 boundary near intersection with Sheats Road
  - Area C - SH1 adjacent to existing oak copse
  - Area D - SH1 boundary adjacent to primary building area
  - Area E - Irvines Road boundary west of staging boundary
  - Area F - Heslerton Road boundary
- Stage 2 landscape treatment
  - Area G - DPMA boundary
- Rail siding
- Staging boundary
- Existing planting to be retained
- Existing planting that may be removed to provide for development
- Existing planting that will be removed in 10-15 years as part of vegetation management

Rule: Landscape Staging:

1. Stage 1- Prior to the completion of construction of a new building which will increase capacity for milk processing or storage within the area identified as Stage 1 on the Outline Development Plan, the landscape planting shown as Stage 1 shall be established.
2. Stage 2- The landscape planting shown as Stage 2 on the Outline Development Plan shall be established prior to either:
   (a) The issue of a subdivision consent (as controlled through the issue of a s224 certificate) relating to land identified within or including all of Stage 2; or
   (b) The construction of a new building which will increase capacity for milk processing or storage within the area identified as Stage 2.

General Notes:

1. See cross-sections for further detail on width of planting and indicative landscape outcomes.
2. Development within the Height Control Area and the establishment of a rail siding will require the removal of existing vegetation.

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**ODP - LANDSCAPE**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: C
FINAL
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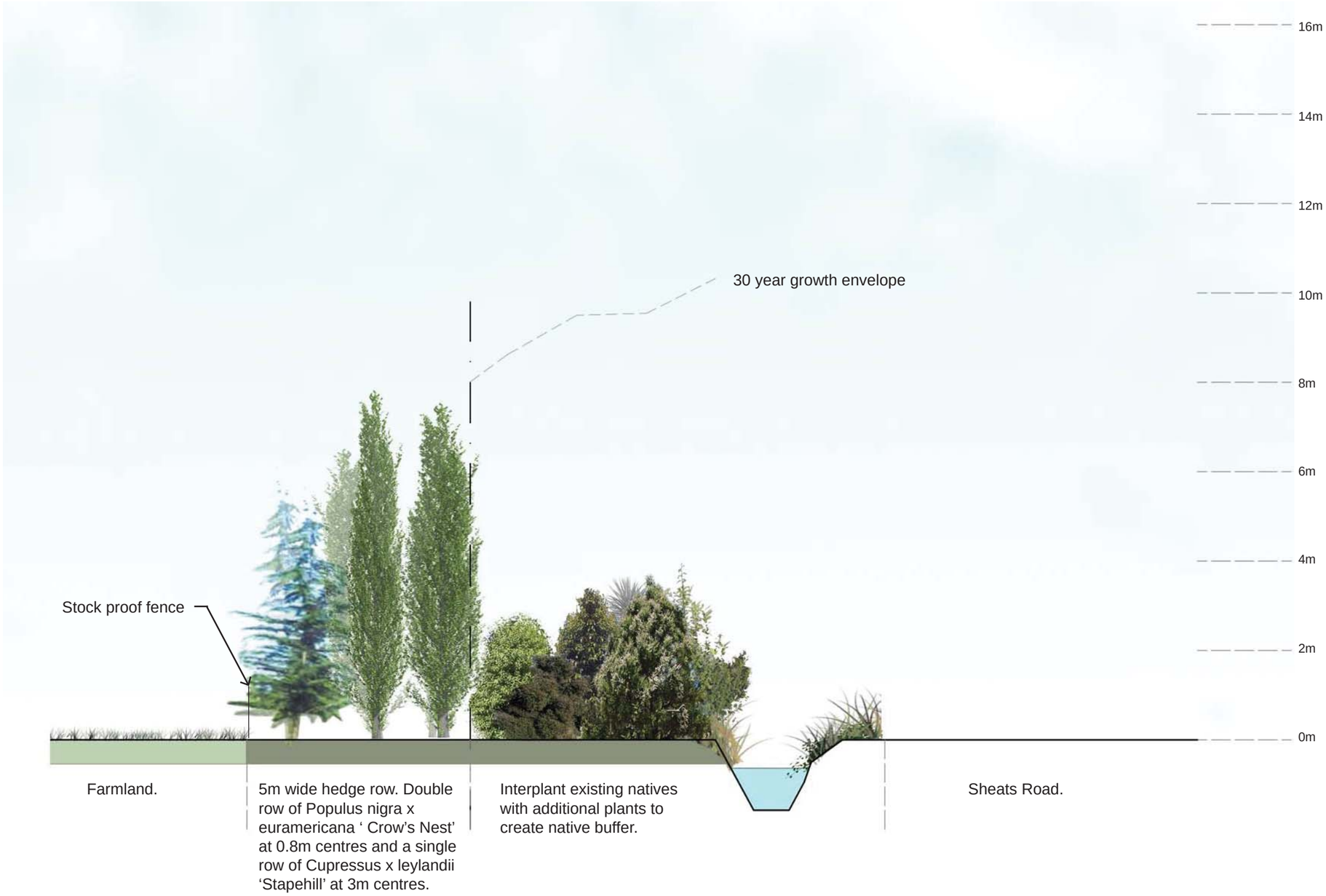
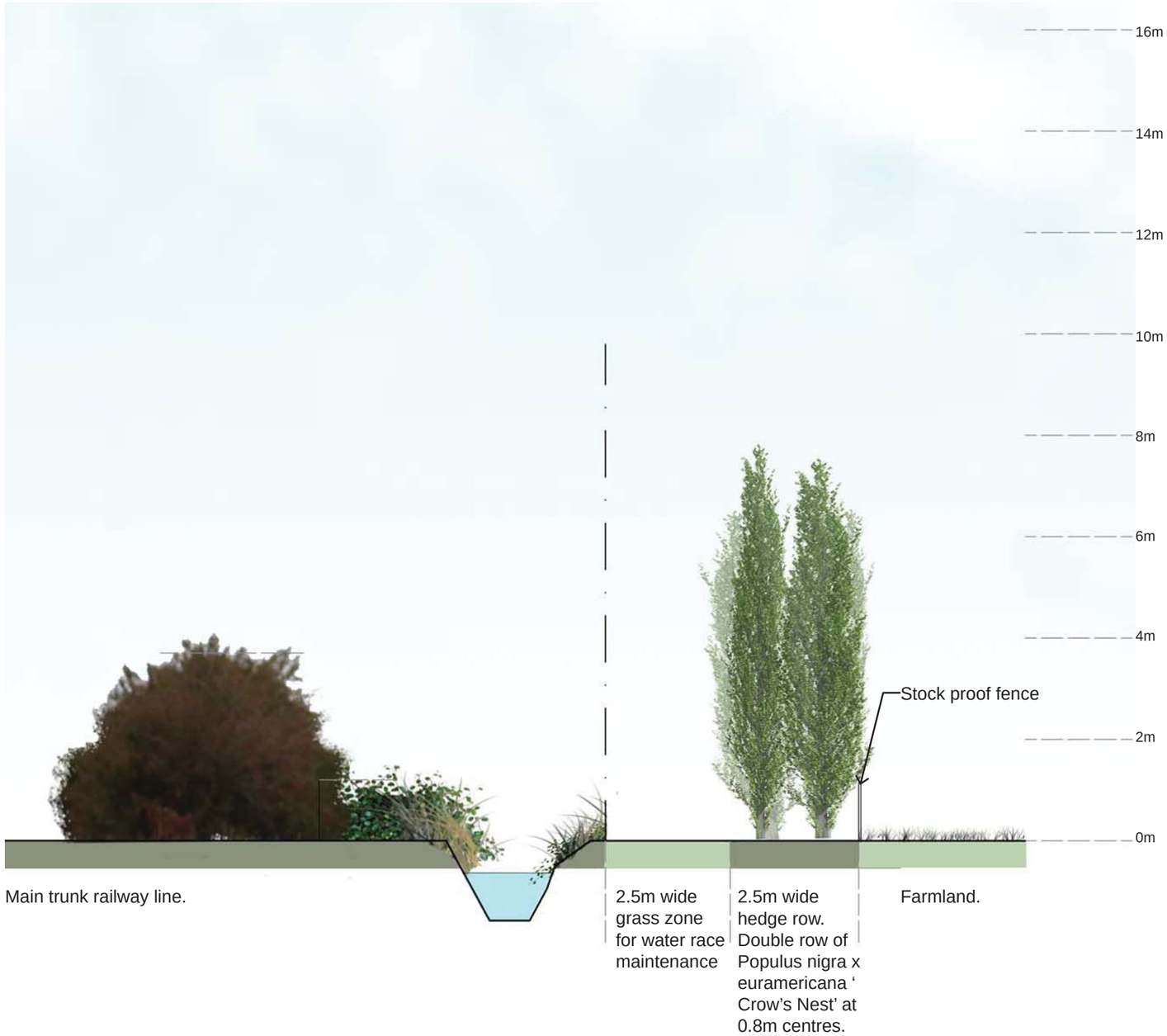
ORIGINAL SIZE: A3
SHEET 4

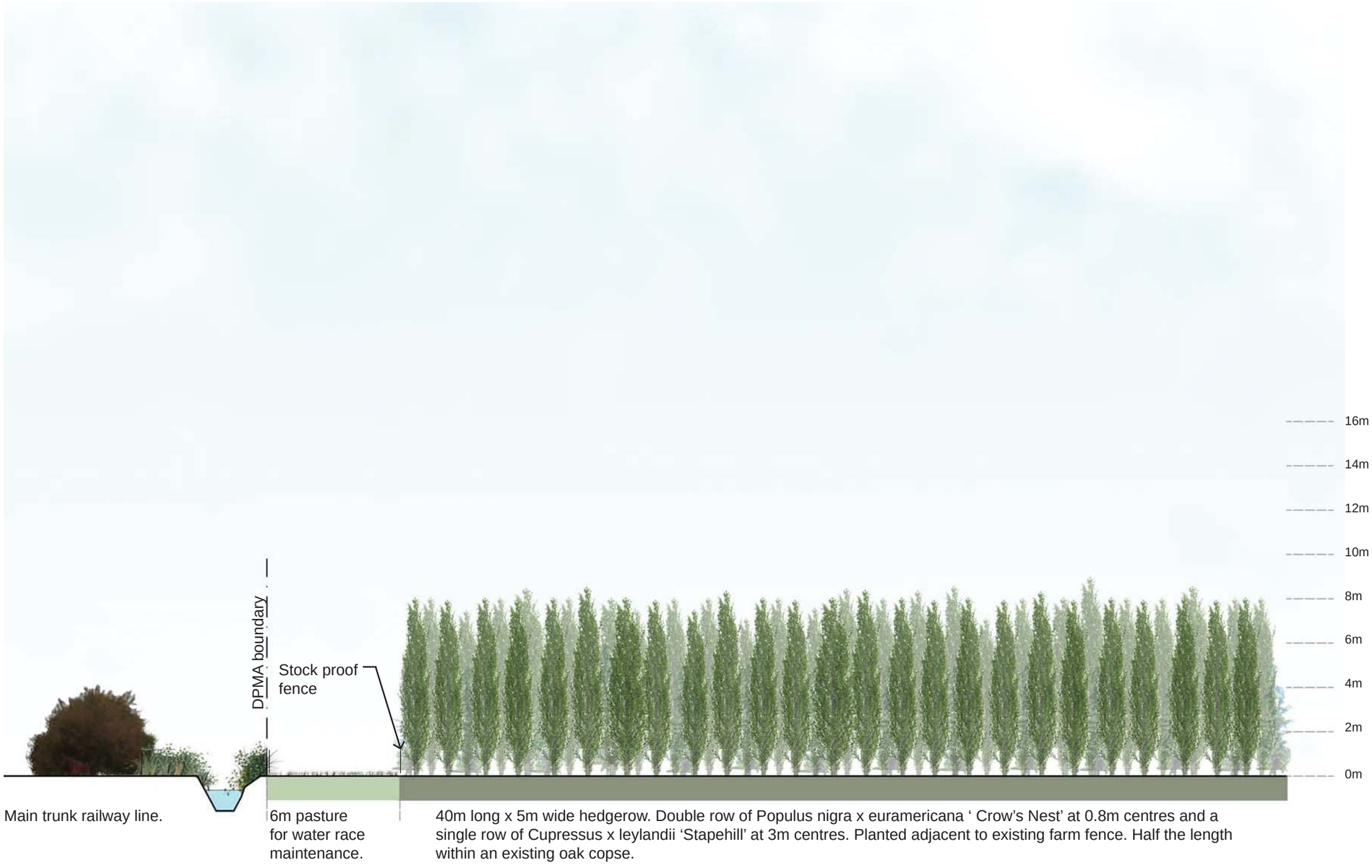
FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A




AREA A - SHEATS ROAD BOUNDARY NEAR INTERSECTION WITH SH1
STAGE 1 CROSS SECTION
Scale 1:100 @ A3




AREA B - SH1 BOUNDARY NEAR INTERSECTION WITH SHEATS ROAD
STAGE 1 CROSS SECTION
Scale 1:100 @ A3




## AREA C - SH1 ADJACENT TO EXISTING OAK COPSE
STAGE 1 LONG SECTION
Scale 1:200 @ A3

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**ODP - LANDSCAPE**

DRAWN: AB
REVIEWED:WR
BECA REF: 4393430-L-201

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FINAL
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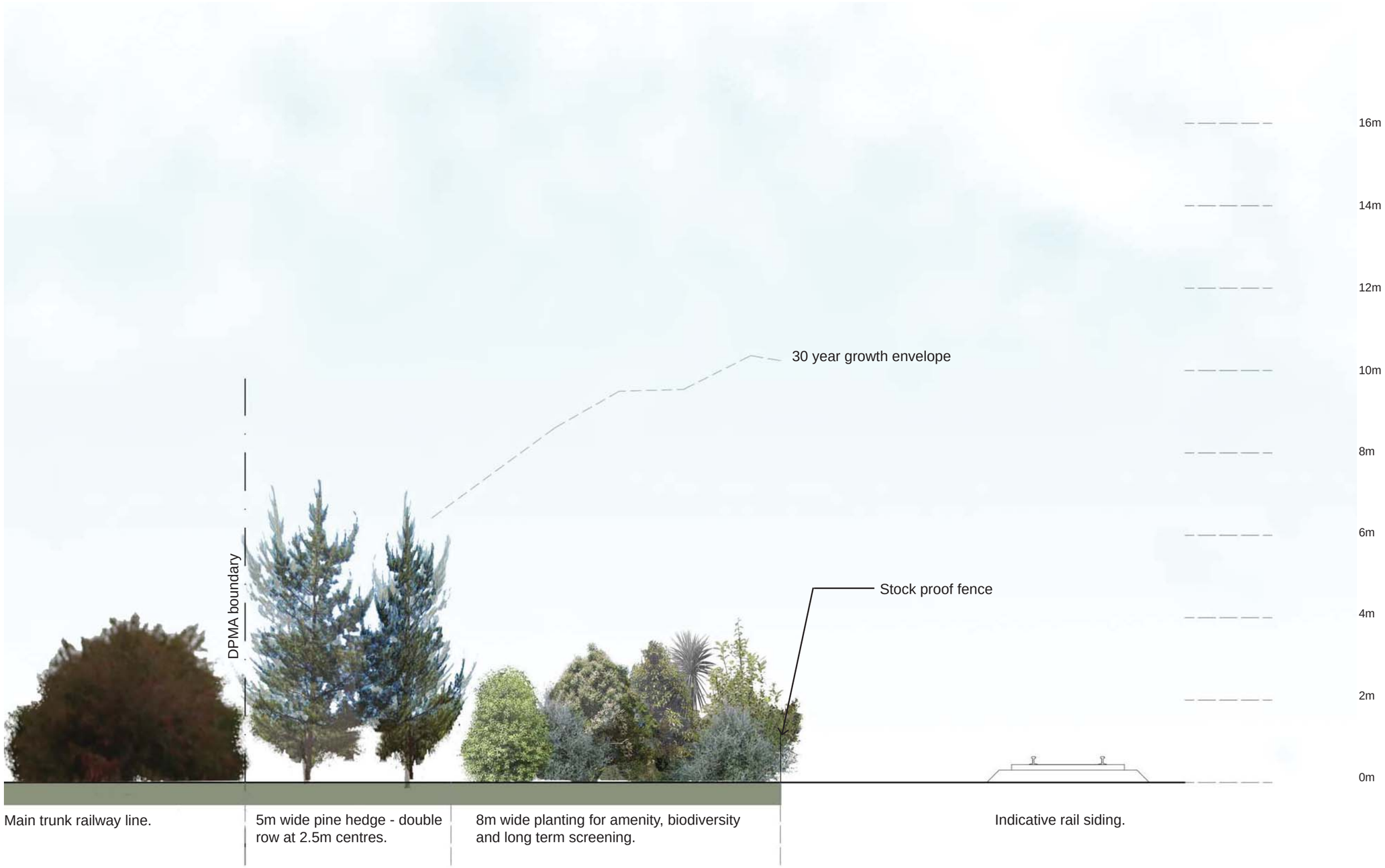
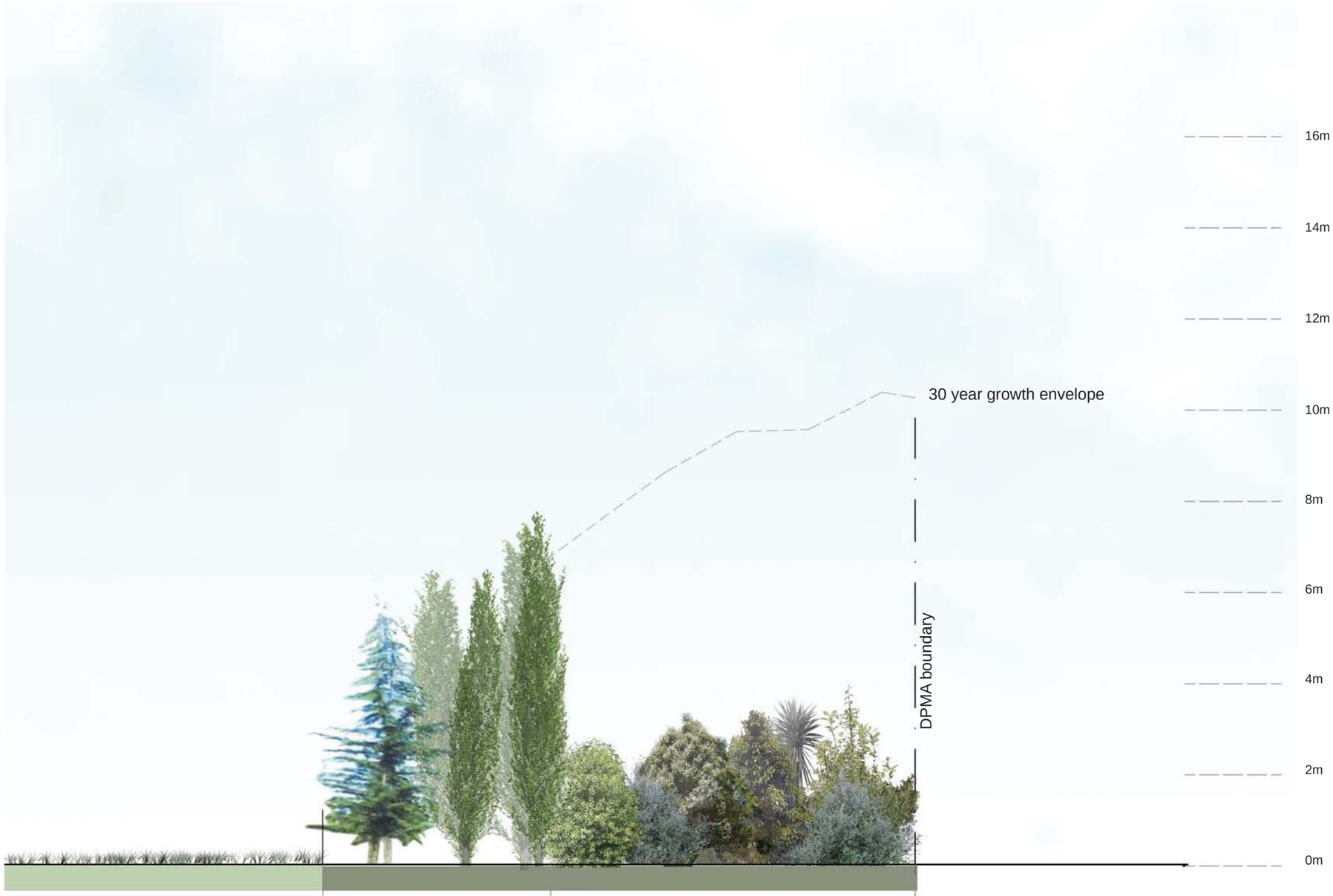
ORIGINAL SIZE: A3
SHEET 7




AREA D - SH1 BOUNDARY ADJACENT TO PRIMARY BUILDING AREA
STAGE 1 CROSS SECTION
Scale 1:100 @ A3




Farmland.

5m wide hedge row. Double row of Populus nigra x euramericana ‘ Crow’s Nest’ at 0.8m centres and a single row of Cupressus x leylandii ‘Stapehill’ at 3m centres.

8m wide planting for amenity, biodiversity and long term screening.

Irvines Road.


AREA F - HESLERTON ROAD BOUNDARY
STAGE 1 CROSS SECTION
Scale 1:100 @ A3

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**ODP - LANDSCAPE**

DRAWN: AB
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SHEET 10

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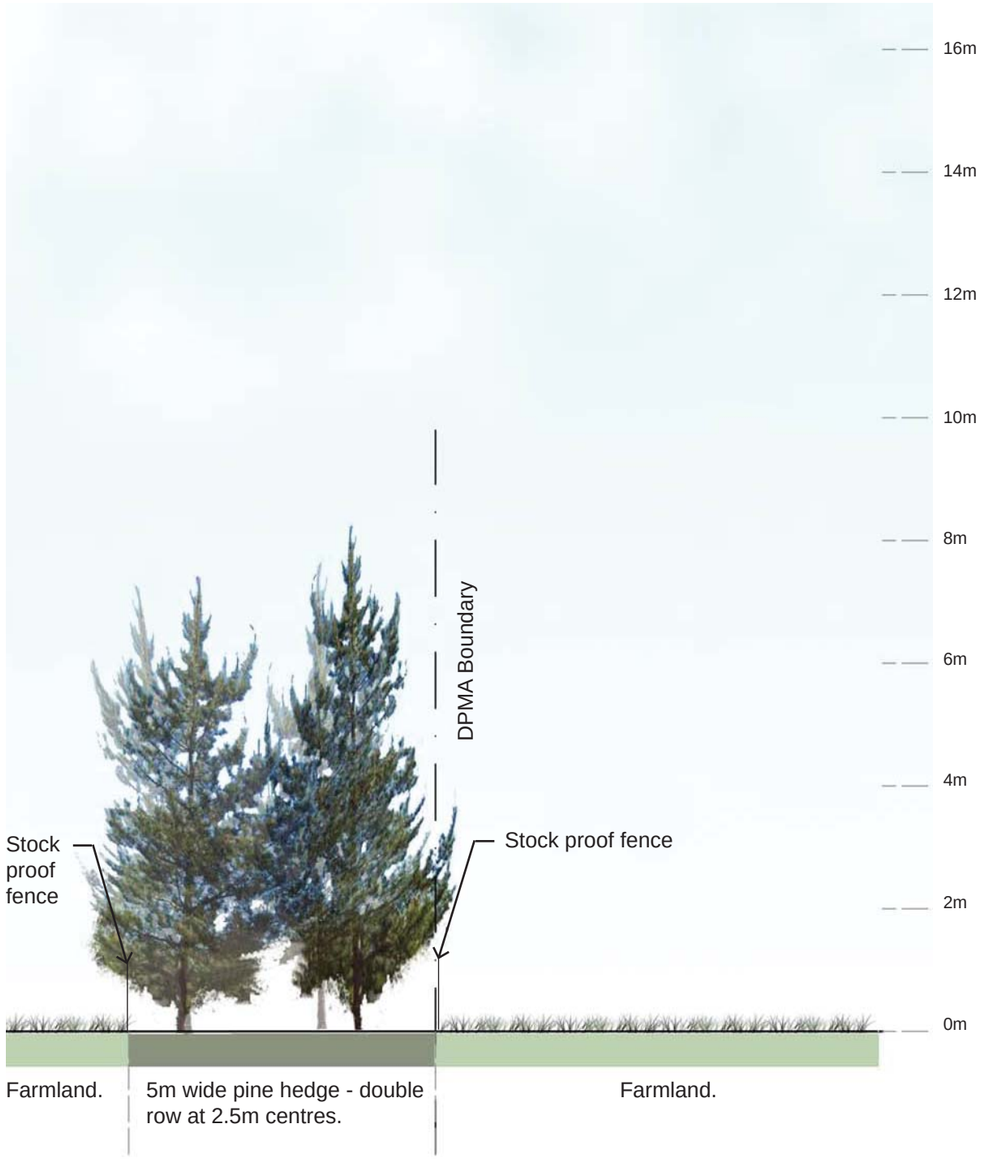


AREA G - DPMA BOUNDARY
STAGE 2 CROSS SECTION
Scale 1:100 @ A3

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**ODP - LANDSCAPE**

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ORIGINAL SIZE: A3
SHEET 11

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PLANT LIST

| SHELTER BELT SPECIES | PRIMARY SUCCESSIONAL SPECIES | | SECONDARY SUCCESSIONAL SPECIES | |
|---|---|---|---|---|
| | | | | |
| | **Trees** | **Shrubs and Groundcovers** | **Trees and Large Shrubs** | **Shrubs and Groundcovers** |
| | | | | |
| **Pinus radiata* | **Cordyline australis* | *Aristotelia serrata* | **Podocarpus totara* | *Coprosma crassifolia* |
| **Cupressus x laylandii* 'Stapehill' | **Kunzea ericoides* | *Carmichaelia australis* | *Elaeocarpus dentatus* | *Coprosma propinqua* |
| **Populus nigra x euromericana* 'Crow's Nest' | *Olearia paniculata* | *Clematis marata* | **Prumnopitys taxifolia* | *Coprosma rubra* |
| | **Pittosporum tenuifolium* | **Coprosma crassifolia* | *Coprosma lucida* | *Coprosma virescens* |
| | **Sophora microphylla* | **Coprosma propinqua* | *Coprosma robusta* | **Hebe salicifolia* |
| | | *Coprosma intertexta* | *Cordyline australis* | *Helichrysum lanceolatum* |
| | | **Corokia cotoneaster* | *Griselinia littoralis* | *Teucridium parvifolium* |
| | | *Discaria toumatou* | *Hoheria angustifolia* | *Acaena novae-zelandiae* |
| | | *Helichrysum lanceolatum* | *Kunzea ericoides* | *Anemanthele lessoniana* |
| | | **Melicytus alpinus* | *Leptospermum scoparium* | *Asplenium bulbiferum* |
| | | **Muehlenbeckia astonii* | *Lophomyrtus obcordata* | *Blechnum penna-marina* |
| | | *Olearia adenocarpa* | *Olearia paniculata* | **Cortaderia richardii* |
| | | *Ozothamnus leptophyllus* | *Pittosporum eugenioides* | *Phormium tenax* |
| | | **Sophora prostrata* | *Pittosporum tenuifolium* | *Microsorum pustulatum* |
| | | *Carex comans* | *Plagianthus regius* | **Polystichum neozelandicum* |
| | | *Elymus solandri* | *Pseudopanax crassifolius* | *Blechnum discolor* |
| | | *Festuca novae-zelandiae* | *Sophora microphylla* | *Pteridium esculentum* |
| | | *Muehlenbeckia axillaris* | | |
| | | *Poa cita* | | |
| | | *Leptinella filiformis* | | |

* Suitable species for the Synlait DPMA.

The publication 'Native Plant Communities of the Canterbury Plains' by the Department of Conservation has been used as a reference for native species in the above plant list.

# APPENDIX 2 - EXISTING SITE INFORMATION

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ORIGINAL SIZE: A3
SHEET 14

TRUE NORTH

PROJECT NORTH

STATE HIGHWAY ONE

MAIN SOUTH RAILWAY

LEGAL ROAD

OLD SOUTH ROAD

Old South Rd

Main South Rd

STATE HIGHWAY ONE

MAIN SOUTH RAILWAY

LEGAL ROAD

BOUNDARY

SUB STATION

Hesleton Rd

BOUNDARY

HESLERTON ROAD

A

A

DRYSTORE 3

DRYSTORE 2

COLD STORE

PROPOSED ROAD

BOUNDARY

OFFICE AND CARPARK

BLENDING PLANT

EXISTING PLANTED BUND

EXISTING BOILER

STORMWATER PONDS

EXG. SEWAGE TREATMENT PLANT

EXG. WASTEWATER TREATMENT PLANT

EXG. GRAVEL ACCESS ROAD

EXG. GRAVEL ROAD 3011

EXT. WATER TANK

SEALED ROAD

KEY

SHELTERBELT

OAK TREES

PLANTED BUNDS

Source: Google Earth

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

## LANDSCAPE AND VISUAL ASSESSMENT

## EXISTING SITE PLAN

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REVIEWED: WR
BECA REF: 4393430-L-201

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SHEET 15

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Colourcote 'Titania'


Colourcote 'Kestrel'

## COLOUR SWATCHES

PHOTO 1

PHOTO 2

PHOTO 3

PHOTO 4


PHOTO 5

PHOTO 6

PHOTO 7

## SITE PHOTOS

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**COLOUR SWATCHES AND SITE PHOTOS**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 16

PHOTO 8

PHOTO 9

PHOTO 10

PHOTO 11

PHOTO 12

PHOTO 13

PHOTO 14

PHOTO 15

PHOTO 16

PHOTO 17

**PHOTO LIST:**

**Photo 1:** Energy Centre (including boiler stack)
**Photo 2:** Wastewater treatment plant tanks
**Photo 3:** Milk reception
**Photo 4:** Silo Gallery
**Photo 5:** Existing ISD building
**Photo 6:** Existing wet process area
**Photo 7:** Existing office block
**Photo 8:** Existing bund
**Photo 9:** Existing bund
**Photo 10:** Existing bund
**Photo 11:** Existing bund
**Photo 12:** Double row of Oak trees
**Photo 13:** Existing Hawthorn hedge
**Photo 14:** Existing double row of pine trees
**Photo 15:** Existing single row of oak trees
**Photo 16 and 17:** Existing open pasture

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ORIGINAL SIZE: A3
SHEET 18

# APPENDIX 3 - CONTEXT PHOTOS

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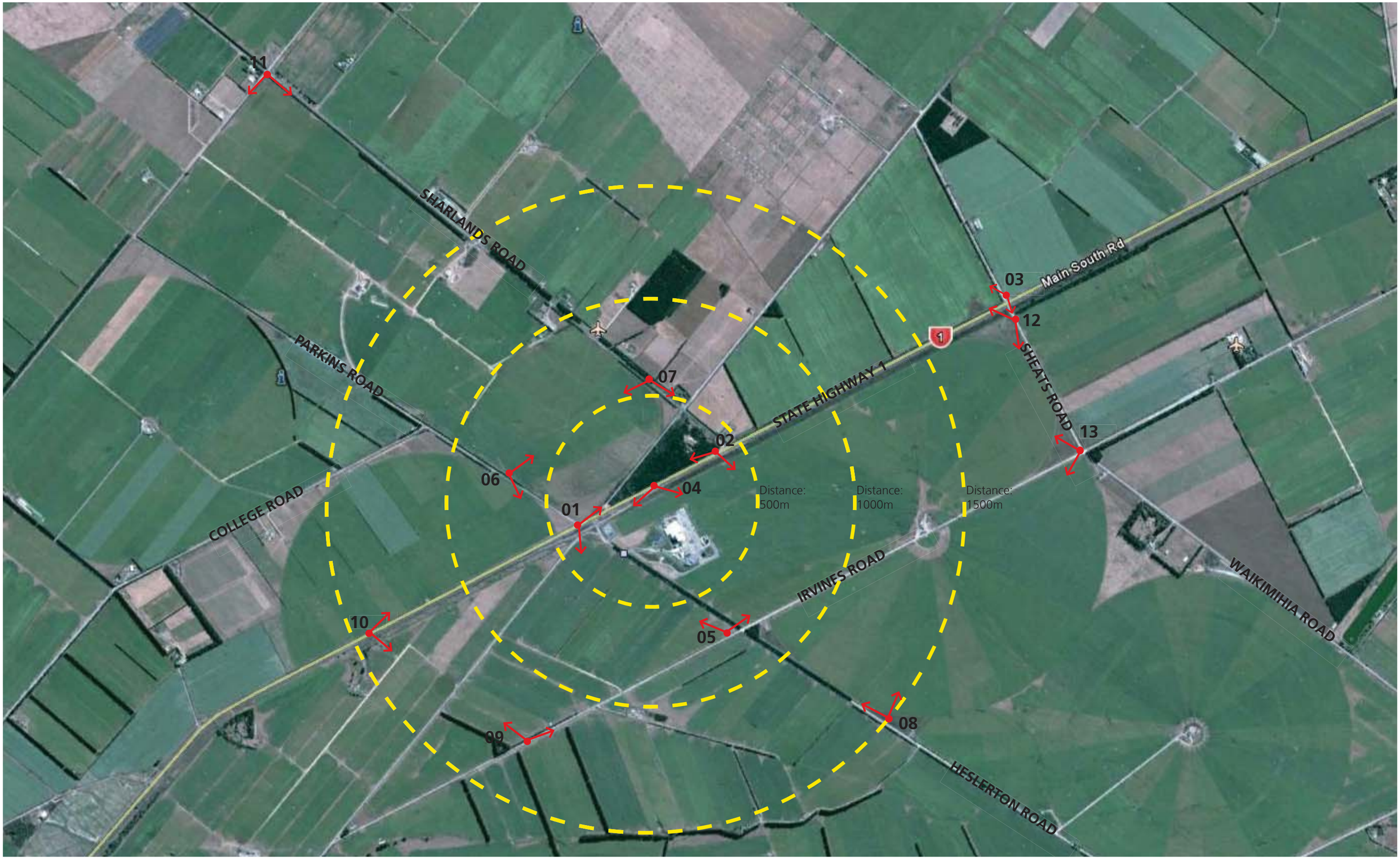
ORIGINAL SIZE: A3
SHEET 20

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**VIEWPOINT LOCATION PLAN**

DRAWN: AB
REVIEWED: WR
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DRAWING ISSUE: B
FINAL
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ORIGINAL SIZE: A3
SHEET 21

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## VIEWPOINT 1 - EXISTING VIEW TO THE EAST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_2:50pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2438518 N5723730_101m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm

LOCATION MAP:


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

# LANDSCAPE AND VISUAL ASSESSMENT
# PARKINS ROAD - STATE HIGHWAY ONE

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ORIGINAL SIZE: A3
SHEET 22


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

DRAWN: AB
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FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 23

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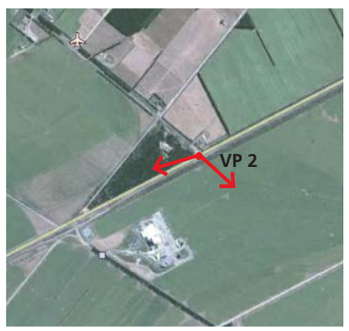
## VIEWPOINT 2 - EXISTING VIEW TO THE SOUTH WEST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_2:53pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2439295 N5724143_91m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm

LOCATION MAP:

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

# LANDSCAPE AND VISUAL ASSESSMENT

# SHARLANDS ROAD - STATE HIGHWAY ONE

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REVIEWED: WR
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FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 24

## VIEWPOINT 3 - EXISTING VIEW TO THE SOUTH WEST

**Original photo:** Canon EOS 5D MKII with 50mm fixed lens_3:33pm_26/09/13_Wade Robertson
**Viewpoint GPS details:** E1530803 N5163320_87m elevation
**Photomontage:** Photoshop C5.5_28/09/13_Grant Ching
**Approximate field of view:** 120 degrees horizontal and 40 degrees vertical
**Suggested viewing distance:** 300mm

LOCATION MAP:


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**SHEATS ROAD - STATE HIGHWAY ONE**

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REVIEWED: WR
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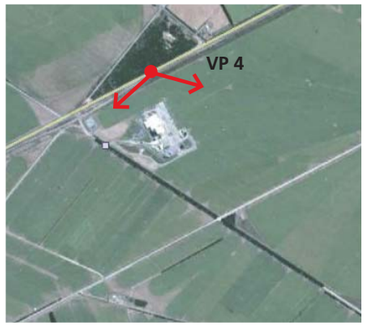
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 26

## VIEWPOINT 4 - EXISTING VIEW TO THE NORTH

**Original photo:** Canon EOS 1000D with 50mm fixed lens_2:54Pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2438983 N5723976_95m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**STATE HIGHWAY ONE**

DRAWN: AB
REVIEWED: WR
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FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 28

## VIEWPOINT 5 - EXISTING VIEW TO THE NORTH

**Original photo:** Canon EOS 1000D with 50mm fixed lens_9:49am_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2439290 N5723126_97m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**IRVINES ROAD**

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JUNE 2014

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SHEET 30

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## VIEWPOINT 6 - EXISTING VIEW TO THE SOUTH EAST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_11:56am_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2438251 N5723921_100m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**PARKINS ROAD**

DRAWN: AB
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JUNE 2014

ORIGINAL SIZE: A3
SHEET 32

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

DRAWN: AB
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FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 33

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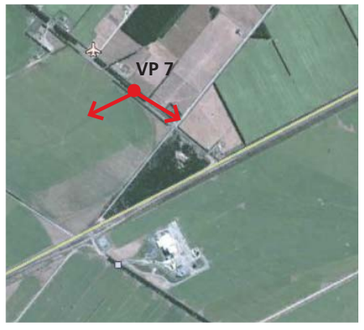
## VIEWPOINT 7 - EXISTING VIEW TO THE SOUTH

**Original photo:** Canon EOS 1000D with 50mm fixed lens_12:17pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2438605 N5724726_114m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**SHARLANDS ROAD**

DRAWN: AB
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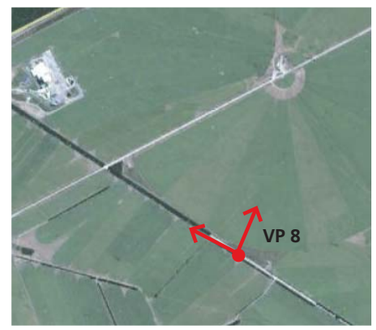
JUNE 2014

ORIGINAL SIZE: A3
SHEET 34

## VIEWPOINT 8 - EXISTING VIEW TO THE NORTH WEST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_1:11pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2440253 N5722557_81m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**HESLERTON ROAD**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
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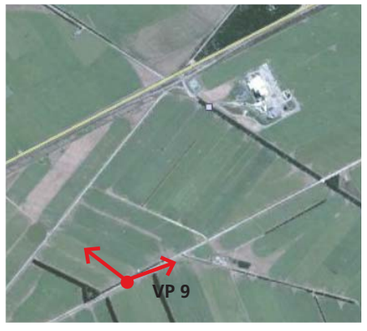
ORIGINAL SIZE: A3
SHEET 36

FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

## VIEWPOINT 9 - EXISTING VIEW TO THE NORTH EAST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_1:32am_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2438194 N5722557_81m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**IRVINES ROAD**

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REVIEWED: WR
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FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 38

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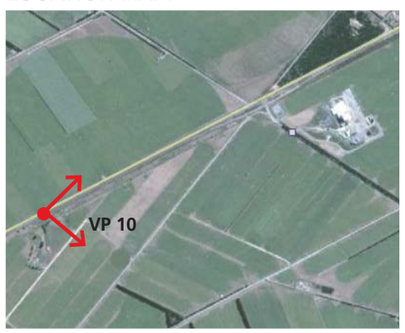
## VIEWPOINT 10 - EXISTING VIEW TO THE EAST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_11:45am_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2437338 N5723102_102m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:

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FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**STATE HIGHWAY ONE**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 40

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

DRAWN: AB
REVIEWED:WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 41

FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

## VIEWPOINT 11 - EXISTING VIEW TO THE SOUTHEAST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_12:04pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2436879 N5726073_114m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:


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FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA
**LANDSCAPE AND VISUAL ASSESSMENT**
**HUNTERS ROAD**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 42

LOCATION MAP:


## VIEWPOINT 12 - EXISTING VIEW TO THE SOUTHWEST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_12:48pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2440818 N5724859_85m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**SHEATS ROAD**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 44

FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

## VIEWPOINT 13 - EXISTING VIEW TO THE WEST

**Original photo:** Canon EOS 1000D with 50mm fixed lens_1:11pm_19/09/12_Wade Robertson
**Viewpoint GPS details:** E2441169 N5724136_86m elevation
**Photomontage:** Photoshop C5.5_21/09/12_Wade Robertson
**Approximate field of view:** 120 degrees horizontal and 25 degrees vertical
**Suggested viewing distance:** 400mm
**Revision number:** A

LOCATION MAP:


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SELWYN DISTRICT PLAN CHANGE - DAIRY PROCESSING MANAGEMENT AREA

**LANDSCAPE AND VISUAL ASSESSMENT**

**SHEATS ROAD - IRVINES ROAD**

DRAWN: AB
REVIEWED: WR
BECA REF: 4393430-L-201

DRAWING ISSUE: B
FINAL
JUNE 2014

ORIGINAL SIZE: A3
SHEET 46

FILEPATH: 2014-05-14_4393430_LVA_Appendices_Rev A

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The following is an outline of the key steps that have been undertaken in preparing the attached visual simulations:

- Photos were taken using a Canon 1000D digital SLR with a 50mm fixed lens except viewpoint 3 taken using Canon 5D MKII digital SLR
- Photo locations were taken using a Garmen Etrex 30 handheld GPS with +/- 5m accuracy
- Additional control points were taken to assist in geo-referencing the 3D terrain model into the panorama photo (described below)
- A minimum of 10 (portrait) photos were taken for each viewpoint location
- The individual photos were then overlapped by approximately 30%, and the edges cropped prior to being stitched (using Photoshop C5.5) to form a panoramic image representative of a 120° horizontal field of view (see Image A below)
- A 'wireframe' digital terrain model was created incorporating 3D models of the proposed development using 3D Studio Max software.
- Computer images were generated within the digital model from the same locations and directions as the photos
- The image was overlaid and aligned to the photomontage using the control points mentioned above and visual matching
- Both time and weather conditions for each of the photos was entered to the programme in order to replicate conditions
- The wireframe digital terrain was then switched off with the proposal left in its correct location and scale relative to the photo
- The parts of the proposal that would not be visible in a particular view (i.e. obscured by vegetation or landform) were erased using Photoshop C5.5
- The completed visual simulation is then reproduced across two A3 pages at the correct scale for viewing at a 400mm viewing distance (see Image B below)
- Reproduction in this way (i.e. 120° viewed at 400mm) provides a field of view approximate to the field of human binocular vision. (see Image C)

The following references can provide a comprehensive explanation of the methodology outlined above as well as outlining those caveats that are associated with the preparation of visual simulations:

New Zealand Institute of Landscape Architects (2/11/10). *Best Practice Guide – Landscape Assessment and Sustainable Management/ Best Practice Guide – Visual Simulations.* NZILA Education Foundation.

Scottish Natural Heritage et al (29/03/06). *Visual Representation of Windfarms. Good Practice Guidance.* Horner + Maclennan and Envision.

Note:

- Visual simulations are to be used as a tool to aid in establishing an understanding of the visual qualities of a proposal
- Visual simulations are not a reproduction of real life and are not intended to replace on-site observations
- Photos are two-dimensional and flatten an image compared to a real life
- The human eye can see much more contrast than can be reproduced through photos
- Physical resolution of photography is less than that of the human eye
- A photo is static and passive; the human vision can scan for detail and remember information

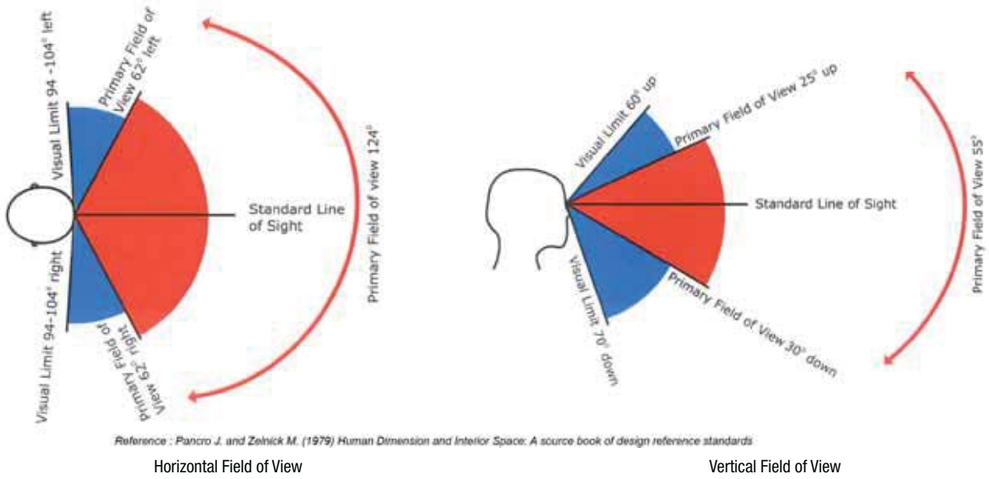
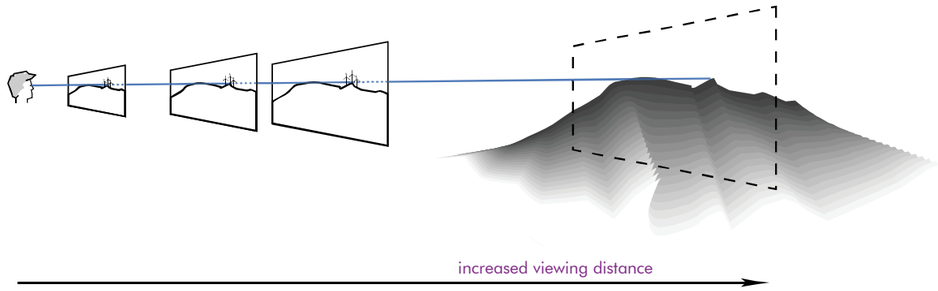



IMAGE A: Diagram showing horizontal and vertical field of view




Using a standard paper size, a projected wind farm image will be smaller at a shorter viewing distance, and larger at a further viewing distance. However if held at the correct viewing distance they will be seen as being the same size. This represents a direct mathematical relationship between the eye and the image of the subject (the landscape).

A key issue is whether this viewing distance is comfortable for the viewer and if this is likely to be used correctly.

IMAGE B: Diagram showing relationship between viewing distance and reproduction size

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SHEET 50

# APPENDIX 4 - ILLUSTRATIVE SKETCHES

**Figure 1:** View towards the site from the end of Sharlands Road showing established Area D planting and potential Stage 1 and 2 building development.

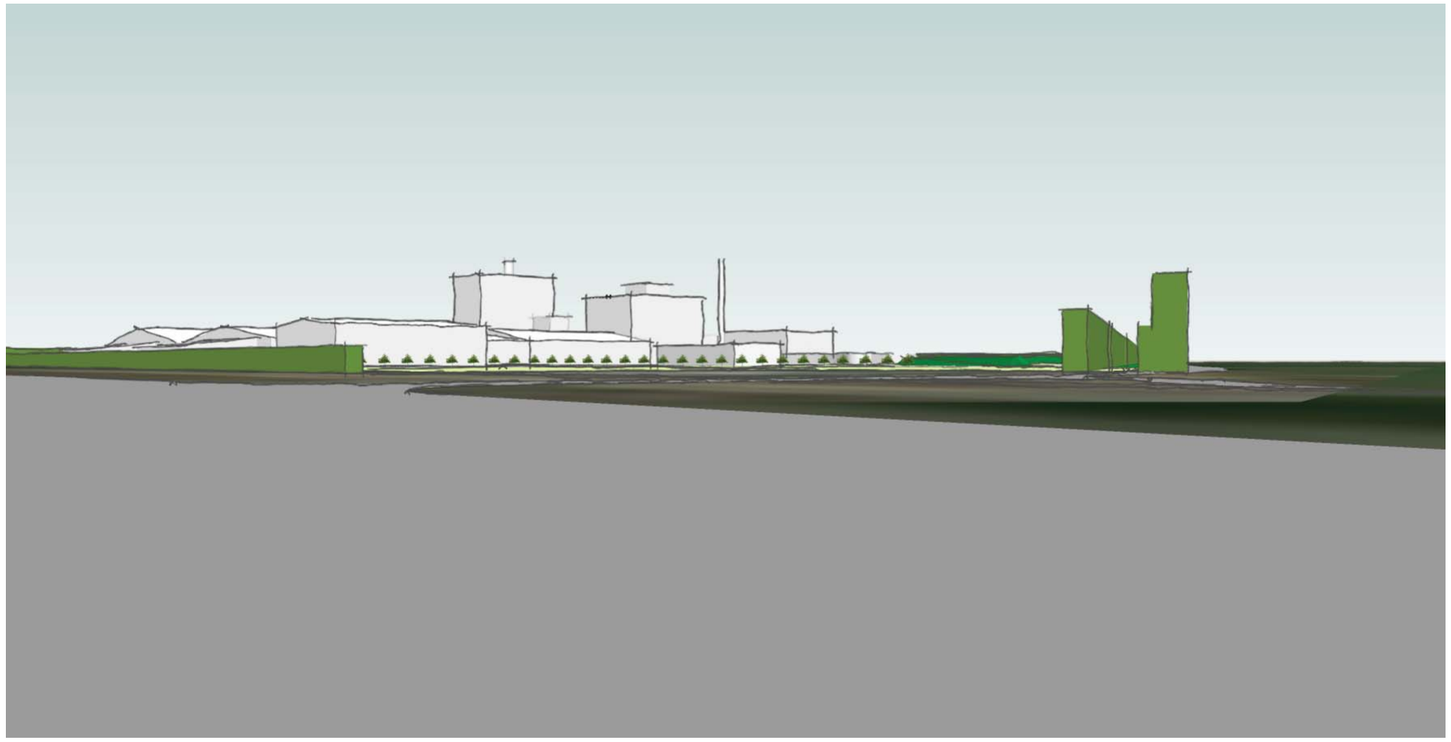


**Figure 2:** Existing view towards the site from the SH1/Parkins Road intersection. (Note: excludes substation from view)

**Figure 3:** View towards the site from the SH1/Parkins Road intersection showing established planting and potential Stage 1 and 2 building development. (Note: excludes substation from view)

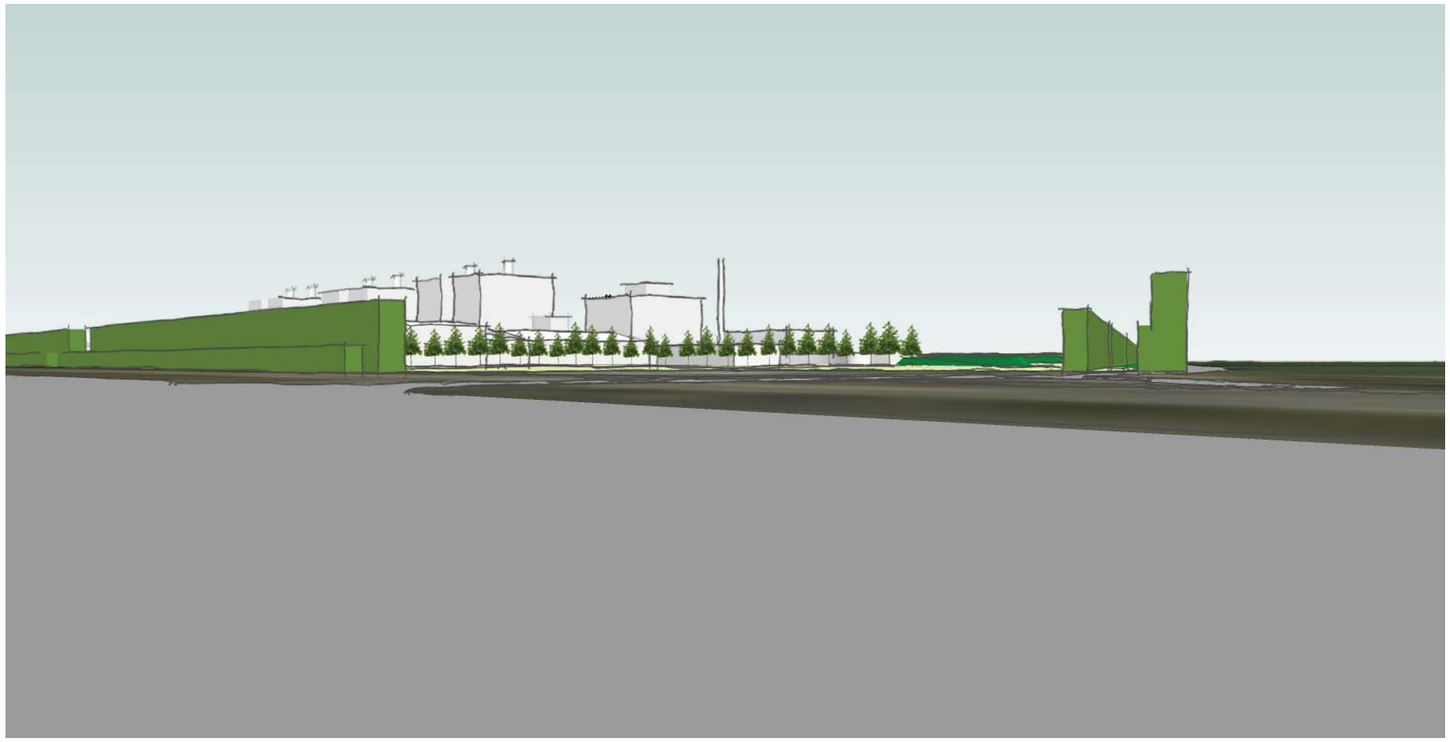
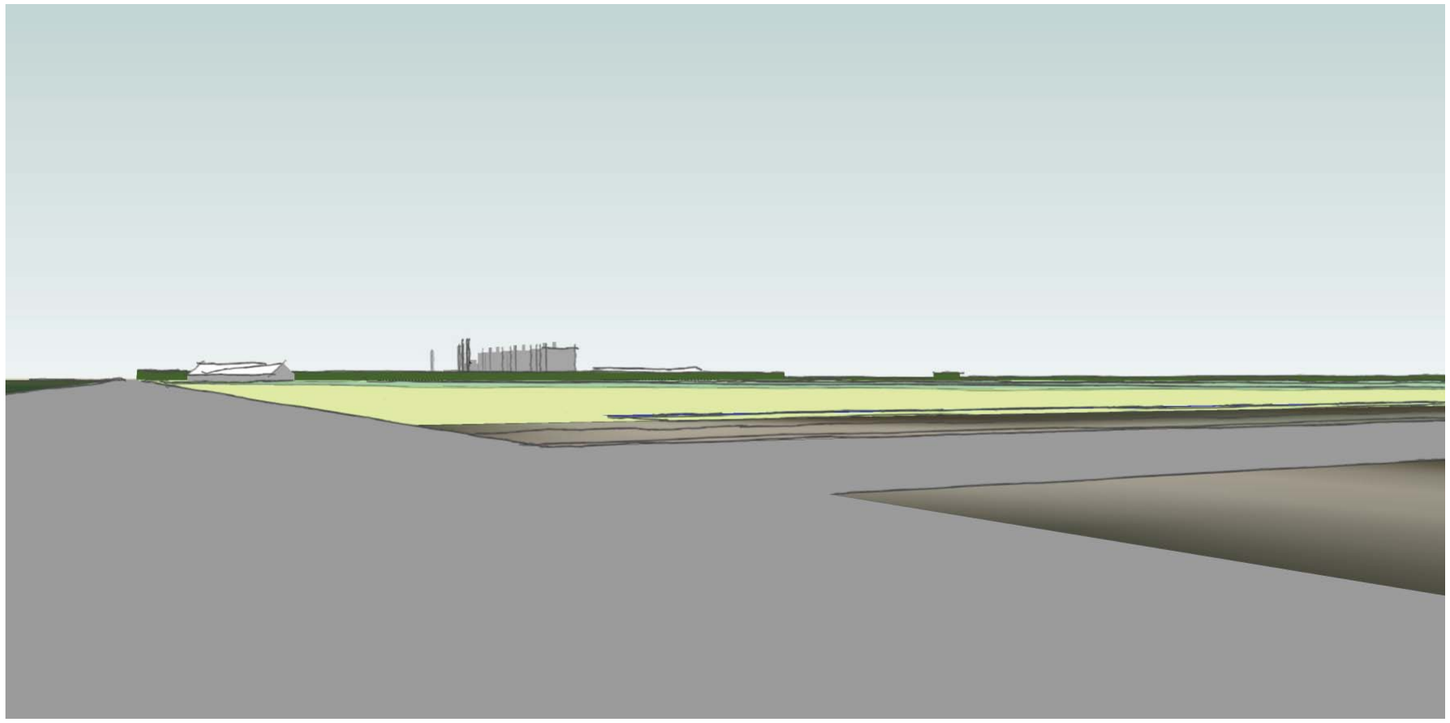


**Figure 4:** View towards the site from the Irvines Road/ Sheats Road intersection showing and potential Stage 1 and 2 building development and established planting.



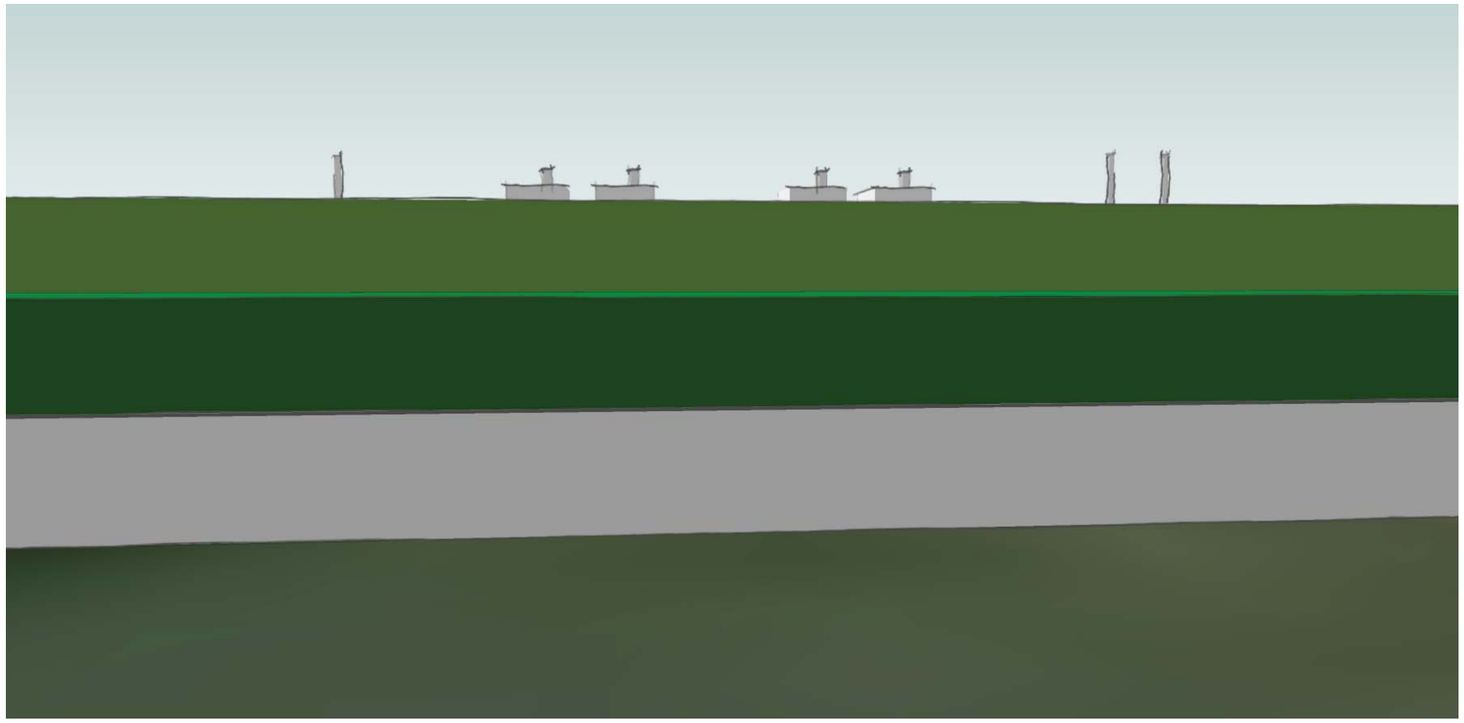


**Figure 5:** View towards the site from the south western (Heslerton Road) end of Irvines Road showing established Area E planting and potential Stage 1.

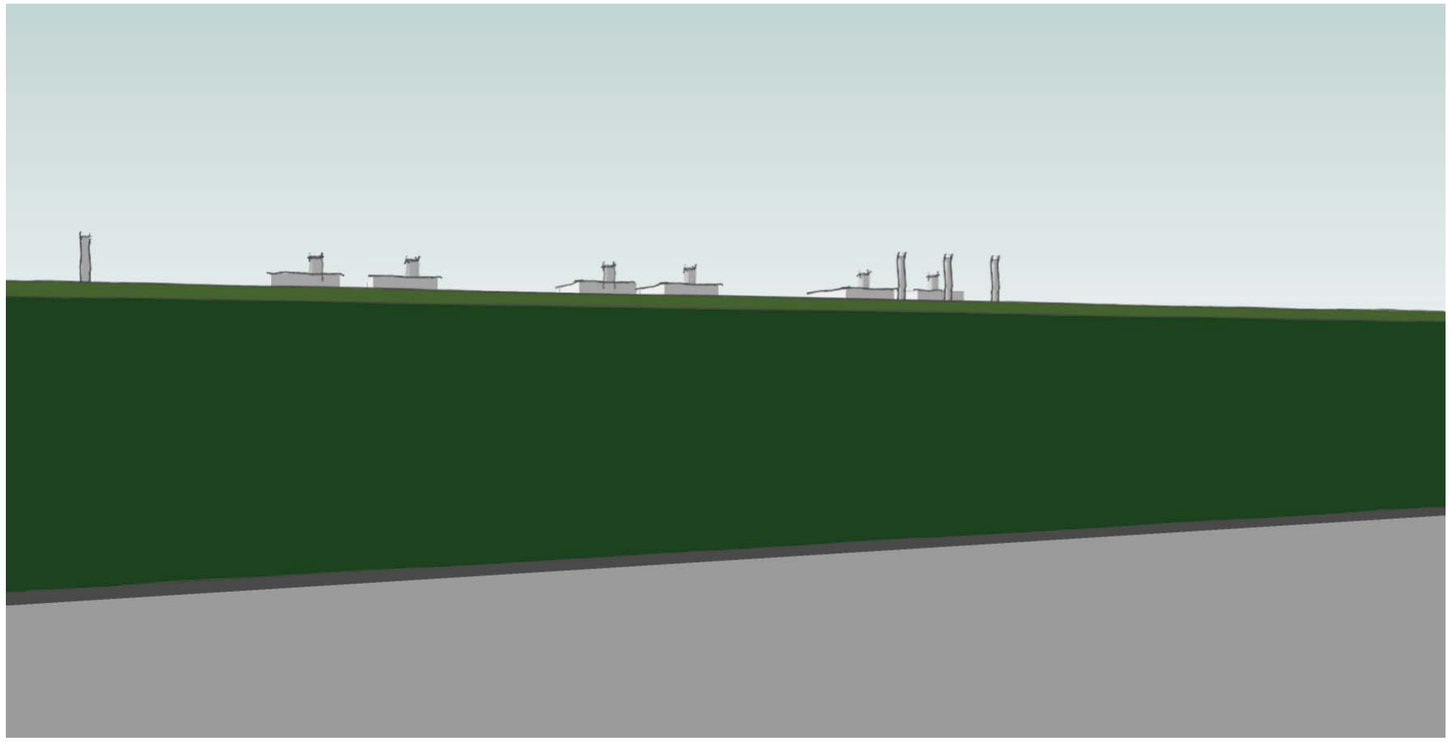


**Figure 6:** View towards the site from the south western (Heslerton Road) end of Irvines Road showing established Area E planting and potential Stage 1 and 2 building development.

**Figure 7:** View towards the site from SH1 approximately 200m north of Sheats Road showing existing shelterbelts building development.

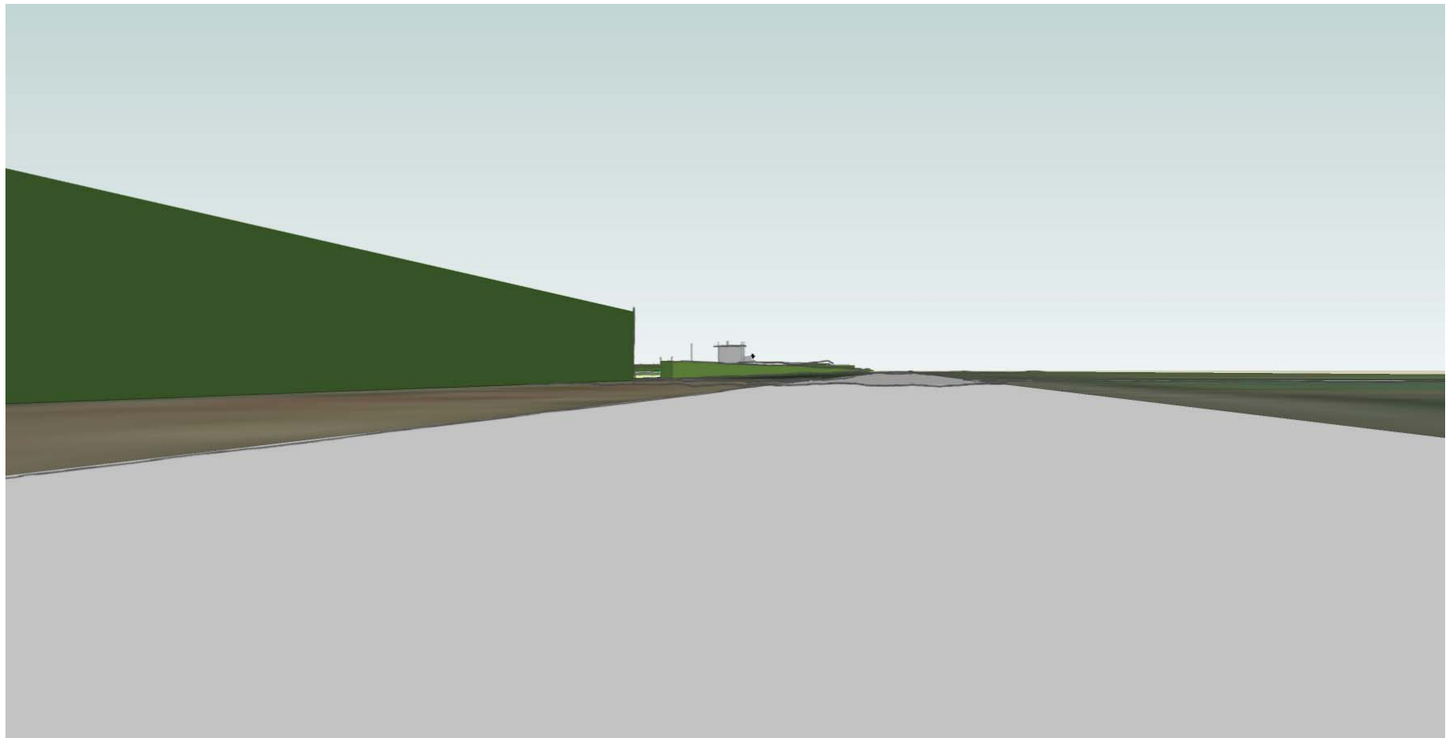
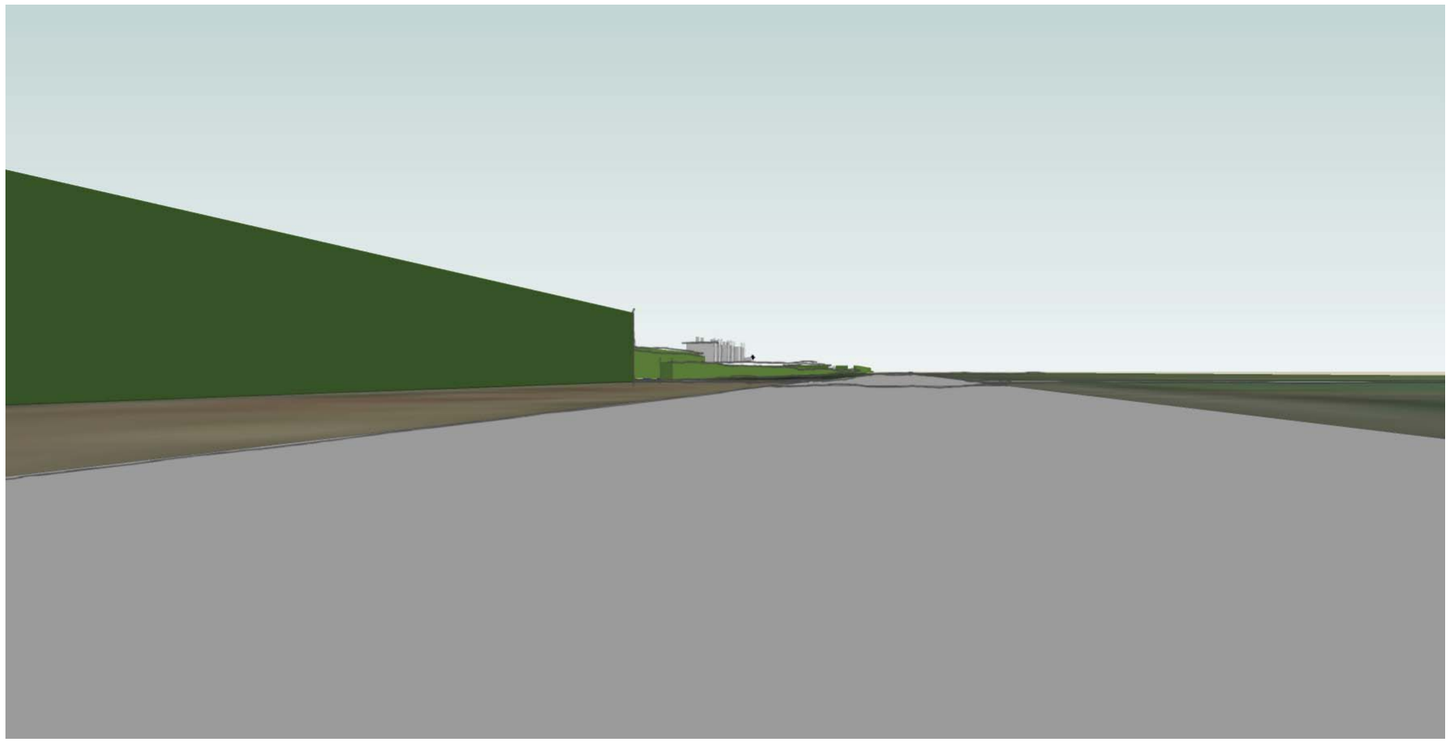


**Figure 8:** View towards the site from SH1 approximately 200m north of Sheats Road showing existing shelterbelts and established Area A and B planting and potential Stage 1 and 2 building development.



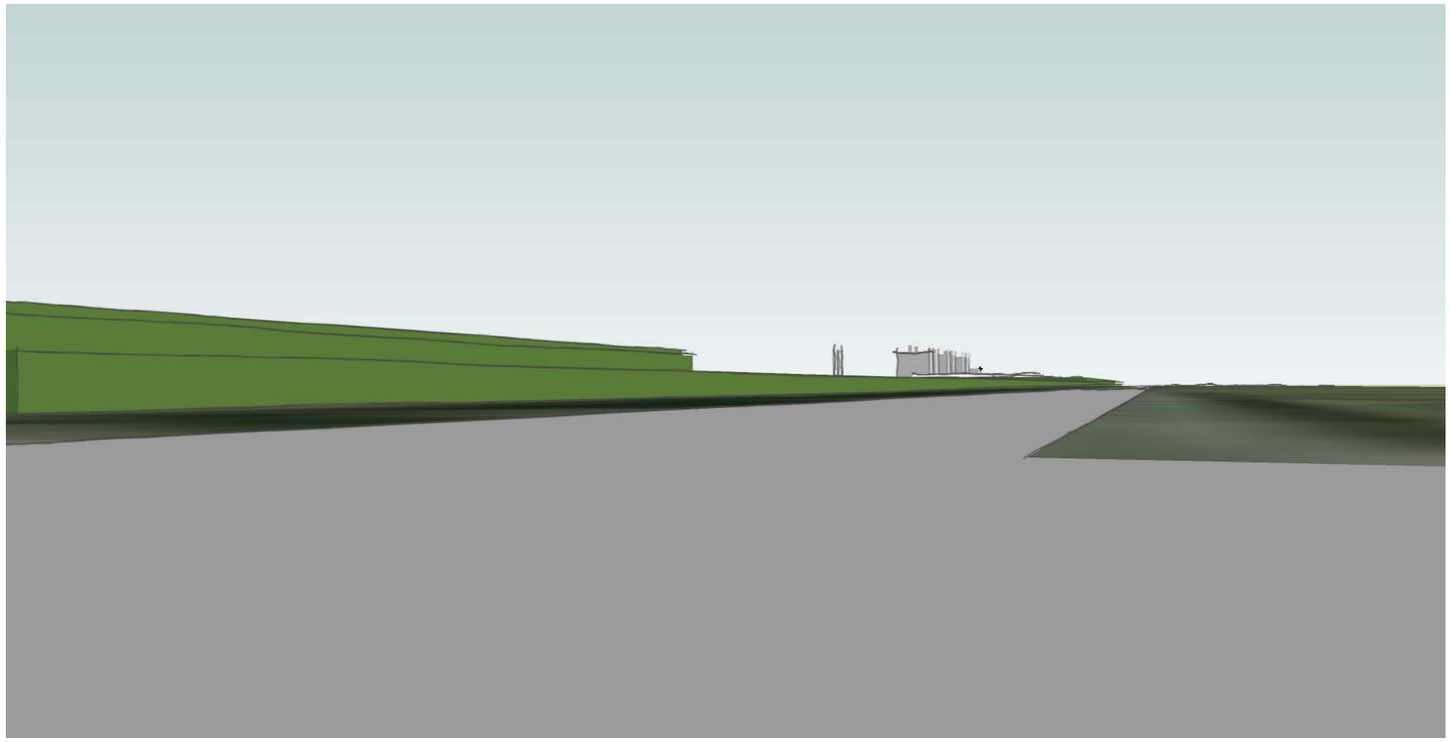


**Figure 9:** View towards the site from SH1/ Sheats Road intersection showing existing shelterbelts and established Area B planting and potential Stage 1 and 2 building development.

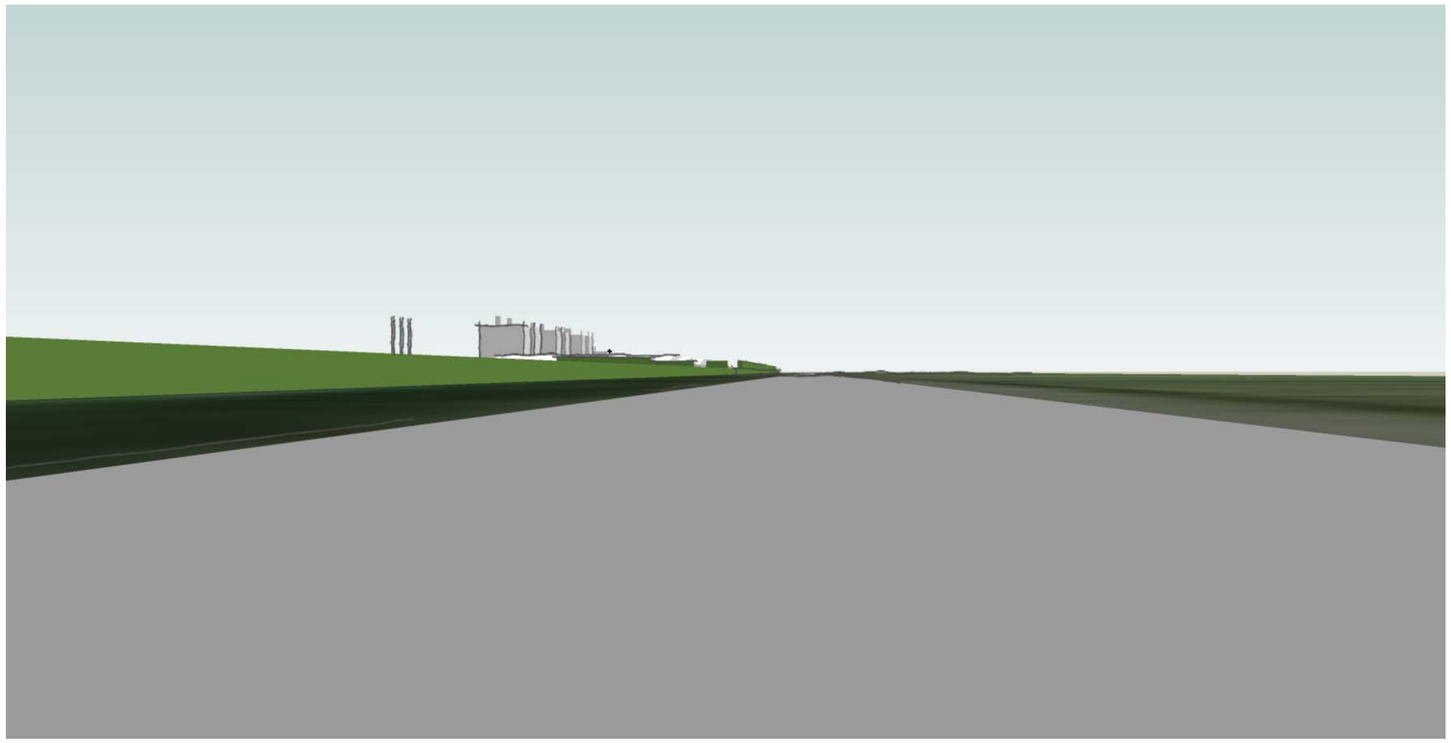


**Figure 10:** View towards the site from SH1 approximately 500m northeast of Area C planting showing existing shelterbelts and potential Stage 1 and 2 building development

**Figure 11:** Existing view towards the site from SH1 approximately 500m southwest of Parkins Road. (Note: excludes substation from view)

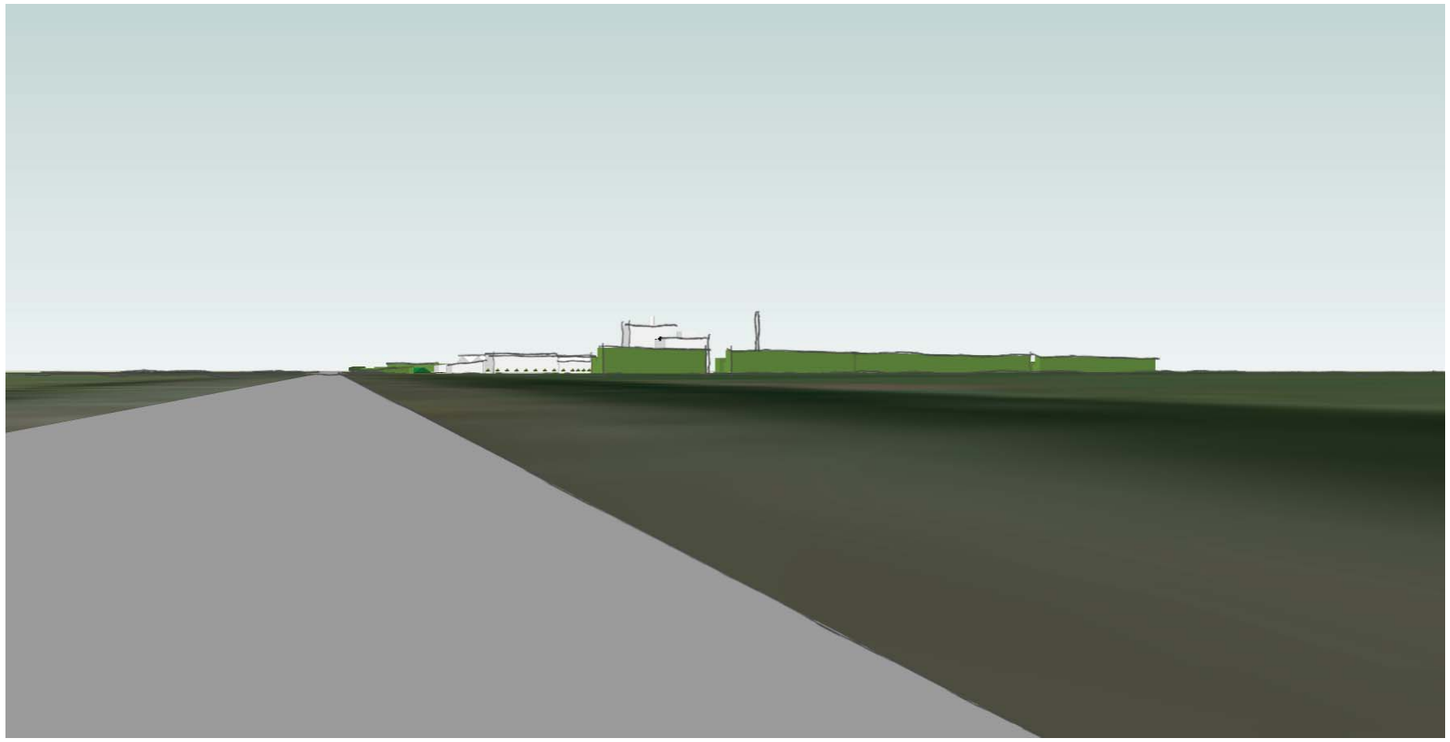
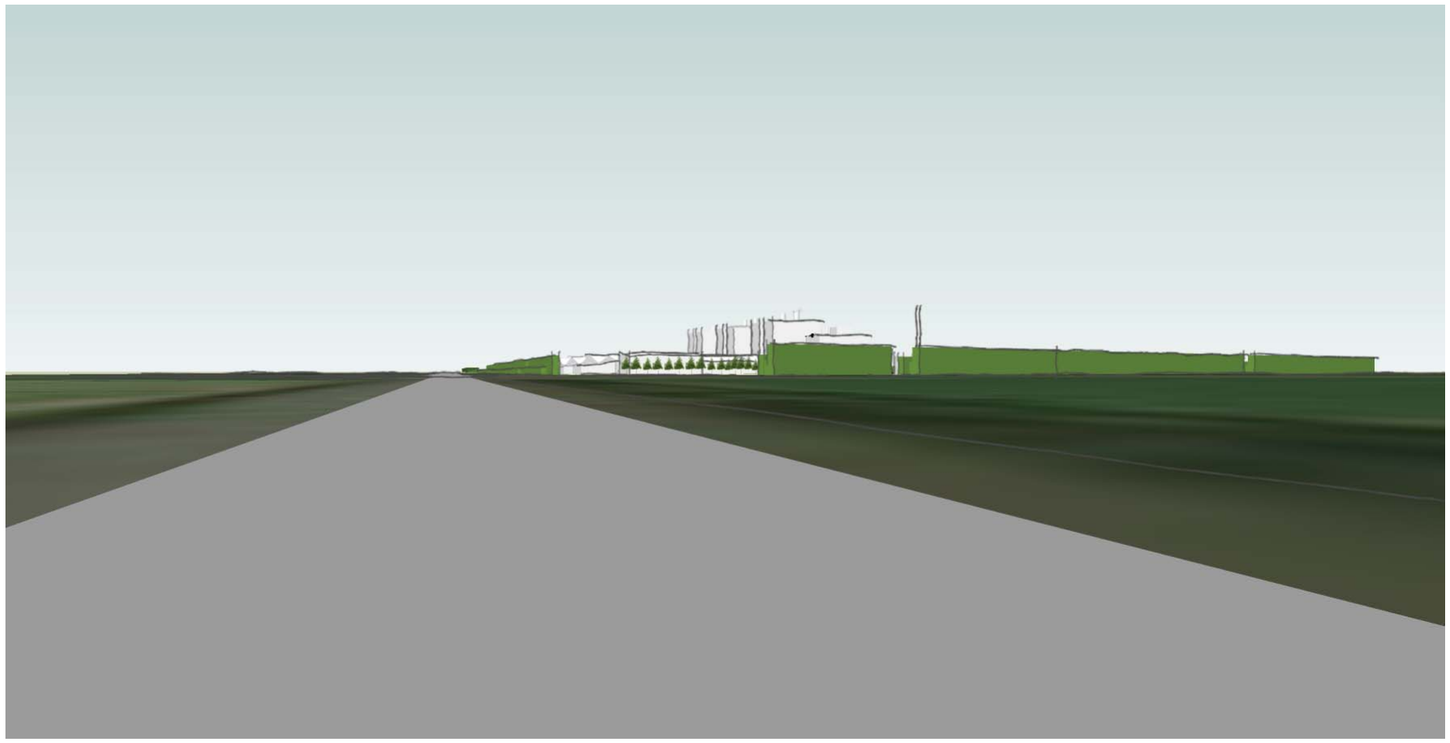


**Figure 12:** View towards the site from SH1 approximately 500m southwest of Parkins Road showing established planting and potential Stage 1 and 2 building development. (Note: excludes substation from view)



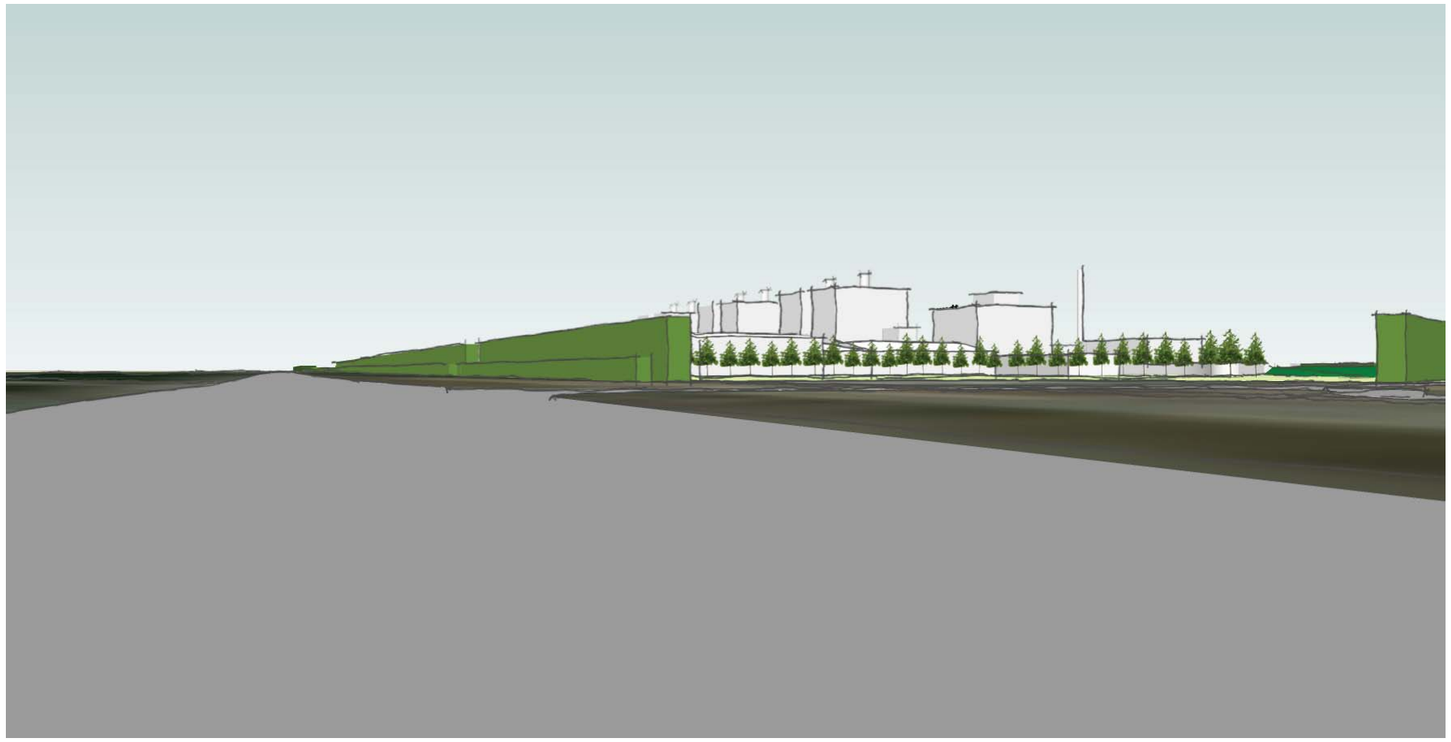


**Figure 13:** View towards the site from the SH1/ Parkins Road intersection showing established planting and potential
Stage 1 and 2 building development. (Note: excludes substation from view)

**Figure 14:** View towards the site from SH1 adjacent to north eastern edge of proposed building area showing existing
shelterbelts, proposed planting Area D and potential Stage 1 and 2 building development