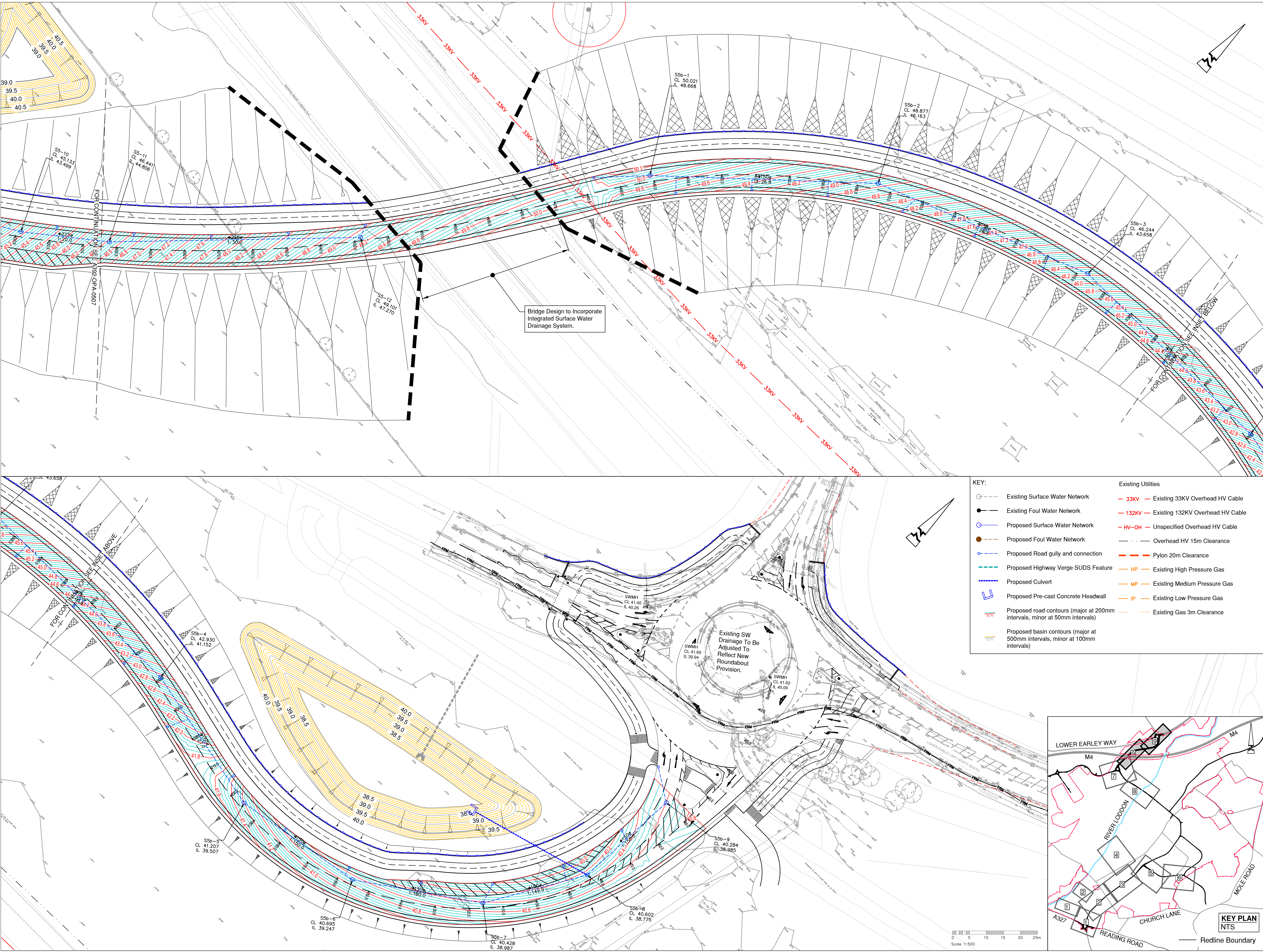




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DRAINAGE NOTES:

- Do not scale.
- Refer to all other Project Drawings and supporting notes.
- All adoptable drainage works to be constructed as detailed in the Water Authorities Addendum.
- All public sewers are to be the subject of a Section 104 agreement of the Water Industry Act 1991.
- Invert levels of existing manholes and sewers are to be checked on site before construction commences and results reported to engineers.
- The Contractor is responsible for maintaining continuity of flow for all existing sewers within the site boundary and limit of works for the duration of the project.
- All drainage ironworks to comply with BS EN124, and be stamped with BSI Kitemark. Covers to suit loading as below:
 - Carriageways and Roads - D400
 - Driveways and Verges - C250
 - Footways and Pedestrian Areas - B125
 - Gardens/Landscaping - A15
- All sewer pipes, up to, and including 600mm are to be vitrified clay or PVC-U to BS EN295 and BS EN1404 respectively. All sewer pipes 675mm diameter and above to be concrete pipes to BS EN1916.
- All drainage shall be installed and tested strictly in accordance with the Manufacturers' printed instructions, BS EN 752, BS EN 1601, Local Water Authority requirements and the Building Regulations.
- All bedding shall be Class S unless noted otherwise.
- All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted Type 1 granular sub-base material.
- Drainage laid beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. Drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
- Chambers with outgoing pipes greater than 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
- The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
- All gully connections to use a minimum diameter pipe of 150mm and to be surrounded by a minimum of 150mm of grade C8/C10 concrete over its full length (which should not exceed 15m) and its connection to the carrier system.
- All sewers to be abandoned must be surveyed to identify any lateral connections that are still live with any found to be reported to the Engineer.
- All foul and storm water drains which are not to be adopted as public sewers shall be in accordance with Document H of the Building regulations, together with NHBC Standards Chapter 5.3 and BS8301.
- Where pipes pass through footings, retaining or screen walls, lintels to be provided over drains.
- Where inverts are less than 0.6m deep inspection chambers (min dia. 190mm) or access fittings (225 x 100mm) to be used, elsewhere proprietary plastic, brick or pcc is to be used and sized in accordance with Table 11 of Document H of the Building Regulations [-0.6m to invert min DN300, >0.6m to invert min DN475].
- All gullies connected direct to drains to be roddable.
- Adequate precautions in accordance with Approved Document H and manufacturers' recommendations to be taken to protect drains (particularly plastic) at shallow depths.
- Trees and shrubs of a large size or heavy canopy with a moderate or high water demand must not be planted within any sewer easement.
- Gullies within and adjacent to area of site works to be suction cleansed at commencement and completion of works.

B	07.25	KEY PLAN REDLINE BOUNDARY UPDATED	CS	LPA
A	06.25	FIRST ISSUE	JJS	CS
Rev	Date	Description	Drawn	Checked

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Client

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Project

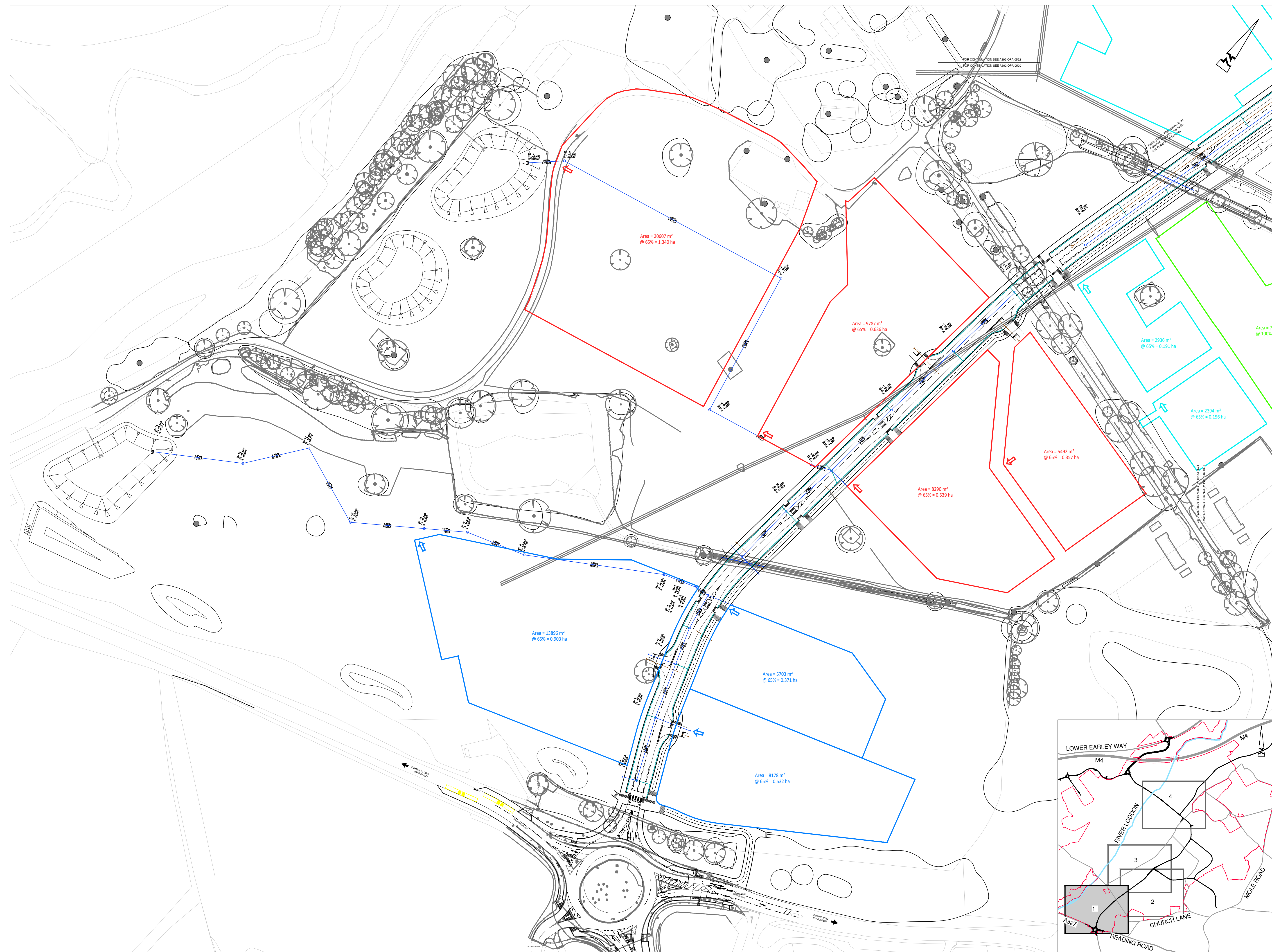
LODDON GARDEN VILLAGE

Title

DRAINAGE AND LEVELS
LAYOUT
SHEET 9 OF 9

Status

Scale	Date	Drawn	Checked
1:500 @ A1	JUNE 2025	JJS	CS
Drawing No.	A392-OPA-0509		Revision
		B	



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GENERAL ARRANGEMENT NOTES:

1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

CATCHMENTS

-  Drainage Network 1
-  Drainage Network 2
-  Drainage Network 3
-  Drainage Network Sports Pitches
-  Drainage Network 7c

B	07.25	KEYPLAN REDLINE BOUNDARY UPDATED	CS	LP
A	06.25	FIRST ISSUE	JJS	C
Rev	Date	Description	Drawn	Check



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UNIVERSITY OF READING

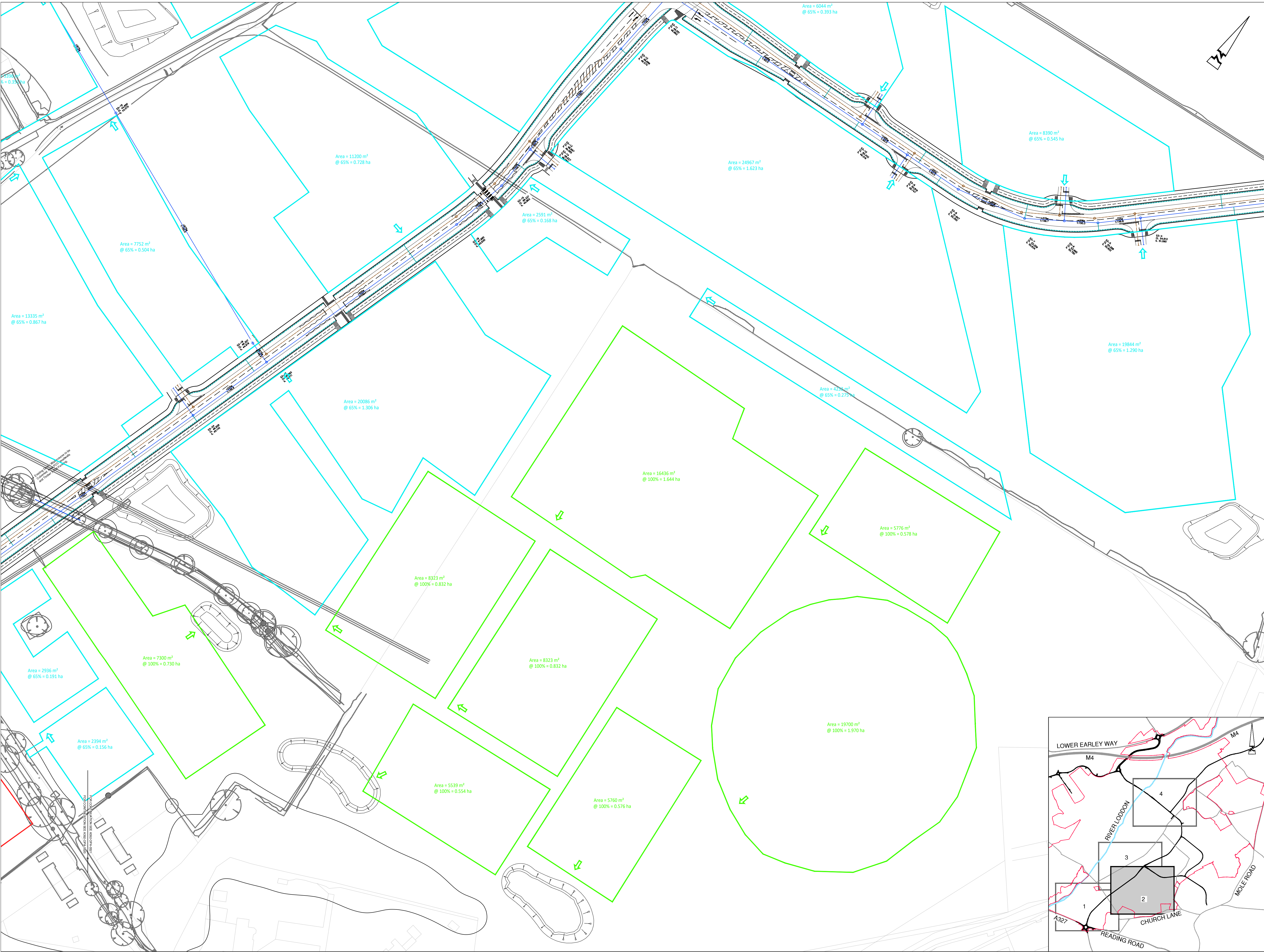
Project

LODDON GARDEN VILLAGE

Title
STORM WATER
CATCHMENT PLAN
SHEET 1 OF 4

Status	
--------	--

Scale 1:1000 @ A1	Date JUNE 2025	Drawn JJS	Checked CS
Drawing No A392-OPA-0520			Revision B



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GENERAL ARRANGEMENT NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

CATCHMENTS

- Drainage Network 1
- Drainage Network 2
- Drainage Network 3
- Drainage Network Sports Pitches
- Drainage Network 7c

B	07.25	KEYPLAN REDLINE BOUNDARY UPDATED	CS	LPA
A	06.25	FIRST ISSUE	JJS	CS
Rev	Date	Description	Drawn	Checked

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Client

UNIVERSITY OF READING

Project

LODDON GARDEN VILLAGE

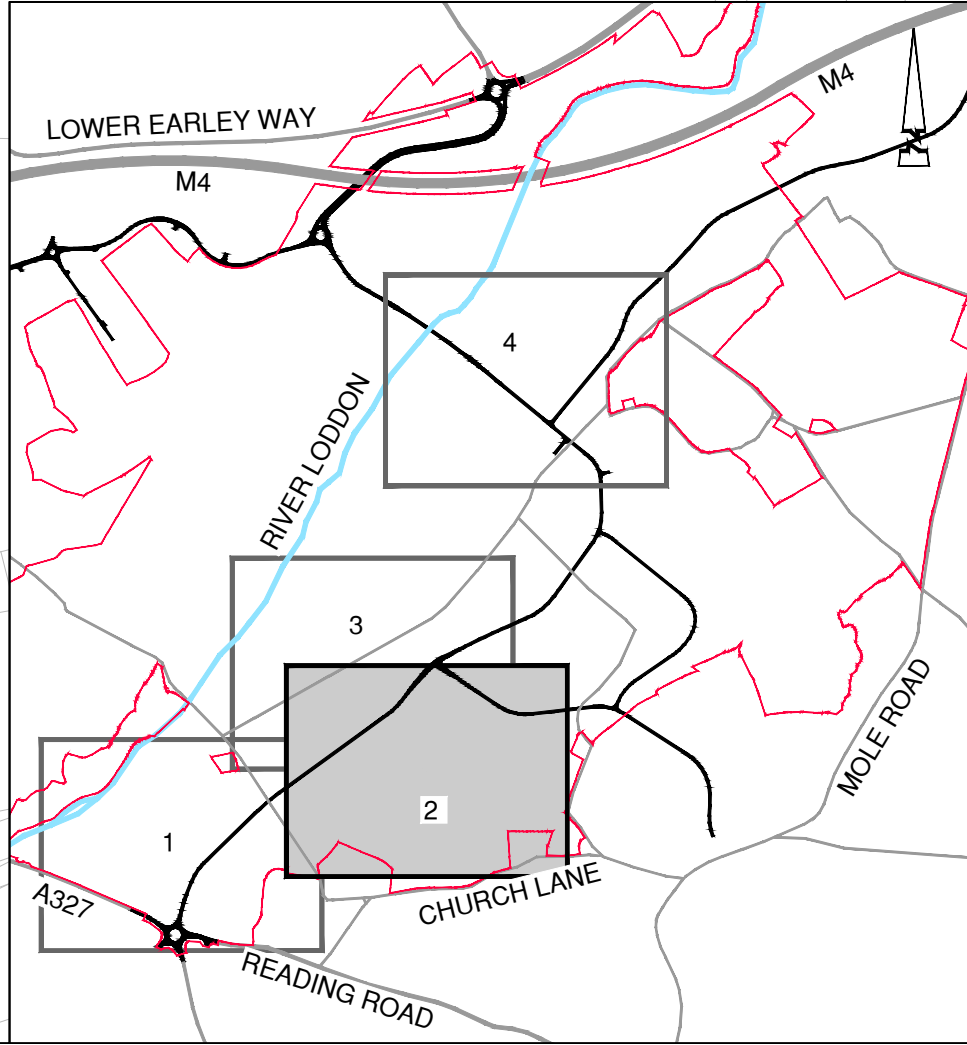
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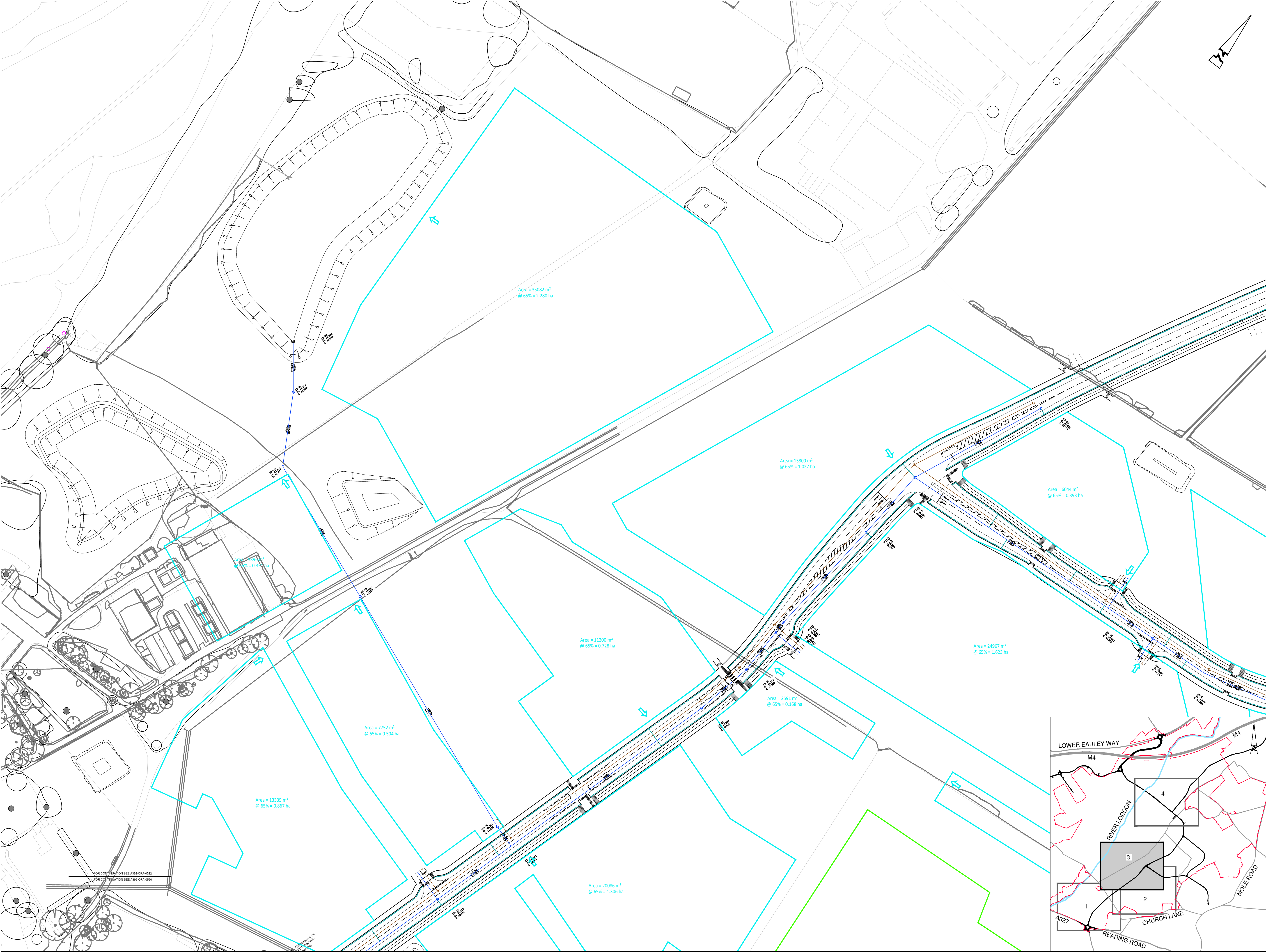
STORM WATER CATCHMENT PLAN SHEET 2 OF 4

Status

Scale	Date	Drawn	Checked
1:1000 @ A1	JUNE 2025	JJS	CS

Drawing No	Revision
A392-OPA-0521	B





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GENERAL ARRANGEMENT NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

CATCHMENTS

- Drainage Network 1
- Drainage Network 2
- Drainage Network 3
- Drainage Network Sports Pitches
- Drainage Network 7c

B	07.25	KEYPLAN REDLINE BOUNDARY UPDATED	CS	LPA
A	06.25	FIRST ISSUE	JJS	CS
Rev	Date	Description	Drawn	Checked



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Project

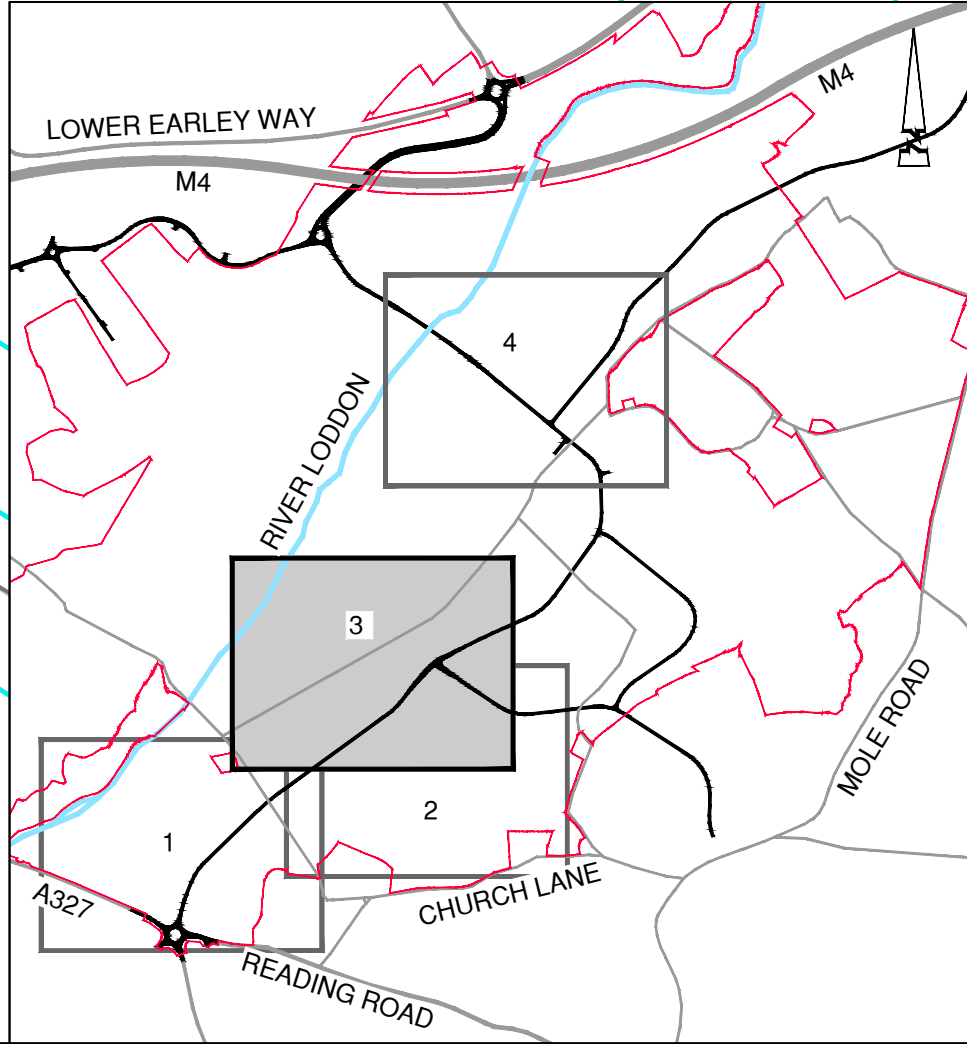
LODDON GARDEN VILLAGE

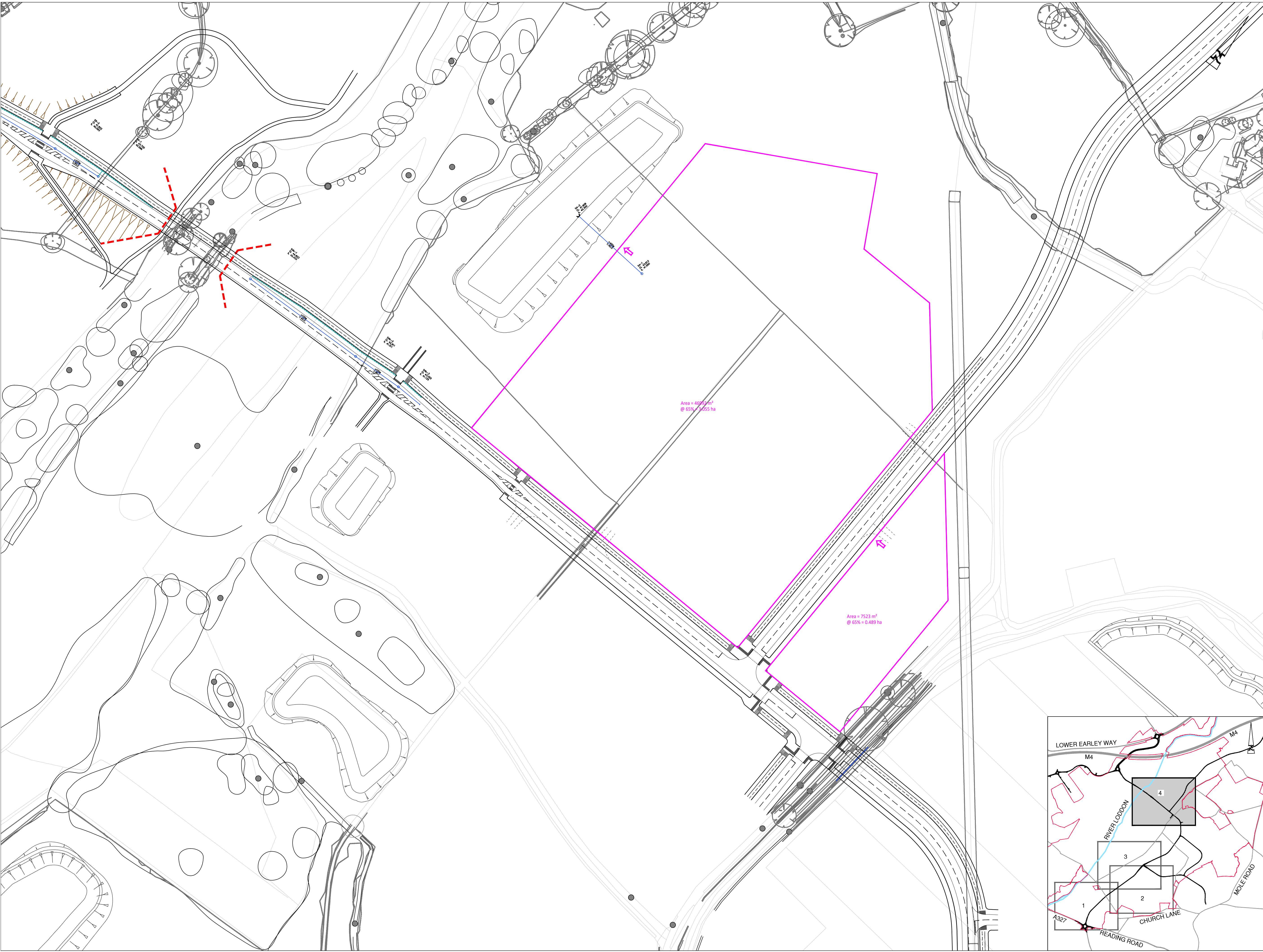
Title

STORM WATER CATCHMENT PLAN SHEET 3 OF 4

Status

Scale	Date	Drawn	Checked
1:1000 @ A1	JUNE 2025	JJS	CS
Drawing No	Revision		
A392-OPA-0522	B		





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GENERAL ARRANGEMENT NOTES:
1. Do not scale.
2. Refer to all other Project Drawings and supporting notes.

CATCHMENTS

- Drainage Network 1
- Drainage Network 2
- Drainage Network 3
- Drainage Network Sports Pitches
- Drainage Network 7c

B	07.25	KEYPLAN REDLINE BOUNDARY UPDATED	CS	LPA
A	06.25	FIRST ISSUE	JJS	CS
Rev	Date	Description	Drawn	Checked



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UNIVERSITY OF READING

Project

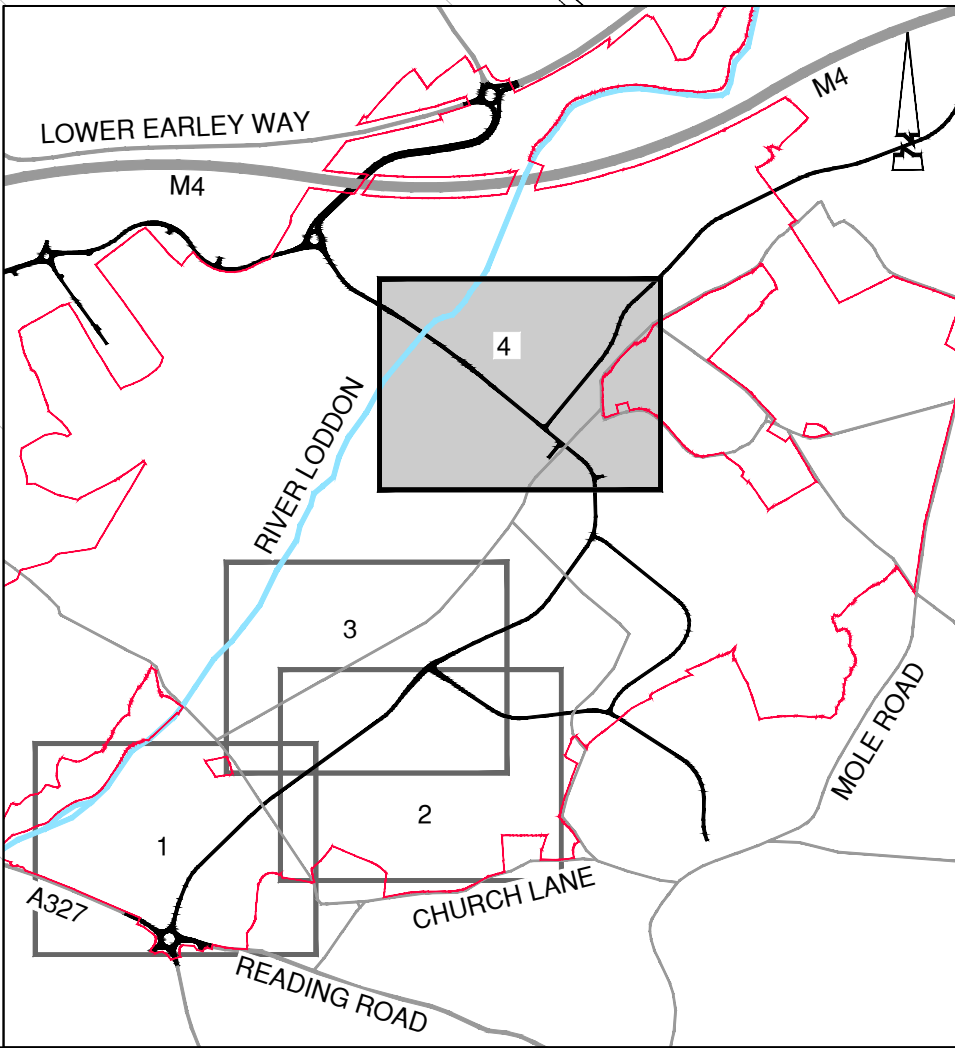
LODDON GARDEN VILLAGE

Title

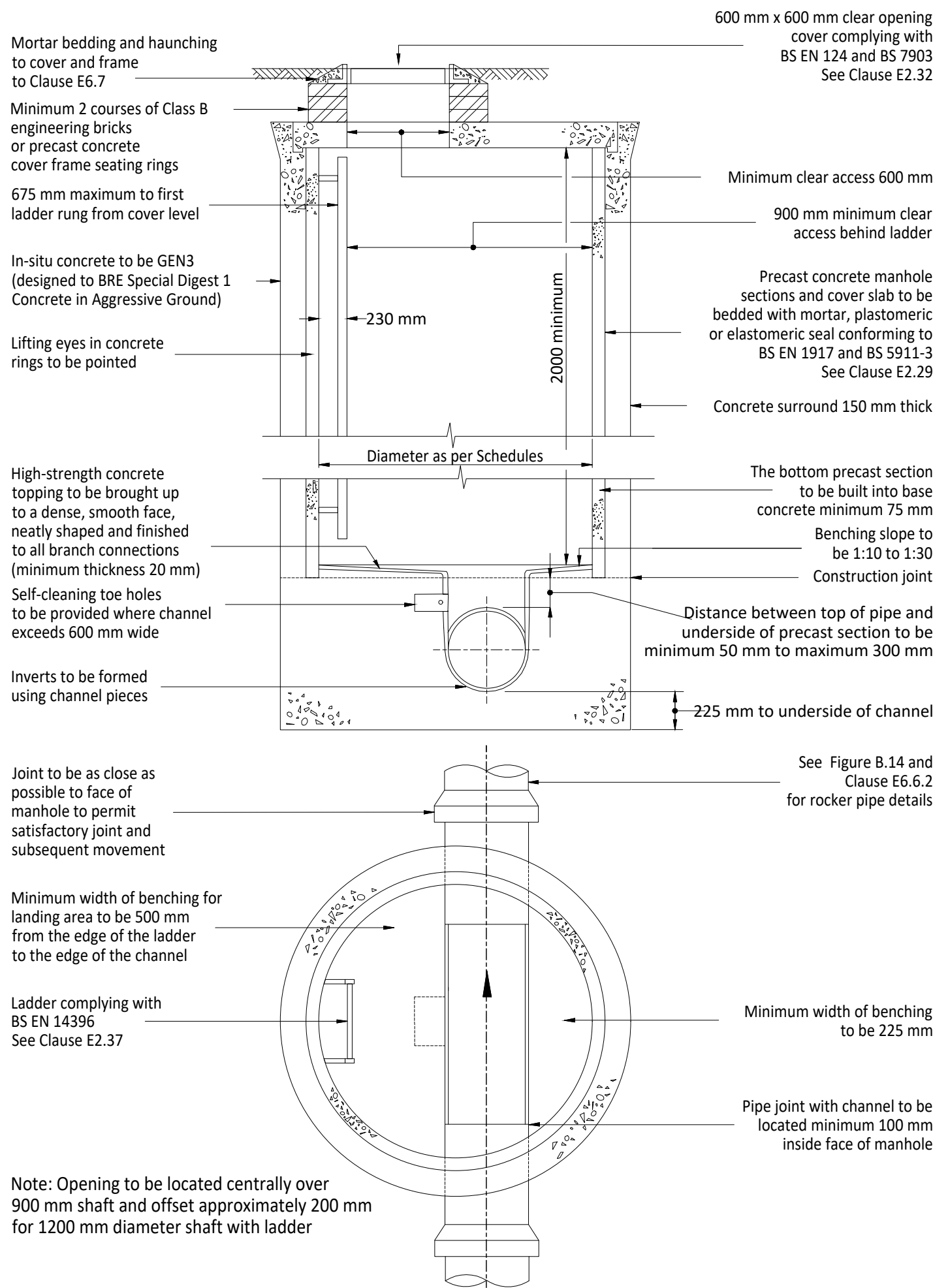
STORM WATER
CATCHMENT PLAN
SHEET 4 OF 4

Status

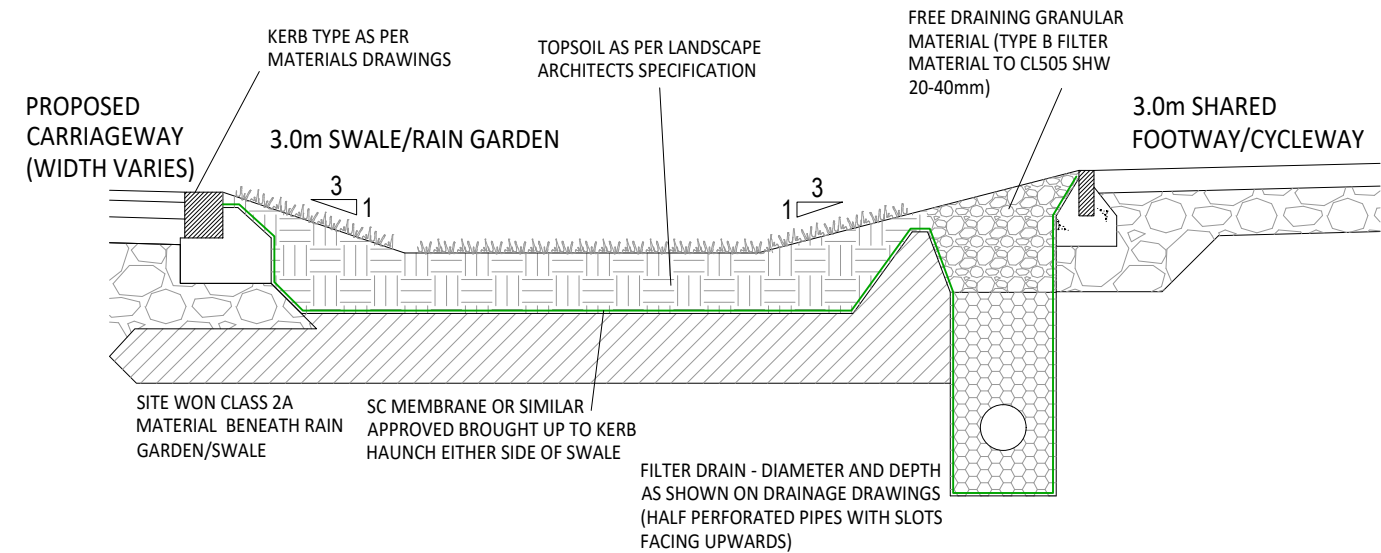
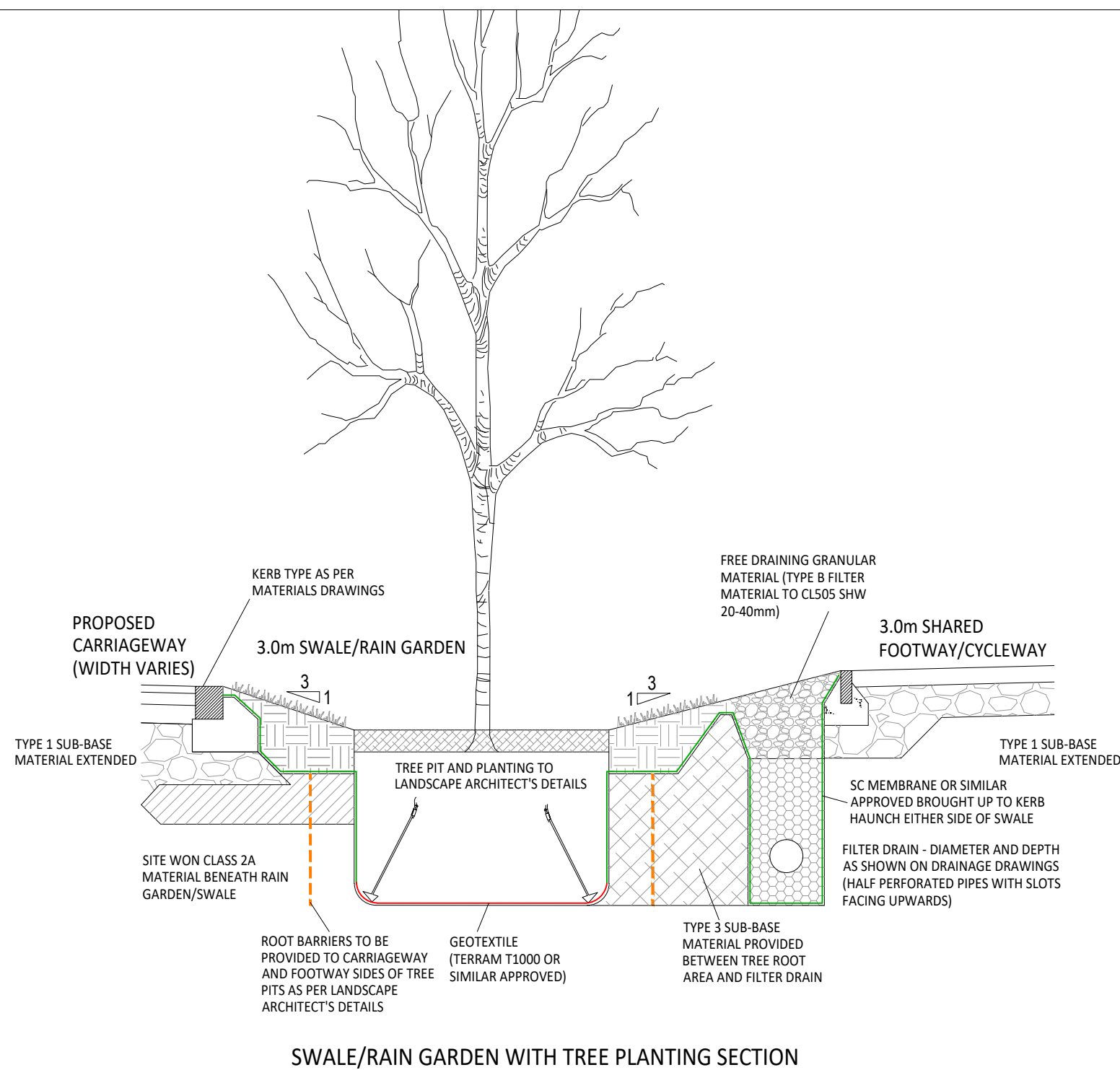
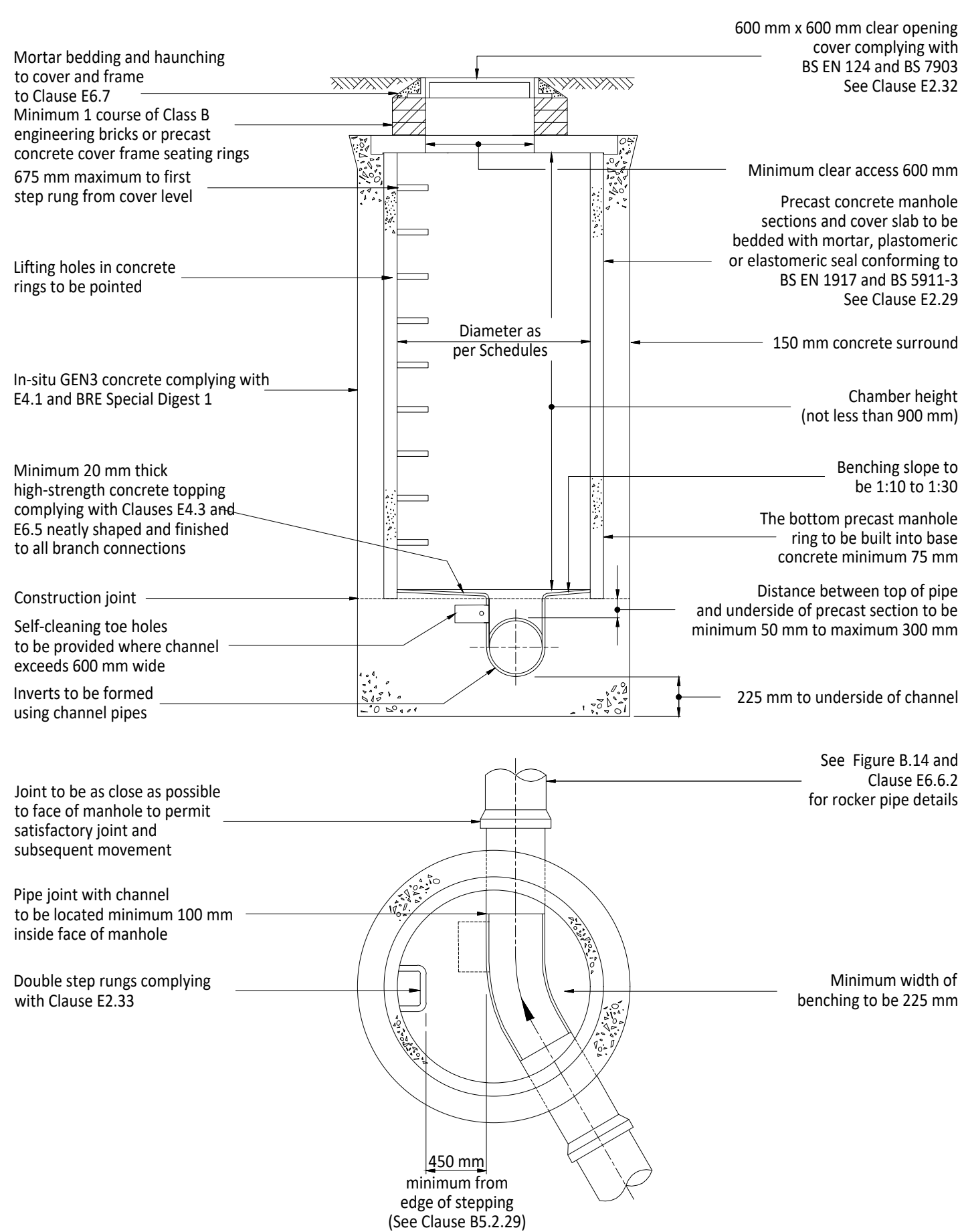
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Drawing No.	Revision		
A392-OPA-0523	B		



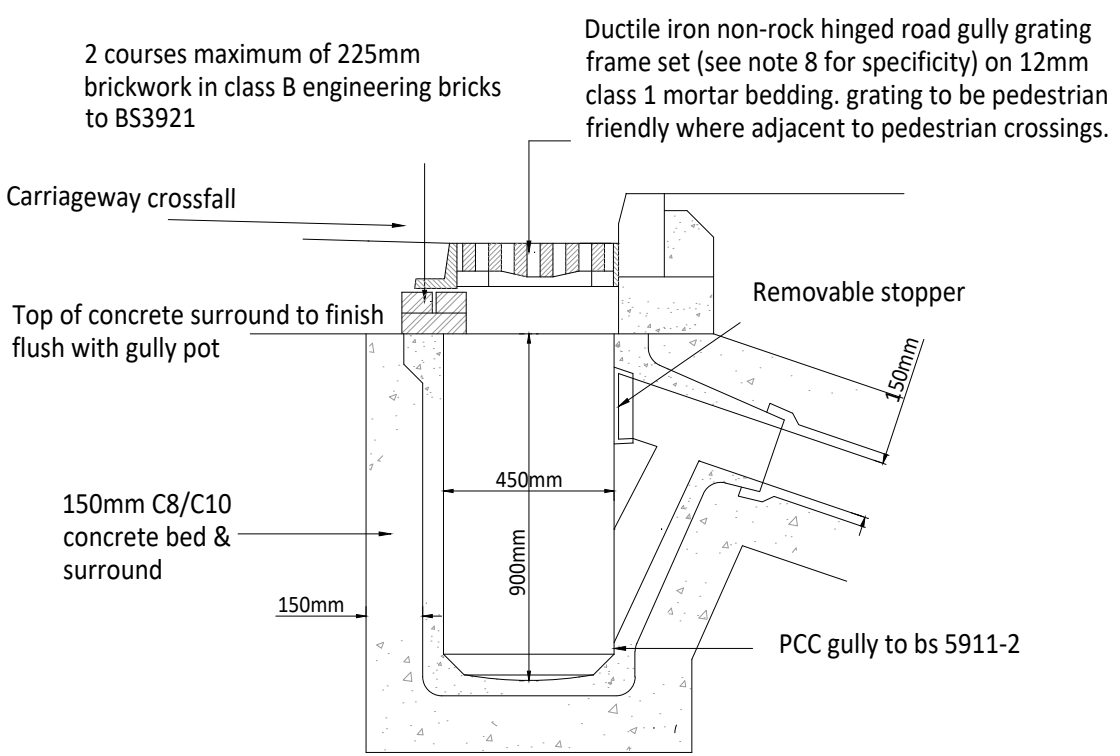
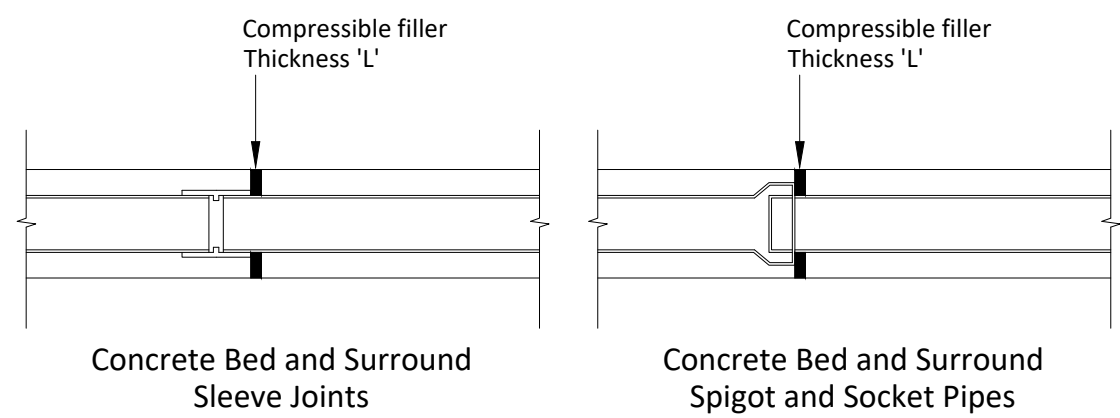
ADOPTABLE MANHOLE DETAIL - TYPE A
Depth from cover level to soffit of pipe 3 m to 6 m



ADOPTABLE MANHOLE DETAIL - TYPE B
Depth from cover level to soffit of pipe 1.5m to 3.0 m



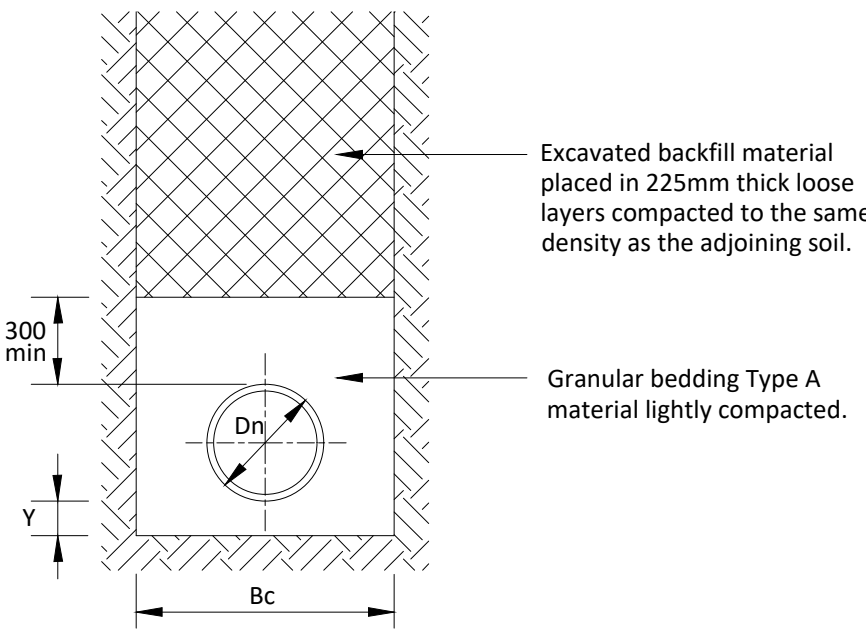
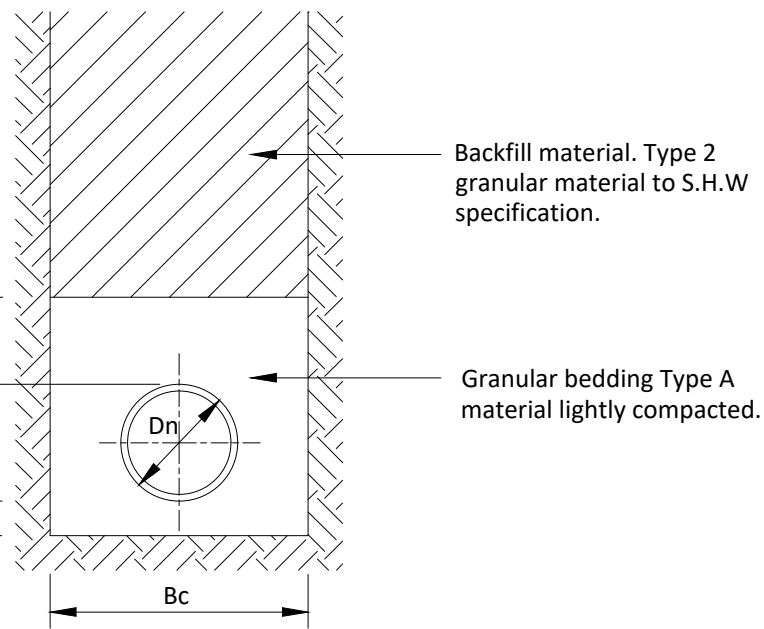
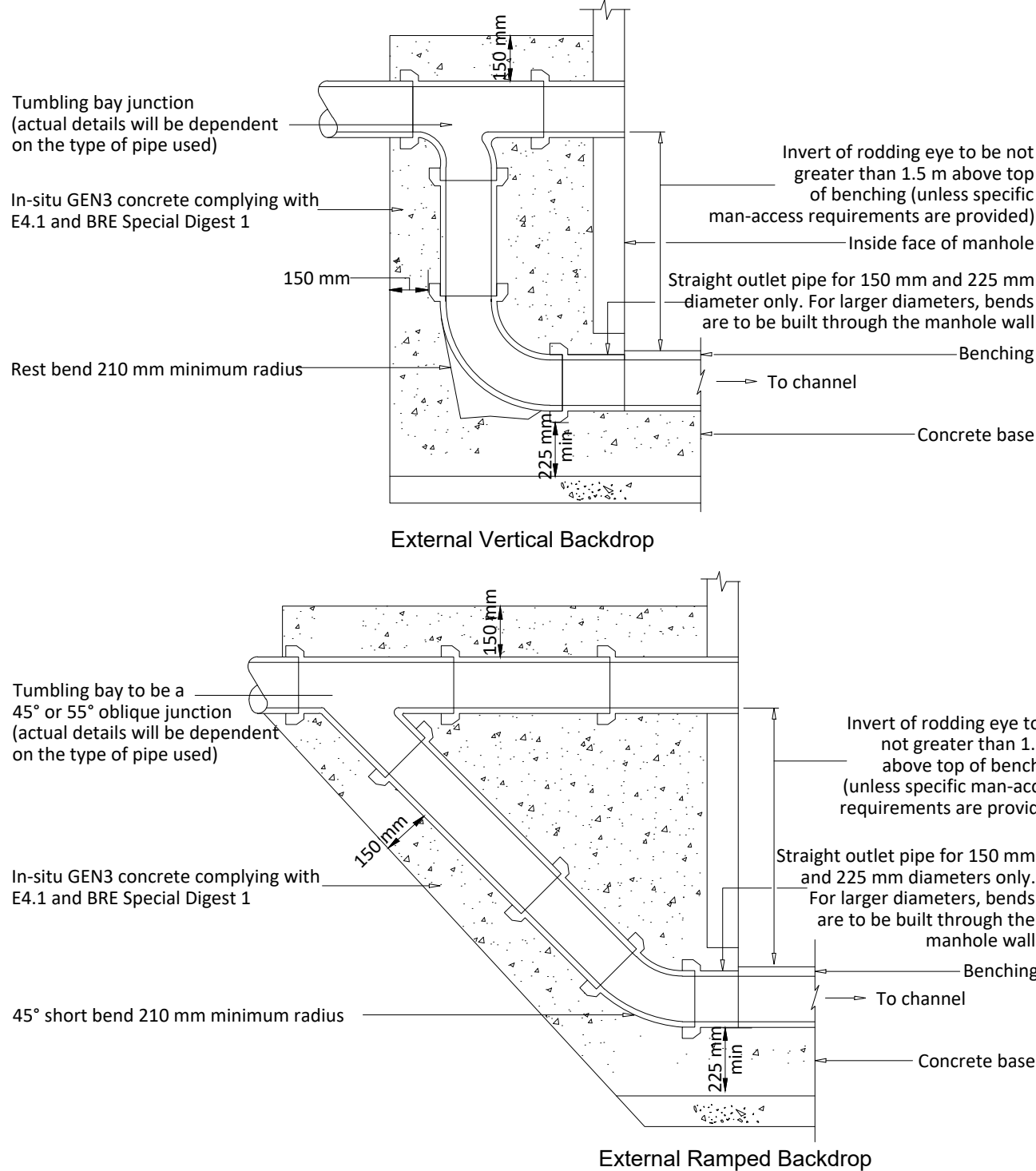
STANDARD SWALE/RAIN GARDEN SECTION



SCALE 1:20

Figure B 16
Typical vertical and ramped detail (rigid materials)
For use in manhole types A to D

Note: Steeper gradients are preferred to the use of backdrops.
Type of backdrop to be used to be agreed with the water company.



GRANULAR BEDDING

Nominal bore of pipe (mm)	Alternative Aggregate sizes (mm)	
	Single sized	Graded
100	10	-
150	10 or 14	14-5
225-300	14 or 20	14-5 or 20-5
375-525	14 or 20	14-5 or 20-5
>525	14, 20 or 40	14-5, 20-5 or 40-5

Granular bedding for pipes and backfilling material for temporary drains (trench sub-drains) shall consist of aggregates from natural sources to BS EN 13242 and BS EN 1744-1 or sintered pulverised fuel ash complying with the relevant provisions of BS 3892; sized in accordance with the above table

Selected fill material, whether selected from locally excavated material or imported, shall consist of uniform, readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones shall be retained on 100mm and 40mm sieves respectively.

TRENCH WIDTHS & KEY DIMENSIONS

Dia Dn (mm)	Width Bc (mm)		Y(mm)		L(mm)	Z MIN (mm)
	Max	Min	Y1 (Uniform Soil)	Y2 (Rock)		
100	550	450	100	200	18	150
150	600	490	150	200		150
225	700	580	150	200		150
300	750	680	150	200	18	150
375	1050	950	150	200		150
450	1150	1030	150	200		150
525	1200	1120	150	200	36	150
600	1350	1240	150	200		150
675	1450	1330	150	200		225
750	1500	1400	150	200	36	225
825	1600	1490	150	225		225
900	2100	1900	150	225		225
975	2150	1950	175	250	300	300
1050	2250	2050	175	275		300
1200	2500	2250	200	300		300
OVER 1200	O.D.+1000	O.D.+800	I.D./6	I.D./4	54	400

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DRAINAGE NOTES:

- Do not scale.
- This drawing is to be read in conjunction with and checked against all other drawings, Engineering details, Specification and any structural, Geotechnical or other specialist document provided. Site layout shown for context only, refer to other project drawings for details.
- All adoptable drainage works to be constructed as detailed in design and construction guidance or as stipulated in the water authorities addendum.
- All public sewers are to be the subject of a section 104 agreement of the water industry act 1991.
- Invert levels of existing manholes and sewers are to be checked on site before construction commences and results reported to engineers.
- The contractor is responsible for maintaining continuity of flow for all existing sewers within the site boundary and limit of works for the duration of the project.
- All drainage ironworks to comply with bs en124, and be stamped with bsi kitemark, covers to suit loading as below:
 - carriageways and roads - d400
 - driveways and verges - c250
 - footways and pedestrian areas - b125
 - gardens/landscaping - a15
- All sewer pipes, up to, and including 225mm are to be vitrified clay to BS EN295. All sewer pipes 300mm diameter and above to be concrete pipes to BS EN1916. Where agreed with adopting authority pipes up to and including 600mm diameter can be PVC-U to BS EN1404.
- All drainage shall be installed and tested strictly in accordance with the manufacturers' printed instructions, bs en 752, bs en 1601, local water authority requirements and the building regulations.
- All bedding shall be class s unless noted otherwise.
- All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted type 1 granular sub-base material.
- Drainage laid beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
- Chambers with outgoing pipes greater than 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
- The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
- All sewers to be abandoned must be surveyed to identify any lateral connections that are still live with any found to be reported to the engineer.
- All foul and storm water drains which are not to be adopted as public sewers shall be in accordance with document h of the building regulations, together with nhbc standards chapter 5.3 and bs8301.

ALL PIPE BEDDING TO BE CLASS 'S' GRANULAR SURROUND UNLESS NOTED OTHERWISE ON THE DRAWING

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Rev	Date	Description	Drawn	Checked



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Project

LODDON GARDEN VILLAGE

Title
DRAINAGE DETAILS
SHEET 1 OF 2

Status

Scale
AS SHOWN @ A1

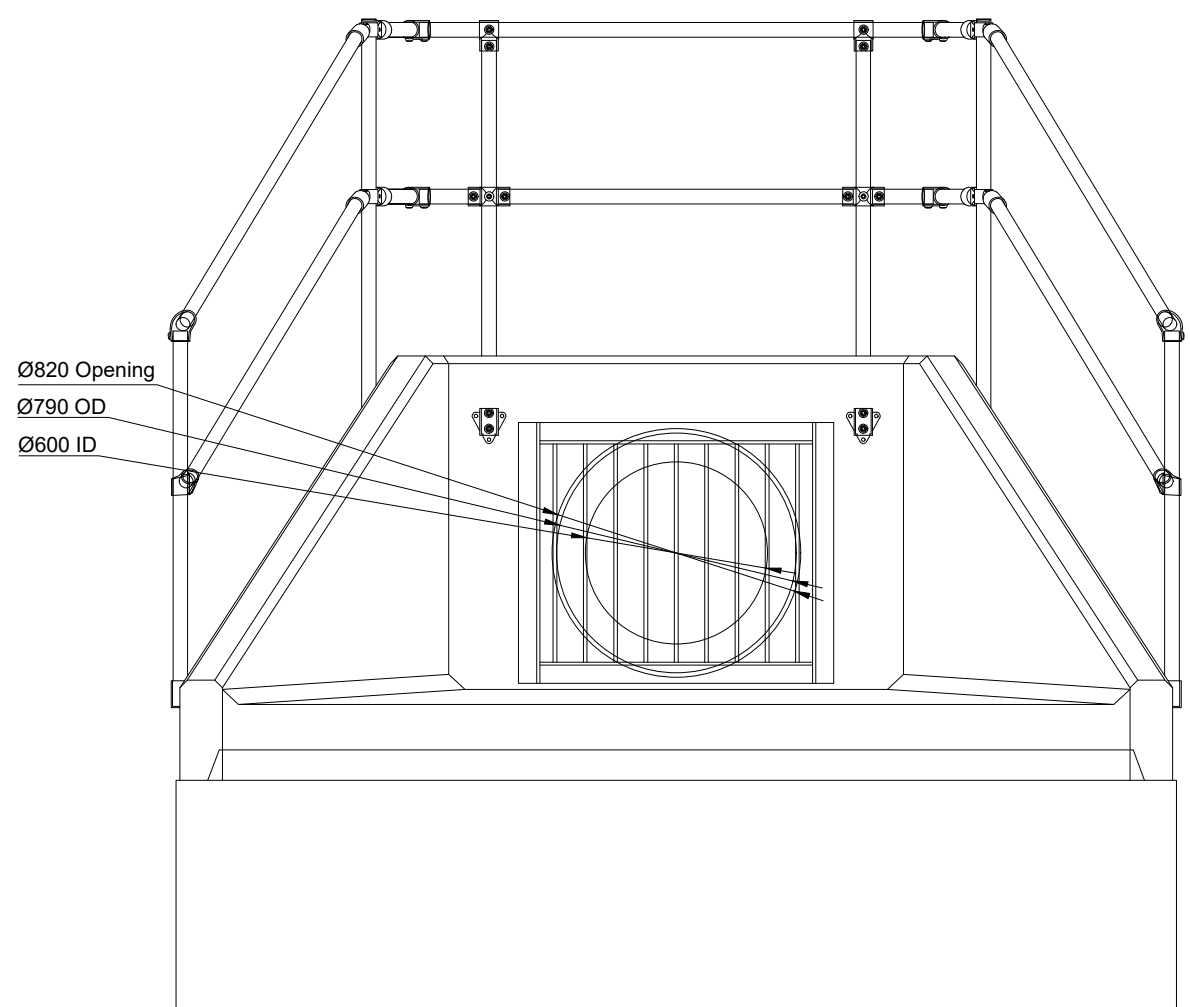
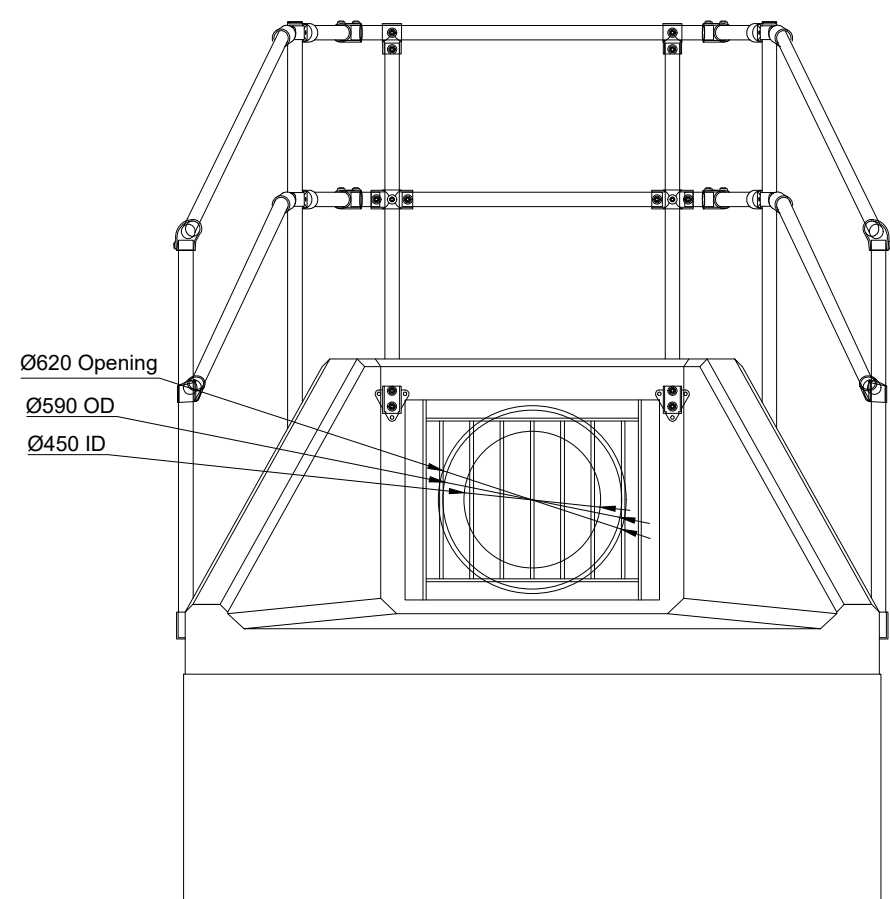
Date
JUN 2025

Drawn
RG

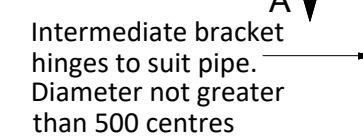
Checked
CS

Drawing No
A392-OPA-0530

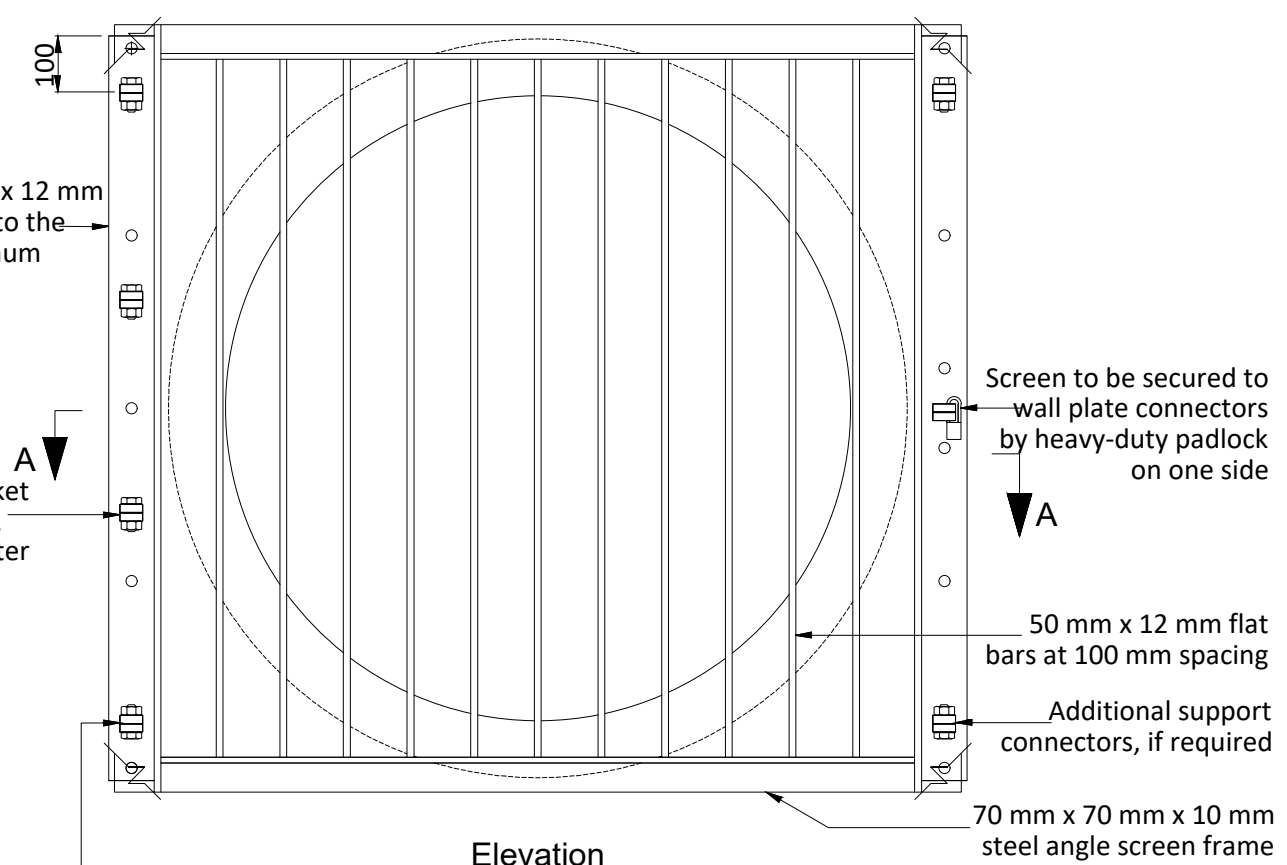
Revision
A



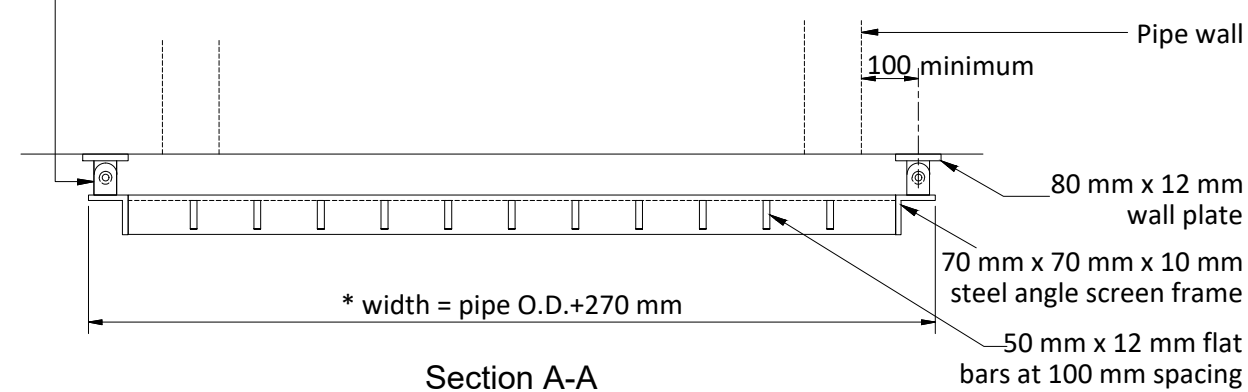
Steel plate 80 mm x 12 mm
x *W long bolted to the
headwall at maximum
300 mm centres



Two steel connectors
60 mm x 40 mm x 20 mm
drilled 22 mm and —
joined together by M20
bolt to form gate hinge
on one side

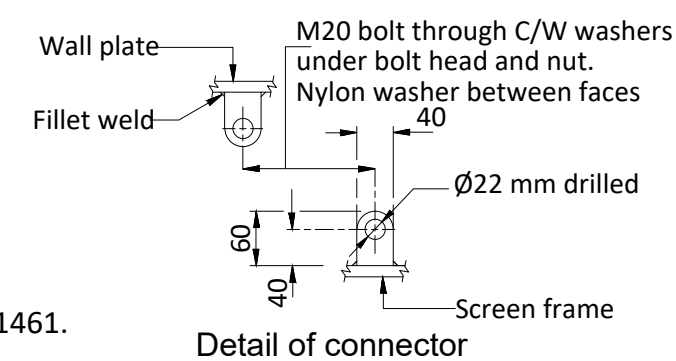


Section A-A



Notes:

1. * width (W) to suit pipe outside diameter.
2. Mild steel fabrication to be hot dip galvanized to BS EN 1461.



Not to scale, dimensions in millimetres

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DRAINAGE NOTES:

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 - Driveways and Verges - C250
 - Footways and Pedestrian Areas - B125
 - Gardens/Landscaping - A15
8. All sewer pipes, up to, and including 600mm are to be vitrified clay or PVC-U to BS EN295 and BS EN1404 respectively. All sewer pipes 675mm diameter and above to be concrete pipes to BS EN1916.
9. All drainage shall be installed and tested strictly in accordance with the Manufacturer's printed instructions, BS EN 752, BS EN 1601, Local Water Authority requirements and the Building Regulations.
10. All bedding shall be Class S unless noted otherwise.
11. All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted Type 1 granular sub-base material.
12. Drainage laid beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. Drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
13. Chambers with outgoing pipes greater than 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
14. The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
15. All gully connections to use a minimum diameter pipe of 150mm and to be surrounded by a minimum of 150mm of grade C8/C10 concrete over its full length (which should not exceed 15m) and its connection to the carrier system.
16. All sewers to be abandoned must be surveyed to identify any lateral connections that are still live with any found to be reported to the Engineer.
17. All foul and storm water drains which are not to be adopted as public sewers shall be in accordance with Document H of the Building regulations, together with NHBC Standards Chapter 5.3 and BS8301.

ALL PIPE BEDDING TO BE CLASS
'S' GRANULAR SURROUND
UNLESS NOTED OTHERWISE ON
THE DRAWING

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LODDON GARDEN VILLAGE

Title

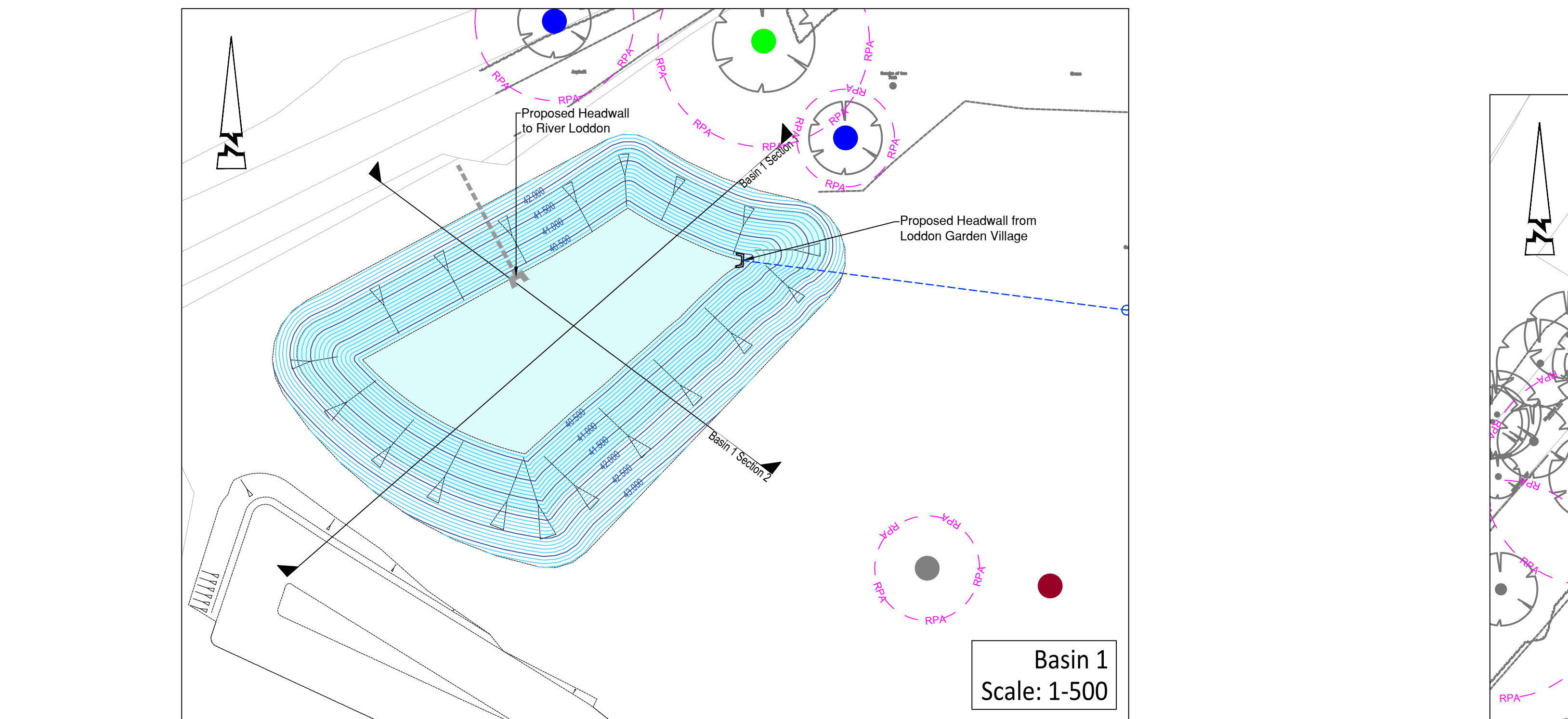
DRAINAGE DETAILS
SHEET 2 OF 2

Status

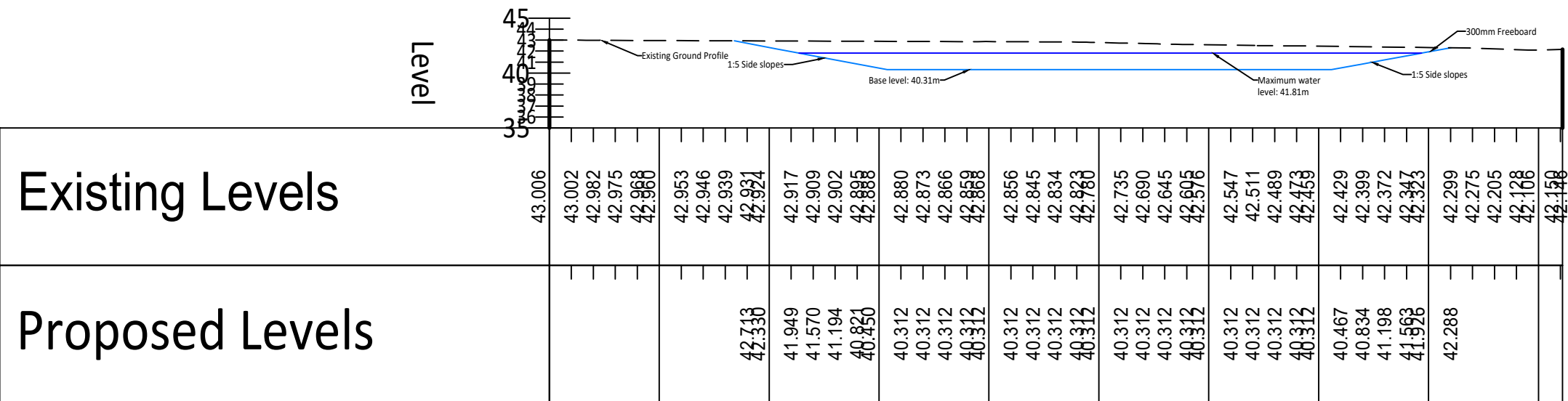
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AS SHOWN @ A1	JUN 2025	RG	CS

Drawing No

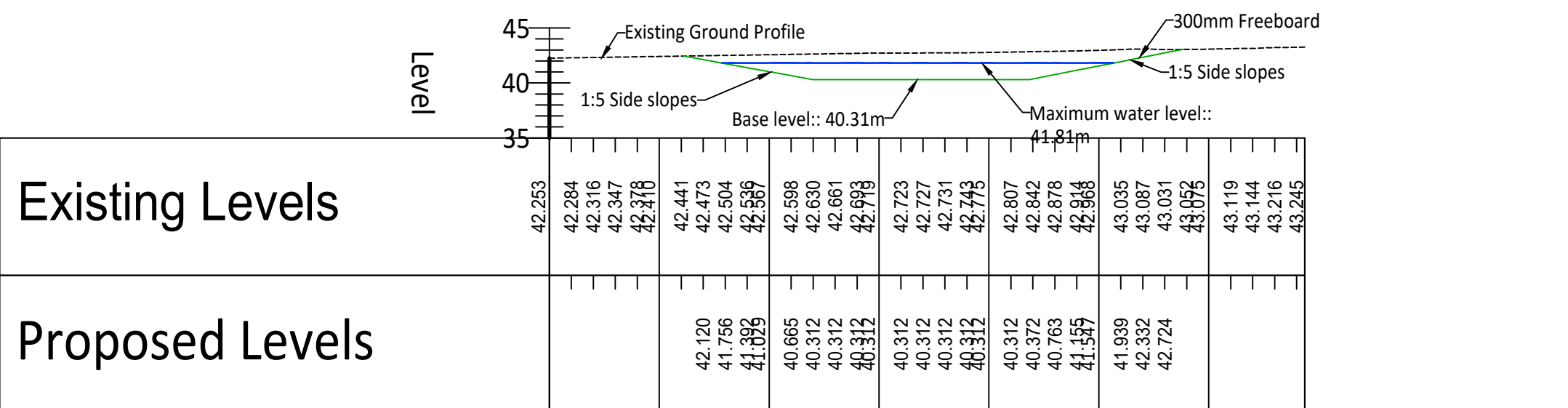
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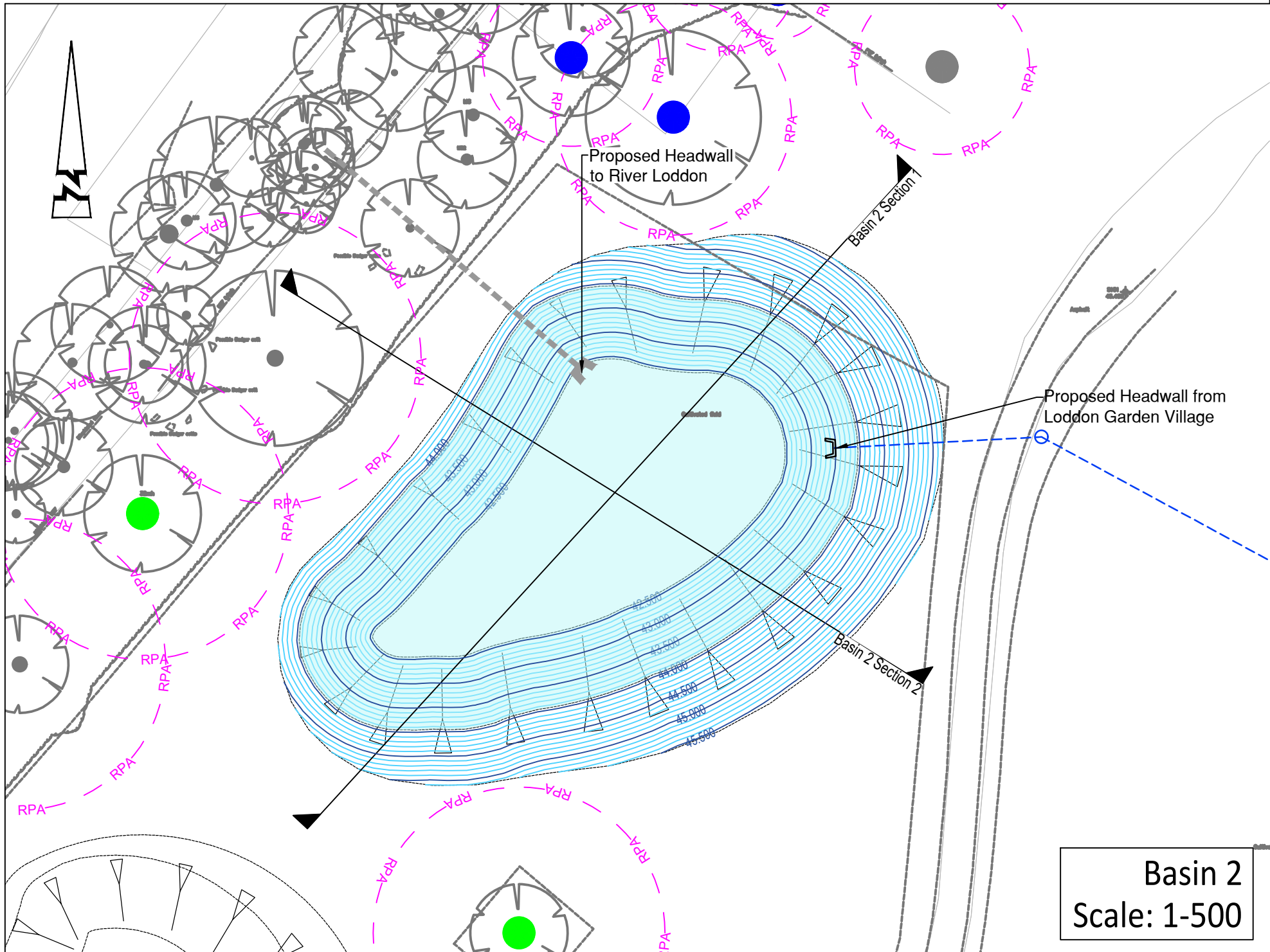
Basin 1
Scale: 1-500



BASIN 1 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000



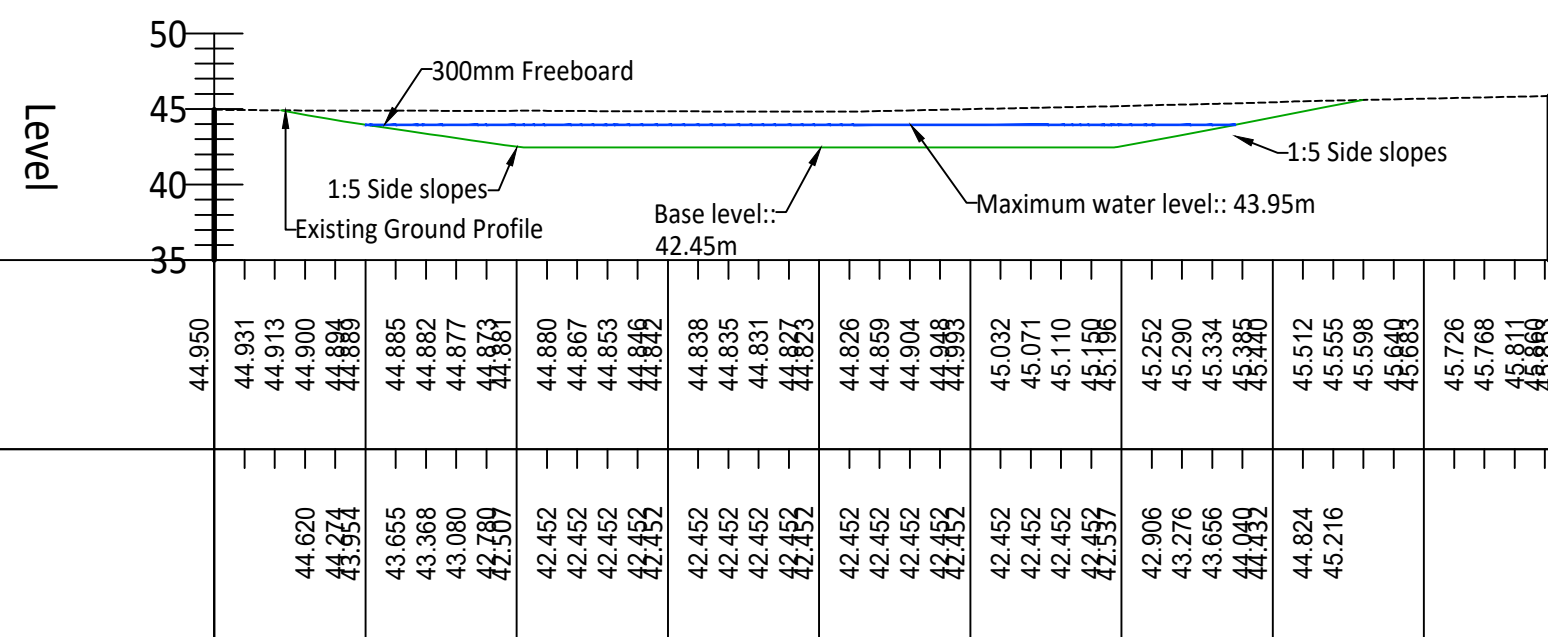
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Basin 2
Scale: 1-500

Existing Levels

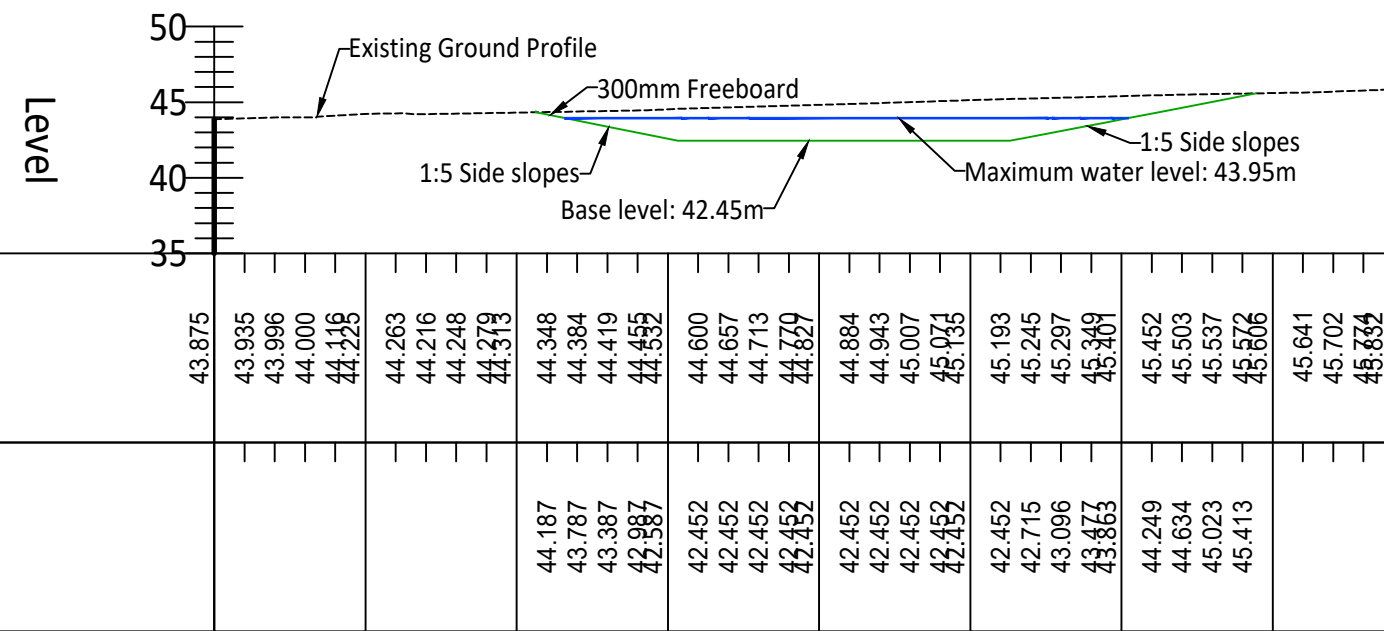
Proposed Levels



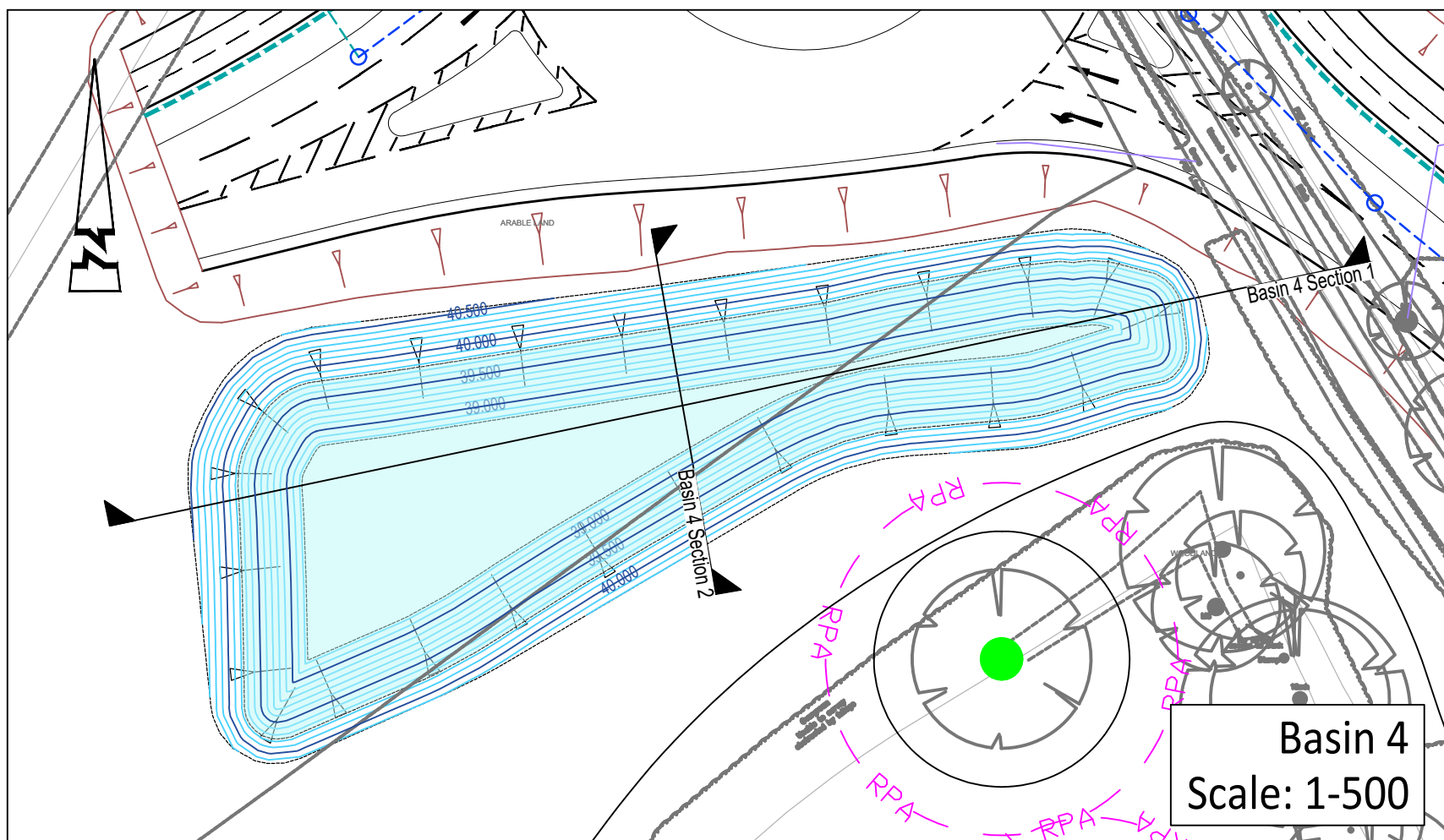
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SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



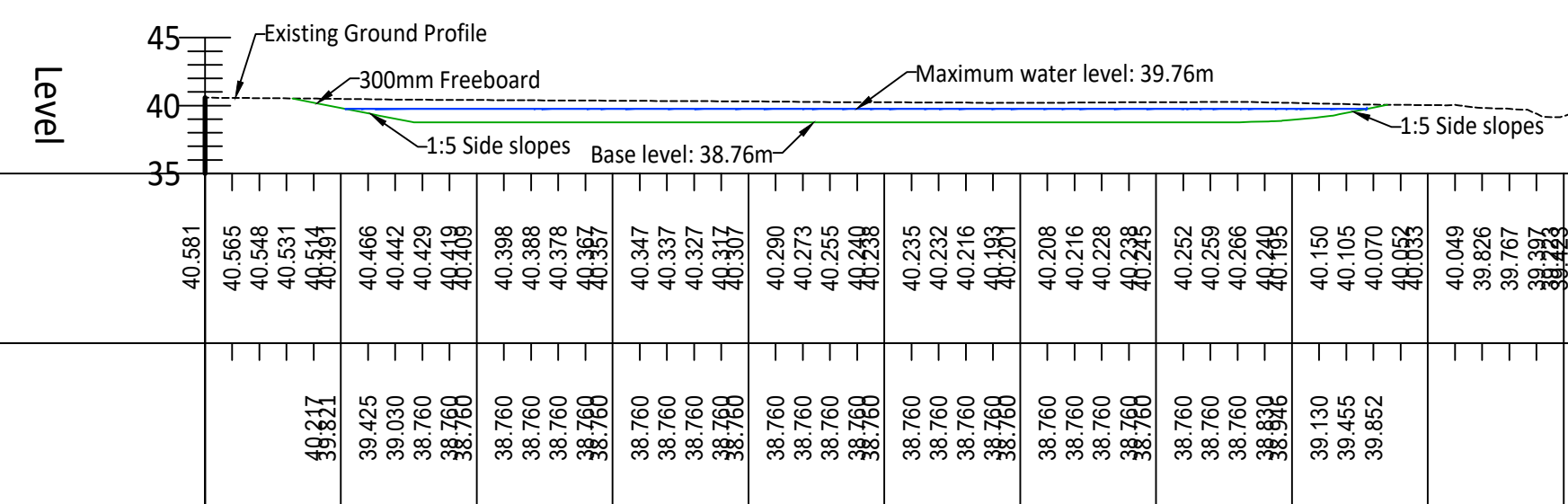
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Basin 4
Scale: 1-500

Existing Levels

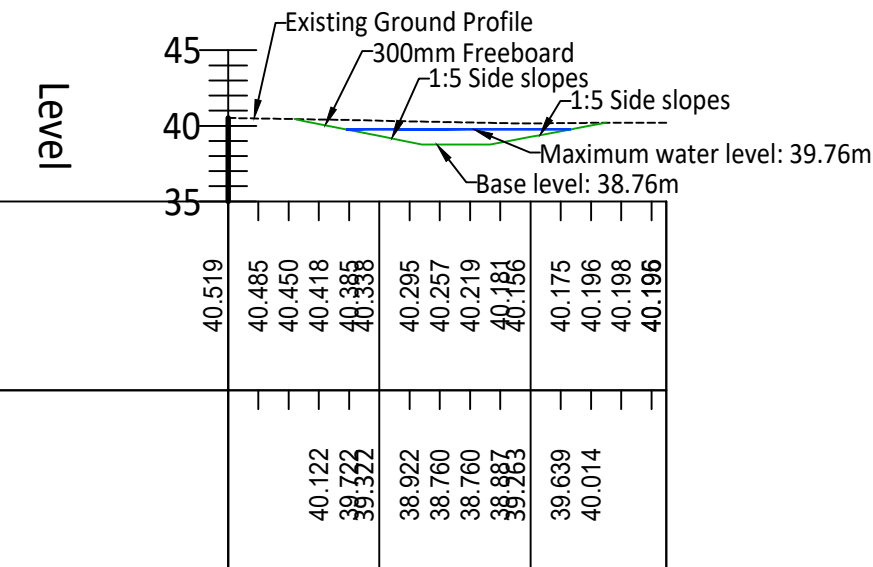
Proposed Levels



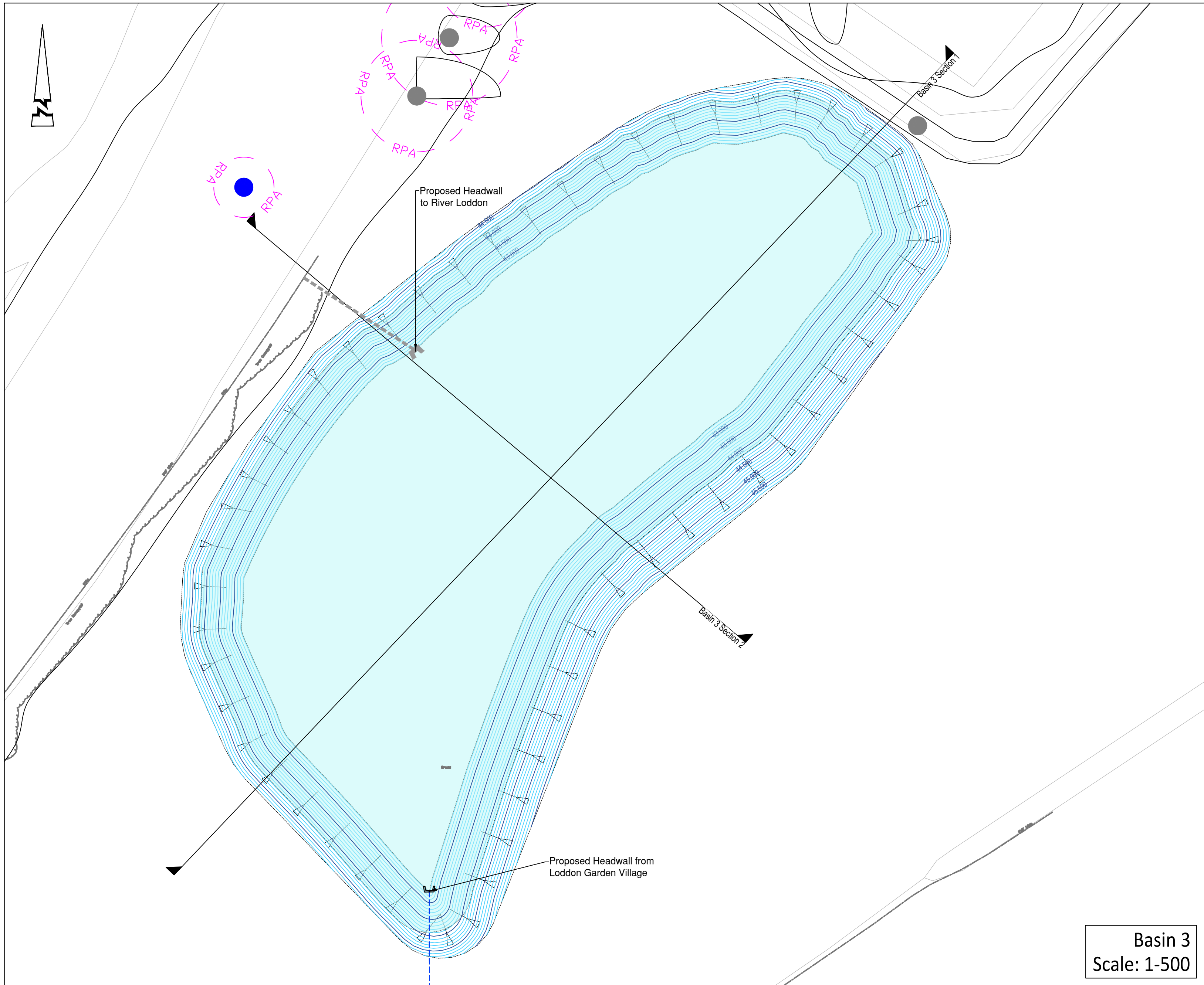
BASIN 4 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



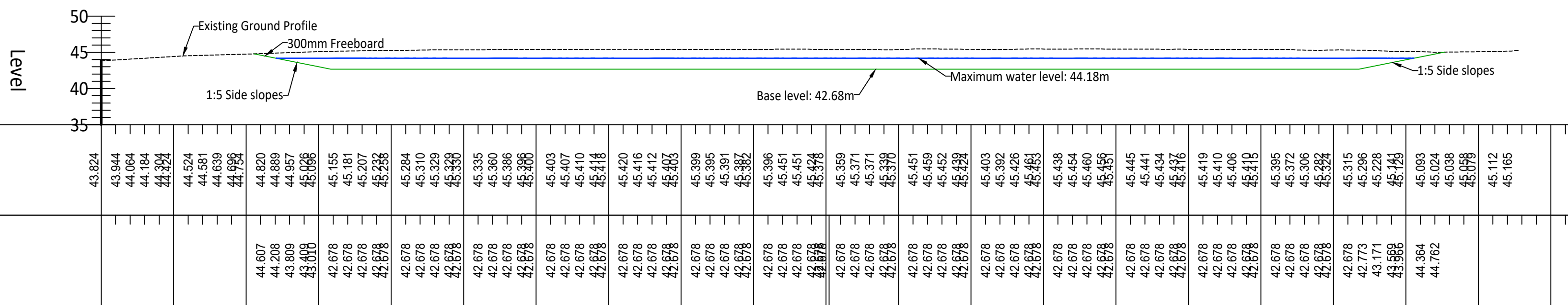
BASIN 4 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000



Basin 3
Scale: 1-500

Existing Levels

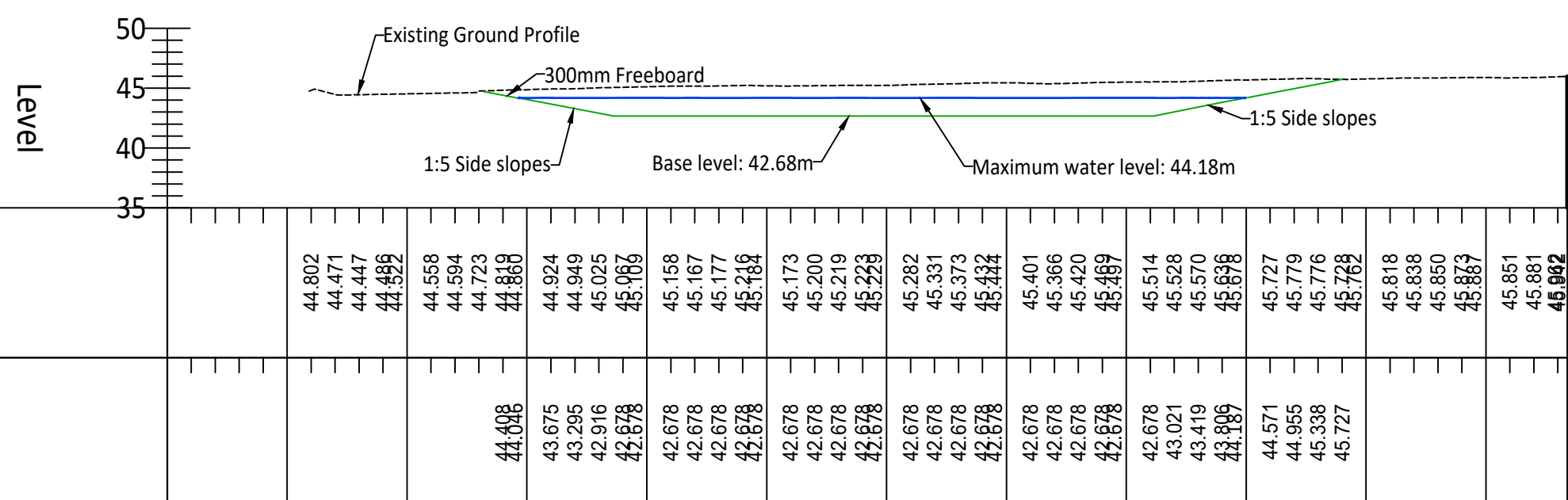
Proposed Levels



BASIN 3 SECTION 1 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

Existing Levels

Proposed Levels



BASIN 3 SECTION 2 - LONGSECTION
SCALE: H 1:500,V 1:500. DATUM: 35.000

GENERAL NOTES:

- Do not scale.
- Refer to all other Project Drawings and supporting notes.

GENERAL KEY:

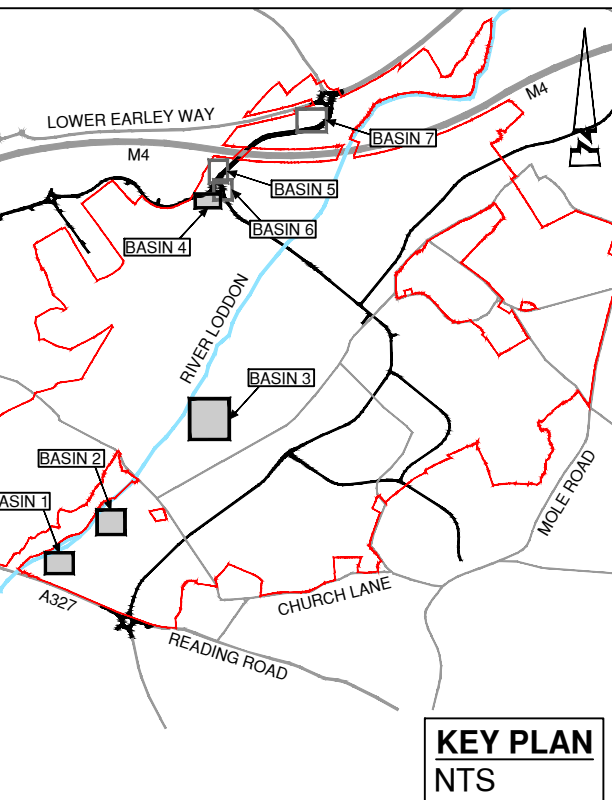
- Major Contour (500mm interval)
- Minor Contour (100mm interval)
- Max Water Level

Arborticultural Survey - Received by FLAC on 15/05/25:

- RPA - Root Protection Area
- VTB - Veteran Tree Protection Area

SECTIONS KEY:

- Existing Ground Profile
- Basin Profile
- Max Water Level



A	PRJ 25	FIRST ISSUE	RG	CS
Rev	Date	Description	Drawn	Checked



Client
UNIVERSITY OF READING

Project
LODDON GARDEN VILLAGE

Task
BASIN SECTIONS
BASIN 1, 2, 3 AND 4

Issue	Date	Drawn	Checked
AS SHOWN @ AD	JUNE 2025	RG	CS
Drawn by	Revised		
A392-OPA-0540			A