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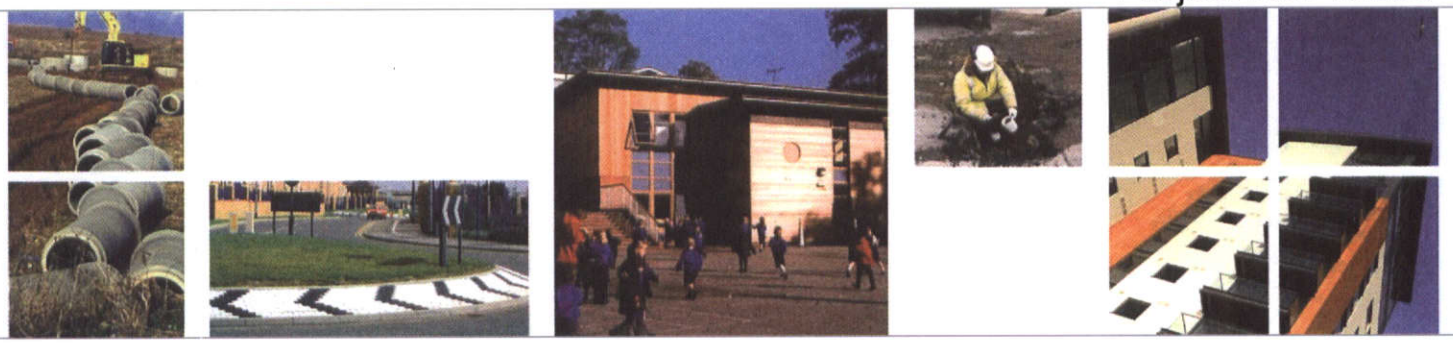
FOUL WATER DRAINAGE STRATEGY

POND CHASE NURSERIES, FOLLY LANE, HOCKLEY, ESSEX

Client: Pond Chase Nurseries

April 2012

Project No: 43205



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DOCUMENT REVIEW SHEET: -

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Date: - 27 / 04 / 2012

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Director
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Signature: - .....

Date: - 30 / 4 / 2012

Revision Status

Issue	Date	Description	Author	Checked	Approved
	26.04.12	1st Issue	CH	MG	

CONTENTS

APPENDIX

1. FOUL WATER DRAINAGE STRATEGY

1.1. Richard Jackson Ltd has been instructed by Boyer Planning on behalf of Pond Chase Nurseries to undertake a foul water drainage strategy for this site. The Foul water drainage strategy is based on the topographical survey for the site and the Anglian Water asset plan in Appendix C.

1.2. The site is located off Folly lane in Hockley, reference site location plan in Appendix A.

1.3. The topographical survey in Appendix F shows that the site falls from the north to the south 60m to 51m AOD.

1.4. The proposed architectural layout for 50 residential units is shown on drawing 11-2042-003 revision A in Appendix B. To drain foul water from this proposed development the preferred strategy is to outfall foul water from the residential units by gravity to sewer runs south to north. It is proposed that a pumping station in the north of the site will pump foul water back to the south of the site via a rising main to outfall to the nearest manhole in Folly Lane opposite the entrance of the proposed development access road as indicated on the Drainage Strategy plan 43205/C/02 in Appendix E.

1.5. The distance between the proposed pumping station and the residential buildings will not be less than 15m. An access area to the pumping station will be required for the pumping station large enough to accommodate a tanker. The pumping station will not be covered or walled, so that the requirements on sewers for adoption can be accommodated. A typical layout for the pumping station is shown in Appendix D.

1.6. A section 104 application will need to be made with Anglian Water for adoption of the proposed gravity foul sewer and the foul rising main sewer.

1.7. The pumping station specification with regard to the size of pump required to meet the development loadings will be based on a peak flow rate to the Anglian Water sewer in Folly Lane of 2.5 ls^{-1}. The pump station duty and wet well storage calculations are shown in Appendix D.

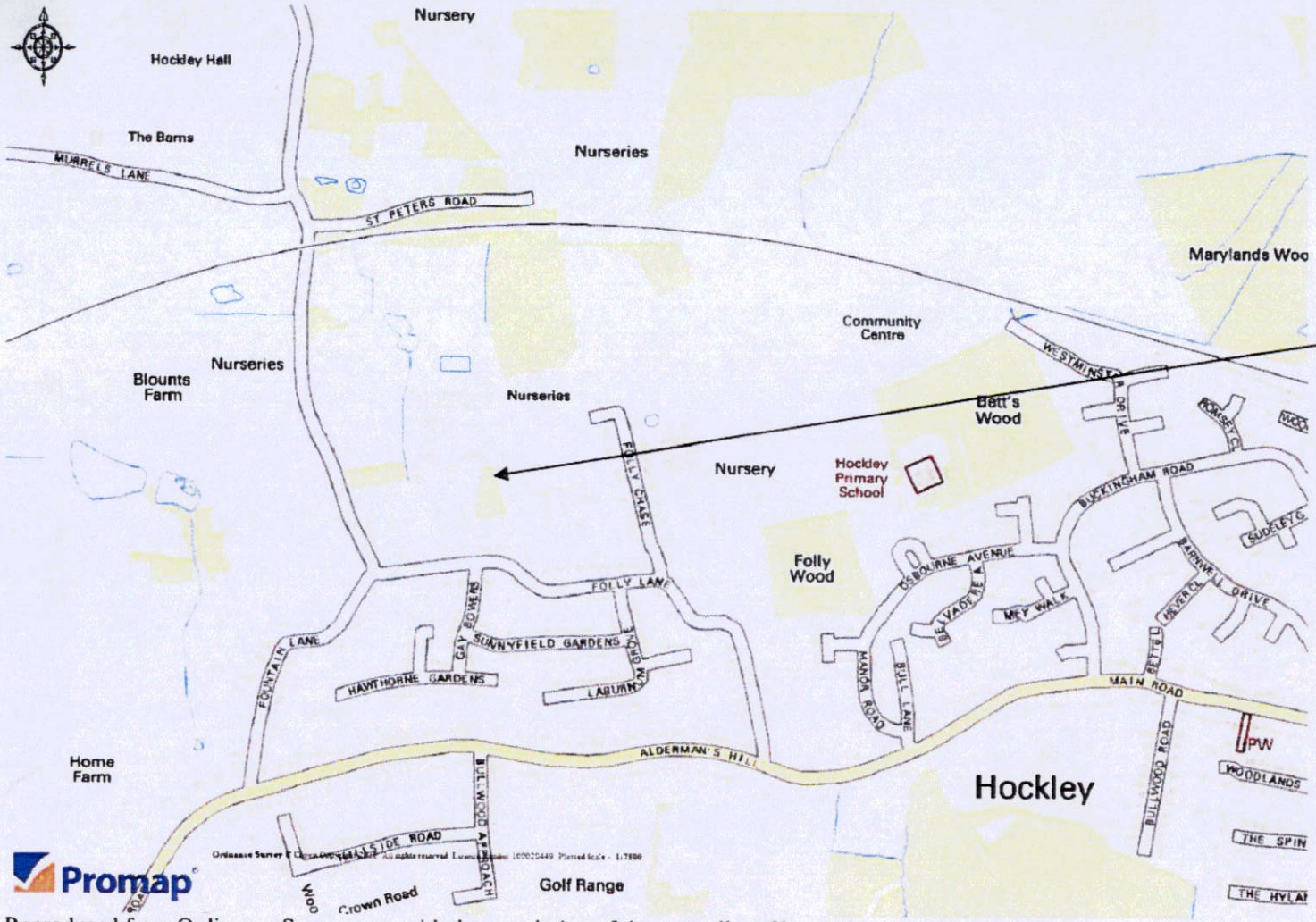
2. CONCLUSION

2.1. The proposed development will be able to drain foul water from the site by via a pumping station package. Section 104 agreements with the Anglian Water need to be in place in addition to consent to undertake works within the public highway in Folly Lane.

APPENDIX

APPENDIX A

Site Location



Reproduced from Ordinance Survey map with the permission of the controller of her majesty's stationary office
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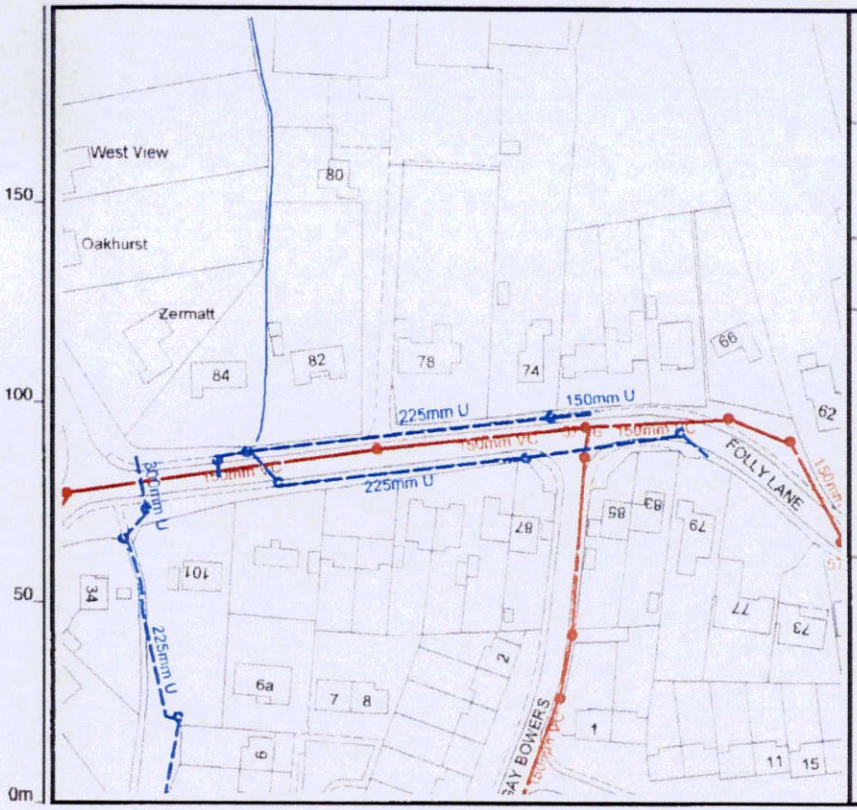
Client: Pond Chase Nurseries	Drawing Title: Location Plan			26 High Street Hadleigh Ipswich Suffolk IP7 5AP T: 01473 825300 F: 01473 825350 www.richardjacksonplc.co.uk
Job Title: Flood Risk Assessment	Date: 11 April 2012	Job No: 43205	Drawing No: 43205/C/01	

APPENDIX B

Architect Layout Plan 11-2042-003 Rev A

APPENDIX C

Anglian Water Asset Plan



Anglian Water - Sewerage

Asset data last updated 01/07/2006

Sewerage Legend

Foul Sewer

Surface Sewer

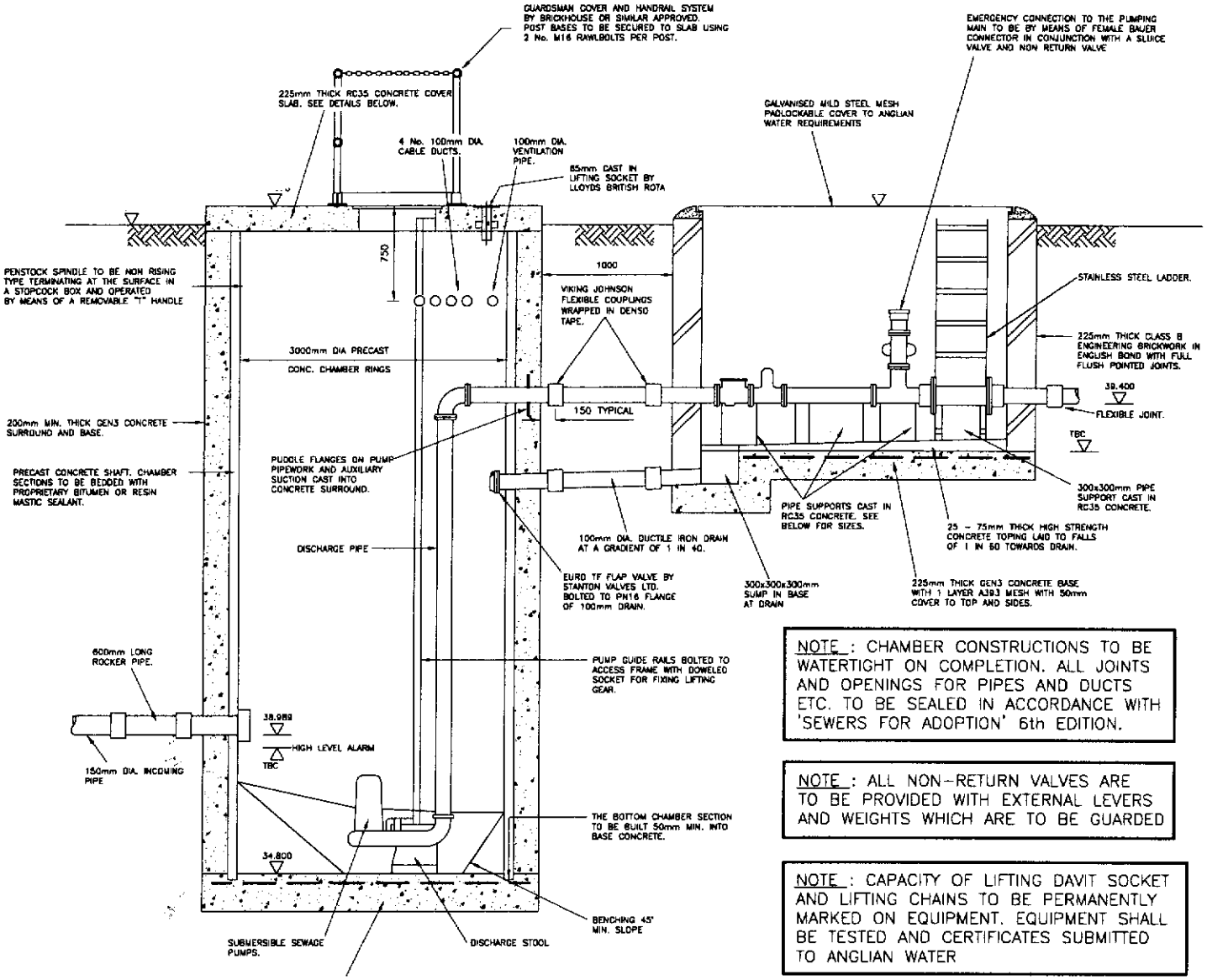
Combined Sewer

Private Sewer
(Colour dependent on effluent type)

Surface Manhole Non Surface Manhole

APPENDIX D

Typical pumping station layout and calculations

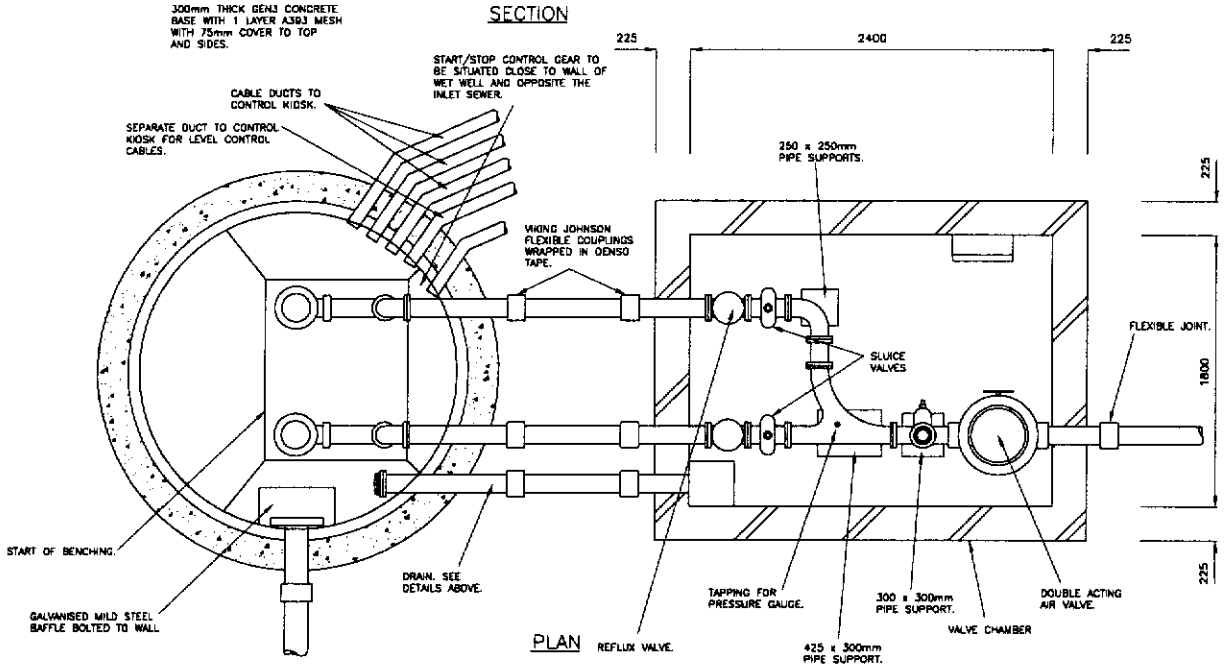


NOTE : CHAMBER CONSTRUCTIONS TO BE WATERTIGHT ON COMPLETION. ALL JOINTS AND OPENINGS FOR PIPES AND DUCTS ETC. TO BE SEALED IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' 6th EDITION.

NOTE : ALL NON-RETURN VALVES ARE TO BE PROVIDED WITH EXTERNAL LEVERS AND WEIGHTS WHICH ARE TO BE GUARDED

NOTE : CAPACITY OF LIFTING DAVIT SOCKET AND LIFTING CHAINS TO BE PERMANENTLY MARKED ON EQUIPMENT. EQUIPMENT SHALL BE TESTED AND CERTIFICATES SUBMITTED TO ANGLIAN WATER

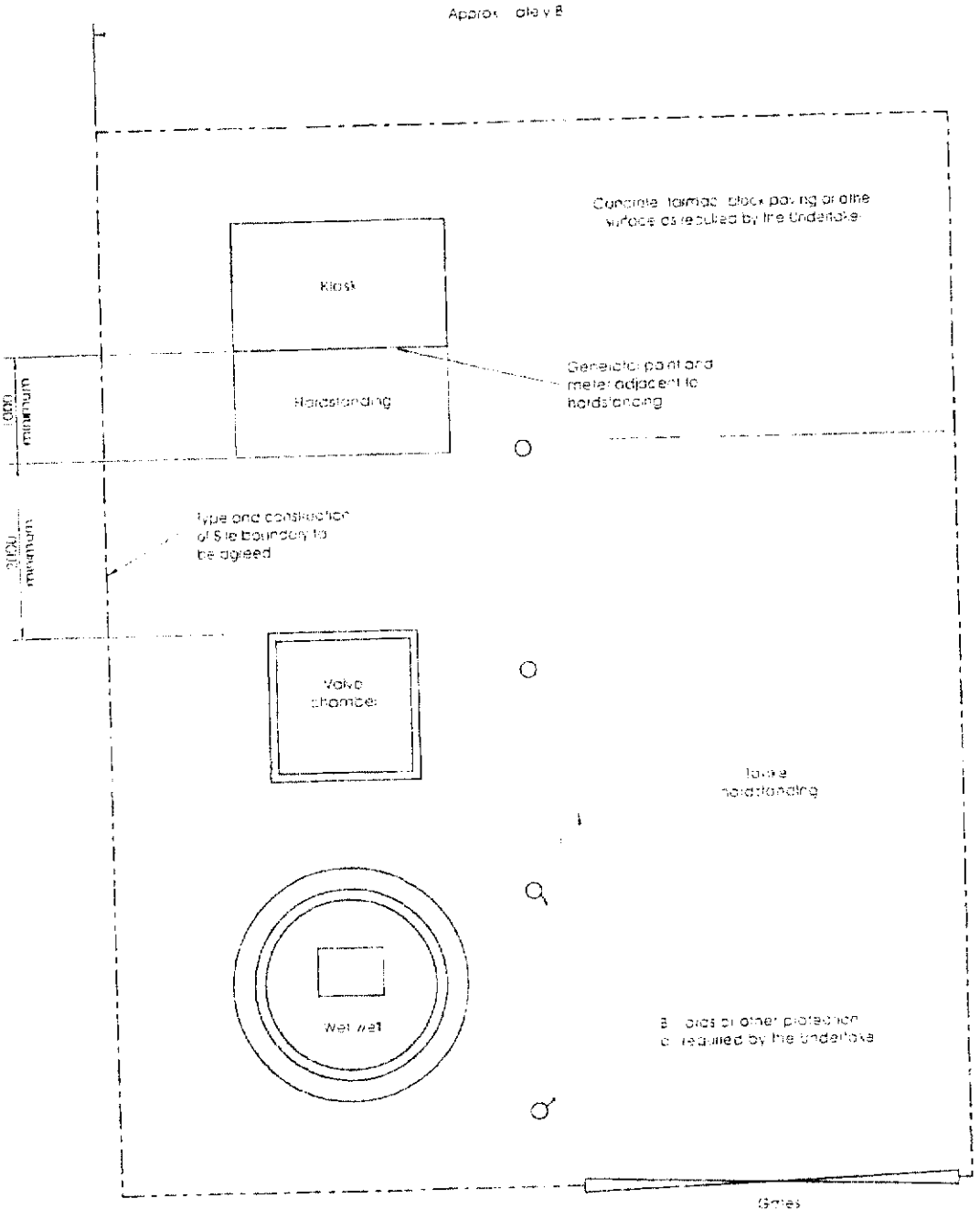
SECTION



PLAN

FIGURE 2.11
TYPICAL PUMPING STATION LAYOUT

Not to scale, dimensions in millimetres



Notes:

1. There should be a clear opening in front of the gates to ensure adequate access.

2. Typical layout showing minimum dimensions, alternative layout and final dimensions subject to agreement with the Undertaker.

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Norwich: 01603 230240 ☐

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CONTRACT: Pond Chase Nurseries
ELEMENT: Foul Water Storage

REF: 43205
SHEET: 1 of 2
DATE: April 12

Sewers for Adoption

Minimum storage 160 Litres/dwelling

Residential 50 units

∴ storage $160.50 = 8\ m^3$

Wet well design storage = 8 m^3

Pump Duty

Use wet well diameter 2.4 m

Depth below incoming sewer to pump station for 8 m^3 storage (reference sheet 1)

$8 \div \{(1.2)^2 \pi\} = 1.8\ m$

Ground level of pump station = 52.8 m
and minimum depth of incoming = 1.2 m

∴ pump invert = $52.8 - (1.2 + 1.8) =$ 49.8 m

Ground level at sewer outfall in Folly Lane = 60.4 m

Assume depth to invert 1.2 m
∴ invert at sewer outfall = 59.2 m

Difference $59.2 - 49.8 = 9.4\ m$

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CONTRACT: Pond Chase Nurseries
ELEMENT: Foul Water storage

REF: 43205
SHEET: 1 of 2
DATE: April 12

Allow 1m for sump

Duty = 10.4m

Note: May be possible to reduce this at detail design stage if Anglian Water accept storage within the incoming network.

Peak flow rate based on 4,000L/unit/24 hrs

Development for 50 units

$4{,}000 \cdot 50 \div \{24(60)^2\} \simeq 2.5 Ls^{-1}$

Storage in Wet well between pump start and stop control levels to give a maximum of 15 starts per hour.

APPENDIX E

Proposed drainage strategy plan 43205/C/02

APPENDIX F

Topographical Survey

Link-up Qualified via Audit

Link-up ID 7018

Our expertise

STRUCTURAL ENGINEERING

■ We have extensive experience in the structural design of a wide range of building types in various sectors including commercial, retail, leisure, education and health. We have gained an intimate knowledge of traditional and historic building methods, with experience covering all the conventional techniques. We also look beyond the conventional and have developed a thorough understanding of modern systems. We are sensitive to the issues of sustainability in construction and are committed to researching solutions through innovation.

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■ Our teams of experienced civil engineers offer specialist skills covering highway engineering, infrastructure, transport assessments, bridgeworks, flood risk assessments, water, docks and railways. Specialist knowledge and expertise enables us to deliver a high quality service to both the private and public sectors. Our involvement can range from feasibility and planning to detailed design, contract documentation and site supervision, providing a comprehensive service from a project's conception through to its successful completion.

GEOTECHNICAL ENGINEERING

■ A dedicated team of geotechnical engineers provides support to all sections of the company and a direct service to our clients. The team undertakes site investigations for foundation design, desk studies, slope stability assessments (including rail infrastructure work), brownfield site contamination surveys and remediation design. Fieldwork techniques range from simple low cost methods to sophisticated geophysical and insitu testing. We undertake land evaluation and provide advice re land purchase and risk.

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■ Our knowledge of buildings means that we also understand what can go wrong. We have vast experience of carrying out surveys and defects investigations on all kinds of buildings, from domestic to large commercial structures. Richard Jackson plc has pioneered investigation and repair techniques that are now recognised as orthodox within the industry. We understand the buildings insurance claims process and have a dedicated team of specialist engineers who can deal with claims. We also carry out risk assessments on building assets.

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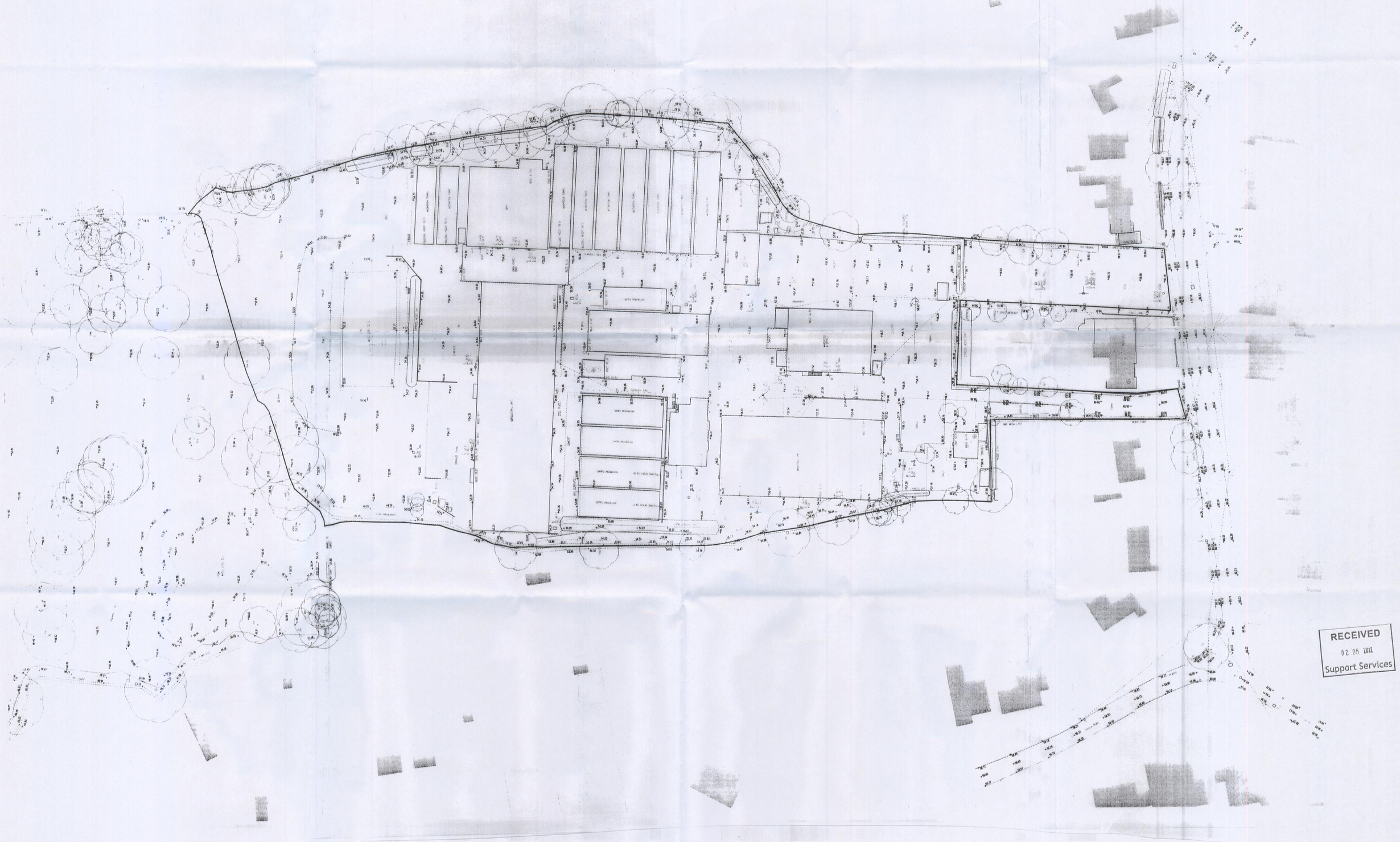

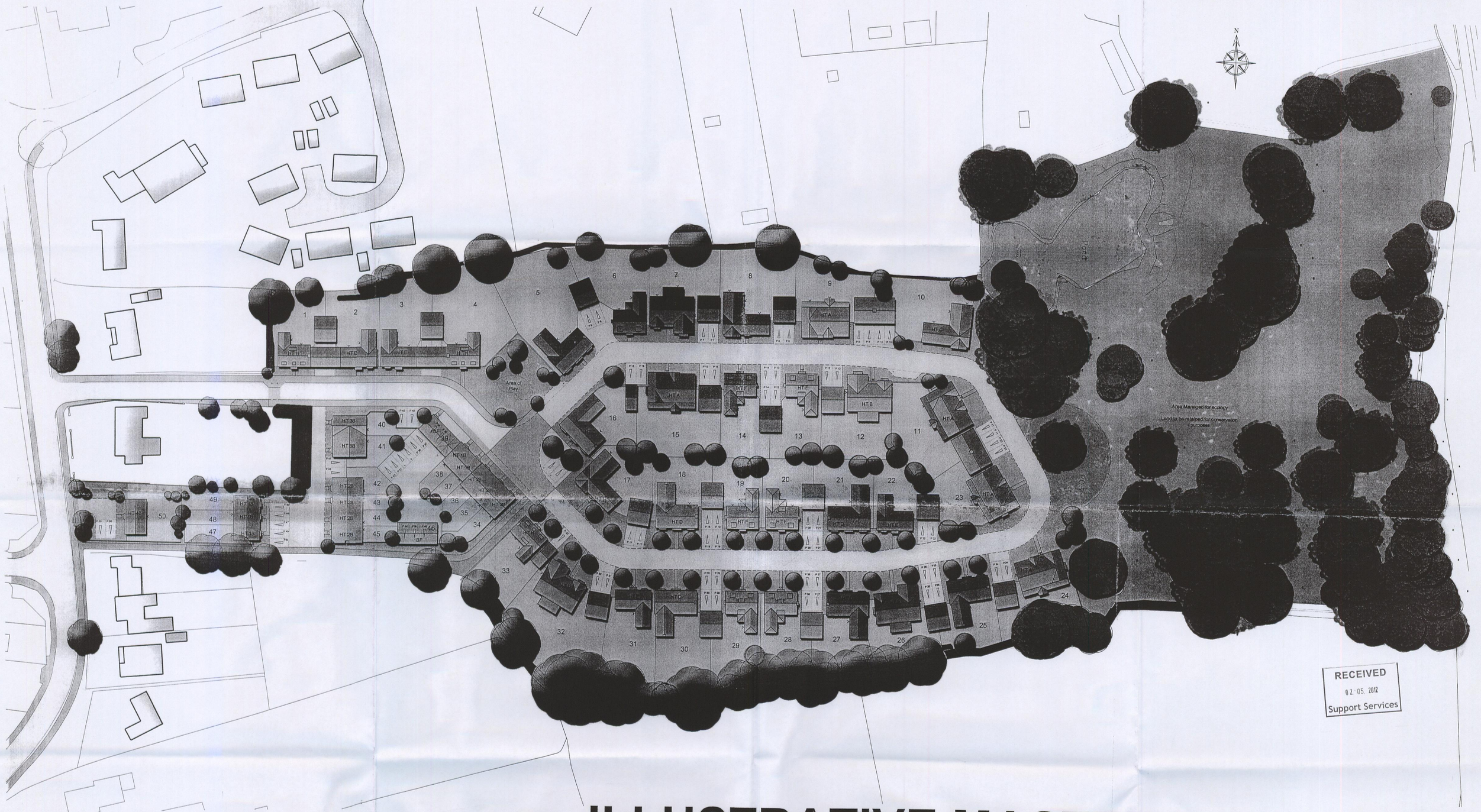

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ILLUSTRATIVE MASTERPLAN ONLY

LEGEND

- Planning Application Boundary
- Parking space
- Existing TPO Trees
- Proposed trees
- Location of fences (indicative only, refer to Barton Willmore drawings for detail design.)
- Bollards
- Front Entrance Doors
- Side / Rear Doors

Note: All Hard & Soft Landscaping details, Planting, Proposed Trees, Proposed Shrubs are indicative only

0 10 20 30 40 50

Scale in metres

No.	Date	Amendment	Initials	No.	Date	Amendment	Initials
A	24.02.12	Amended to clients comments	kp				

Client : Pond Chase

Project : Pond Chase Nurseries
Hockley, Essex.

Drawing : Illustrative Masterplan

Scale : 1:500 @ A1
Date : Nov 2011
Status : Planning
Rev : A
Dwg No : 11-2042-003

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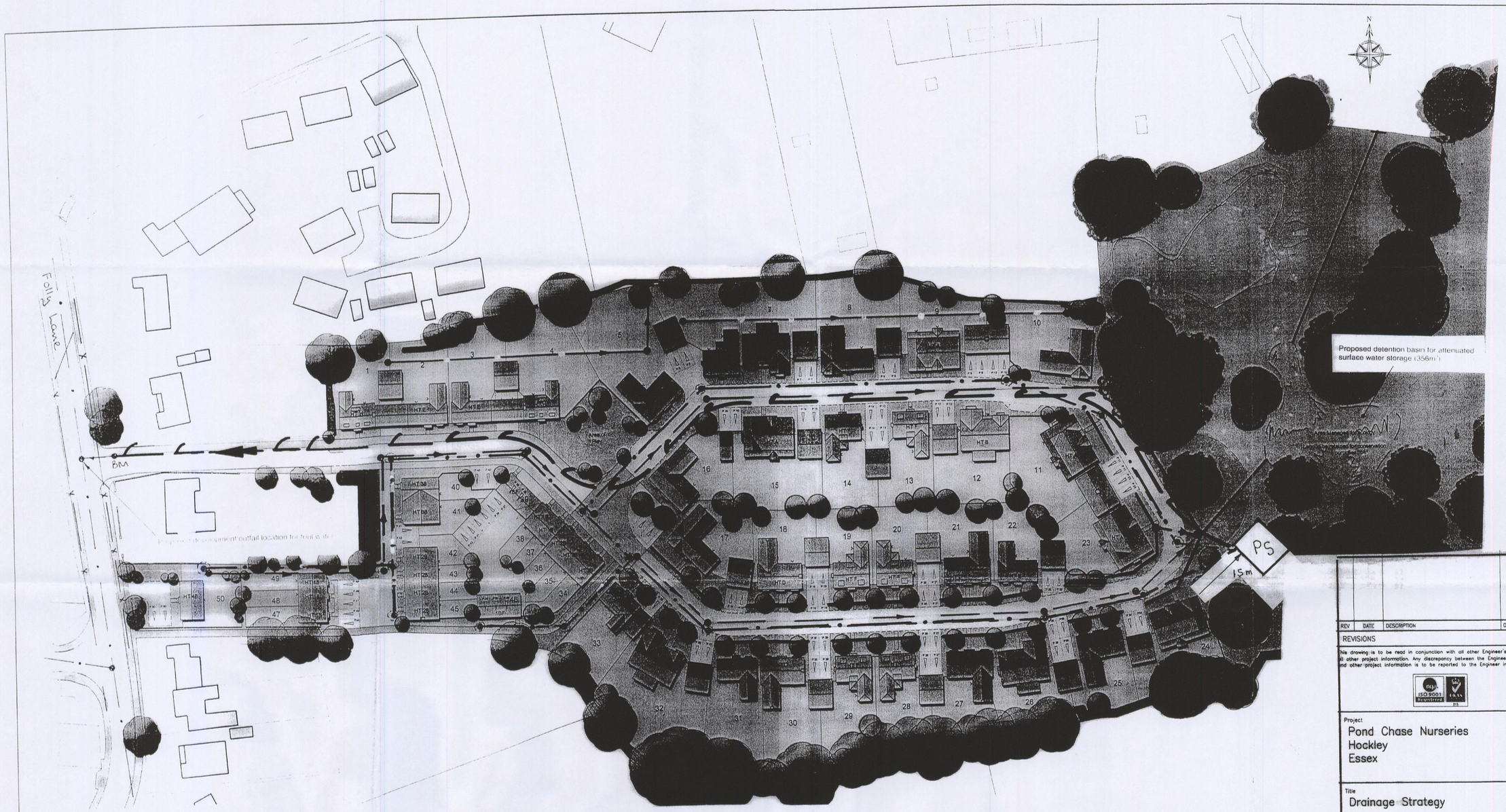

Key

- Proposed surface water sewer
- Proposed swales to SuDS Manual design requirements for residential surface water outfall and conveyance
- Existing surface water sewer
- Existing foul sewer
- Proposed rising main outfall for development foul water drainage.
- BM Rising Main break manhole
- PS Foul sewer pump station
- Proposed foul sewer network

REV	DATE	DESCRIPTION	DRAWN	CHKD

REVISIONS

This drawing is to be read in conjunction with all other Engineer's drawings and all other project information. Any discrepancy between the Engineer's drawings and other project information is to be reported to the Engineer immediately.

Project
Pond Chase Nurseries
Hockley
Essex

Title
Drainage Strategy

Client
Pond Chase Nurseries

Scale	Drawn	Date
1:500 @ A1		
Job Manager	Checked	Approved

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Drawing No. 43205/C/02

Revision

Drawing Status
☐ INFORMATION ☐ APPROVAL ☐ COSTING
☐ TENDER ☐ CONSTRUCTION ☐ AS CONSTRUCTED