SEWAGE SYSTEM LOT ANALYSIS ONLY

Gunnell Engineering Ltd.
1110 Stellar Drive, Unit 106
Newmarket, ON L3Y 7B7
bus: 905-868-9400
www.septicdesign.ca

Septic Area
Soil Percolation Time (T) = 20 min/cm to 30 min/cm (30 min/cm used)
Loading Rate = 8 L/m²/day
Daily Sewage Flow (Q) = 3,000 L/day (min. required)
Area (prime + reserve) = 750 m² (min.) [3,000 / 8 x 2 areas]

*Based on Durham Region Health Department Lot Sizing Policy document, dated Oct. 2010

Note: Maximum 4:1 slopes when grading off the edge of filter bed - TYP. all sides.

Note: Filter beds to be orientated such that the mantle is oriented in the direction of effluent flow.

BALSAM ROAD

PROPOSED ROAD

5th Concession Road

LOT 1 0.41 ha
LOT 2 0.4 ha
LOT 3 0.40 ha
LOT 4 0.37 ha
LOT 5 0.39 ha
LOT 6 0.40 ha
LOT 7 0.4 ha
LOT 8 0.4 ha
LOT 9 0.4 ha
LOT10 0.4 ha
LOT 11 0.4 ha
LOT 12 0.59 ha
LOT 13 0.51 ha

Reserve Area (378 m²)

BLOCK 14 PRIVATE ROAD 0.23ha

BLOCK 15 OPEN SPACE 9.24ha

BLOCK 16 OPEN SPACE 1.17ha

BLOCK 17 OPEN SPACE BUFFER 0.77ha

BLOCK 18 OPEN SPACE BUFFER 0.77ha

BLOCK 19 PRIVATE ROAD 0.24ha

BLOCK 20 WATER PUMPING STATION 0.01ha

BLOCK 21 WATER PUMPING STATION 0.01ha

Wetland 30m Buffer

MBW+30

MBW2

Conventional Filter Bed: Preliminary Design

Q = 3,000 L/day (min. required)

Septic Tank: 2 x daily flow = 2 x Q = 2 x 3,000 L = 6,000 L
Provide two compartment septic tank = 6,800 L (1,500 gal.) with gravity flow to Pump Station.

Pump Station:Provide 3,600 L pump tank to time dose to filter bed.

Soil Percolation: T = 30 min/cm (worst case scenario)

Filter Area: Maximum loading = 75 L/sm/day (i.e.: Q ≤ 3,000 L/day); 3,000 / 75 = 40.0 sm.
Provide Filter Medium Area = 48.0 sm. (12.0m x 4.0m)

Base of Filter Medium, extending 300 mm thickness, over area = Q x T / 850 = 3,000 x 30 / 850 = 105.9 sm. Provide extended base contact area = 14.0m x 8.0m = 112.0 sm.

Loading Requirements - Reference: Table 8.7.4.1.A, & based on a loading rate of 8 L/sm/day (i.e. 20 < T ≤ 35), Loading Rate = Q / Bed Area = 3,000 L / 8 = 375.0 sm.
Provide loading area = 378.0 sm (14.0m x 27.0m)

Mantle - Extending 21.5m from centreline of distribution piping.

LEGEND

Primary Filter Bed

Reserve Filter Bed Area

All Distribution Piping is to be a minimum of:
- 16.7m from drilled wells
- 31.7m from dug wells
- 4.7m from property lines
- 6.7m from residence

Note: Filter Bed system raised 0.85m above finished grade, therefore increase setbacks by 1.7m.

Proposed Residential Development
City of Pickering
Region of Durham

Overall Subdivision Plan (13 Lots) - Typical Sewage Layouts

Scale: 1:1,750	Designed By: ZS
Date: 13-JULY-2023	Drawn By: ZS
Project No.: D3534	Checked By: EG
	Drawing No.: SP-1

File: Z:\Gunnell Engineering AutoCAD\D3500 - PROJECTS\D3534 - 3225 Con 5 Rd - Pickering\CAD\ -CA- CONCEPT LAYOUTS (LOT 1,5,7,11)\D3534CA-SP1.dwg
Plotted On: Thu, 27 Jul 2023 - 10:45am

SEWAGE SYSTEM LOT ANALYSIS ONLY

DATUM ELEVATIONS: FILTER BED	
Existing Grade = 0.00m (Datum)	
Base Cut (1):	-0.40m
Top of Filter Medium (0.75m filter sand):	+0.35m
Top of Stone Layer (0.30m stone layer):	+0.65m
Top of Landscaping (0.20m topsoil):	+0.85m

Note (1): All topsoil to be excavated

All Distribution Piping is to be a minimum of:
- 16.7m from drilled wells
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*Based on Durham Region Health Department Lot Sizing Policy document, dated Oct. 2010

Conventional Filter Bed: Preliminary Design

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Septic Tank: 2 x daily flow = 2 x Q = 2 x 3,000 L = 6,000 L
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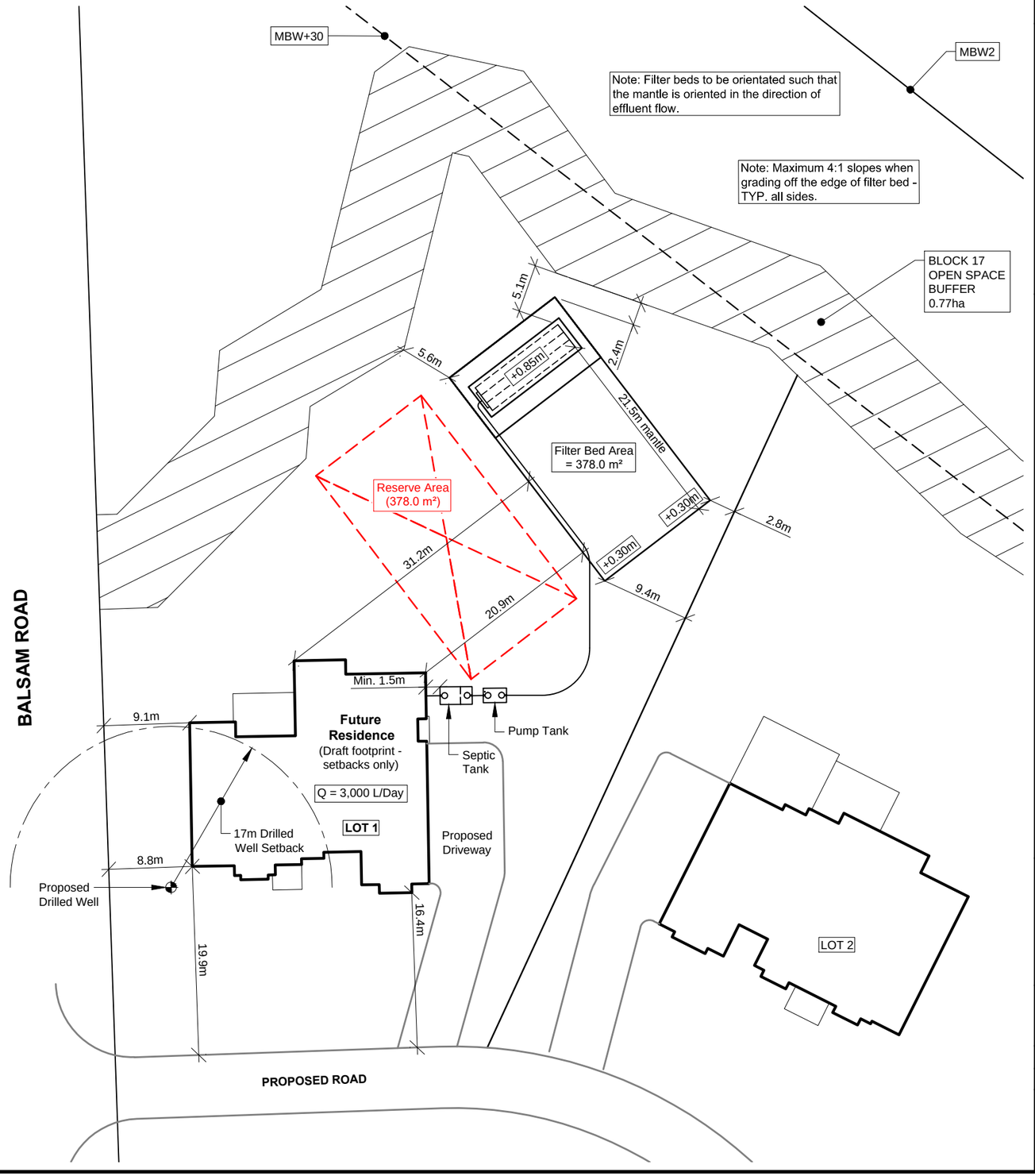

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Proposed Residential Development
City of Pickering
Region of Durham

Typical Lot Layout (Lot 1)
Proposed Sewage System

Scale: 1:500	Designed By: ZS
Date: 13-JULY-2023	Drawn By: ZS
Project No.: D3534	Checked By: EG
	Drawing No.: SP-2

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Plotted On: Thu, 27 Jul 2023 - 10:45am

SEWAGE SYSTEM LOT ANALYSIS ONLY

DATUM ELEVATIONS: FILTER BED	
Existing Grade = 0.00m (Datum)	
Base Cut (1):	-0.40m
Top of Filter Medium (0.75m filter sand):	+0.35m
Top of Stone Layer (0.30m stone layer):	+0.65m
Top of Landscaping (0.20m topsoil):	+0.85m

Note (1): All topsoil to be excavated

All Distribution Piping is to be a minimum of:
- 16.7m from drilled wells
- 31.7m from dug wells
- 4.7m from property lines
- 6.7m from residence

Note: Filter Bed system raised 0.85m above finished grade, therefore increase setbacks by 1.7m.

Septic Area
Soil Percolation Time (T) = 30 min/cm
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Daily Sewage Flow (Q) = 3,000 L/day (min. required)
Area (prime + reserve) = 750 m² (min.) [3,000 / 8 x 2 areas]

*Based on Durham Region Health Department Lot Sizing Policy document, dated Oct. 2010

Conventional Filter Bed: Preliminary Design

Q = 3,000 L/day (min. required)

Septic Tank: 2 x daily flow = 2 x Q = 2 x 3,000 L = 6,000 L
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Pump Station:Provide 3,600 L pump tank to time dose to filter bed.

Soil Percolation: T = 30 min/cm (worst case scenario)

Filter Area: Maximum loading = 75 L/sm/day (i.e.: Q ≤ 3,000 L/day); 3,000 / 75 = 40.0 sm. Provide Filter Medium Area = 48.0 sm. (12.0m x 4.0m)

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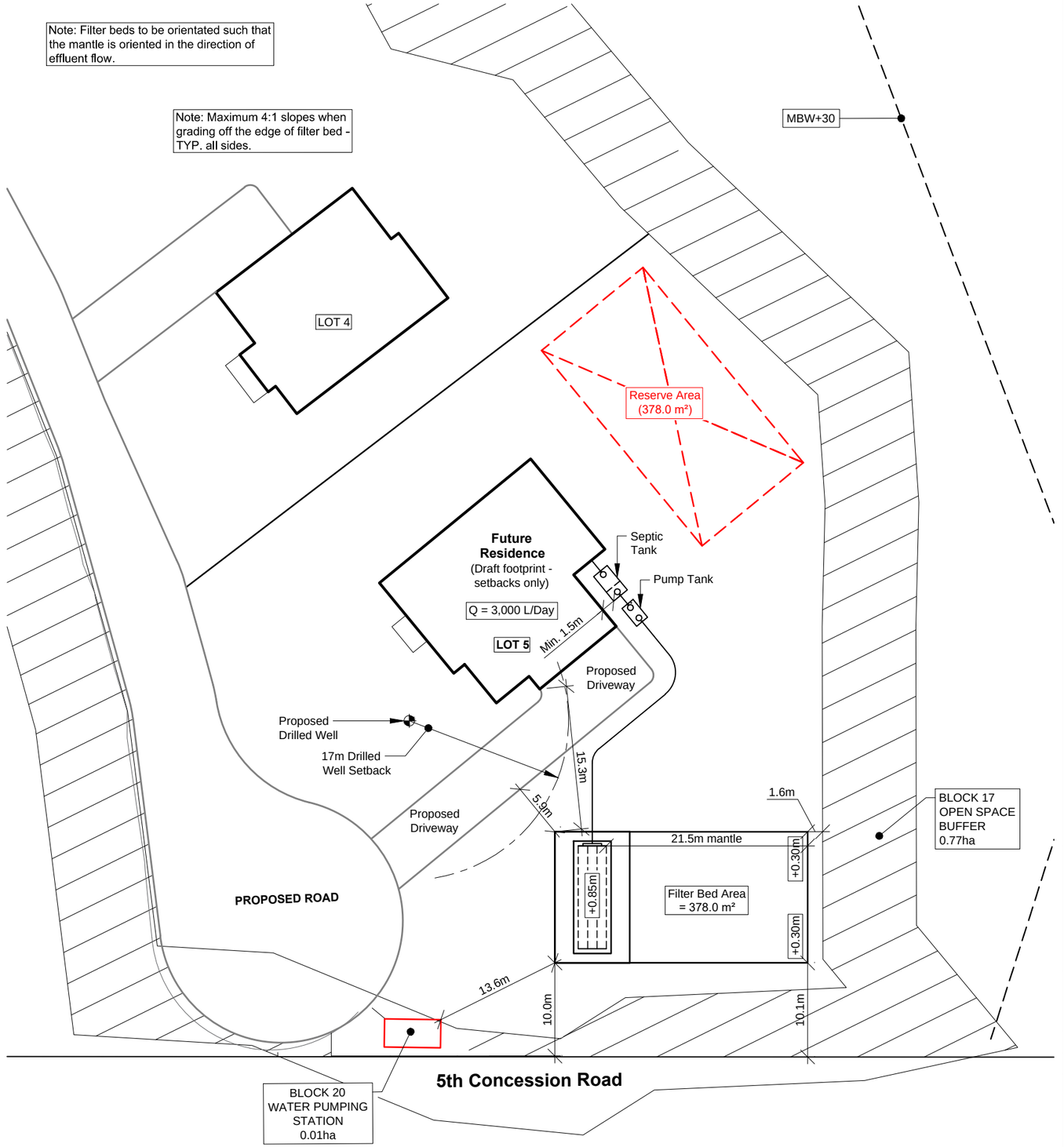
Mantle - Extending 21.5m from centreline of distribution piping.



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Proposed Residential Development
City of Pickering
Region of Durham

Typical Lot Layout (Lot 5)
Proposed Sewage System

Scale: 1:500	Designed By: ZS
Date: 13-JULY-2023	Drawn By: ZS
Project No.: D3534	Checked By: EG
	Drawing No.: SP-3

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SEWAGE SYSTEM LOT ANALYSIS ONLY

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DATUM ELEVATIONS: FILTER BED	
Existing Grade = 0.00m (Datum)	
Base Cut (1):	-0.40m
Top of Filter Medium (0.75m filter sand):	+0.35m
Top of Stone Layer (0.30m stone layer):	+0.65m
Top of Landscaping (0.20m topsoil):	+0.85m

Note (1): All topsoil to be excavated

All Distribution Piping is to be a minimum of:
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- 4.7m from property lines
- 6.7m from residence

Note: Filter Bed system raised 0.85m above finished grade, therefore increase setbacks by 1.7m.

Septic Area

Soil Percolation Time (T)	= 30 min/cm
Loading Rate	= 8 L/m²/day
Daily Sewage Flow (Q)	= 3,000 L/day (min. required)
Area (prime + reserve)	= 750 m² (min.) [3,000 / 8 x 2 areas]

*Based on Durham Region Health Department Lot Sizing Policy document, dated Oct. 2010

Conventional Filter Bed: Preliminary Design

Q = 3,000 L/day (min. required)

Septic Tank: 2 x daily flow = 2 x Q = 2 x 3,000 L = 6,000 L
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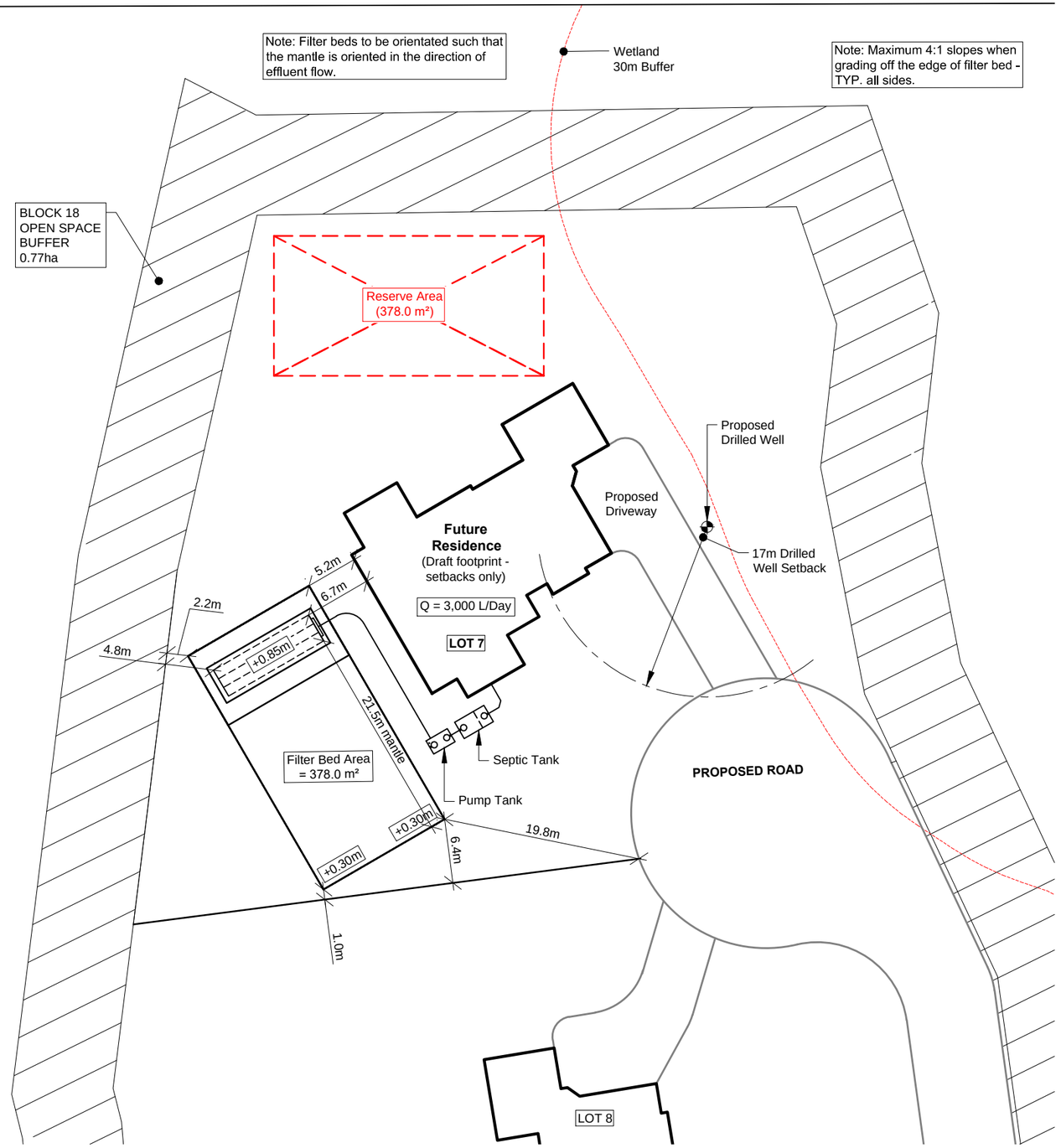

Proposed Residential Development
City of Pickering
Region of Durham

Typical Lot Layout (Lot 7)
Proposed Sewage System

Scale: 1:500	Designed By: ZS
Date: 13-JULY-2023	Drawn By: ZS
Project No.: D3534	Checked By: EG
	Drawing No.: SP-4

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Plotted On: Thu, 27 Jul 2023 - 10:46am

SEWAGE SYSTEM LOT ANALYSIS ONLY

Conventional Filter Bed: Preliminary Design

Q = 3,000 L/day (min. required)

Septic Tank: 2 x daily flow = 2 x Q = 2 x 3,000 L = 6,000 L
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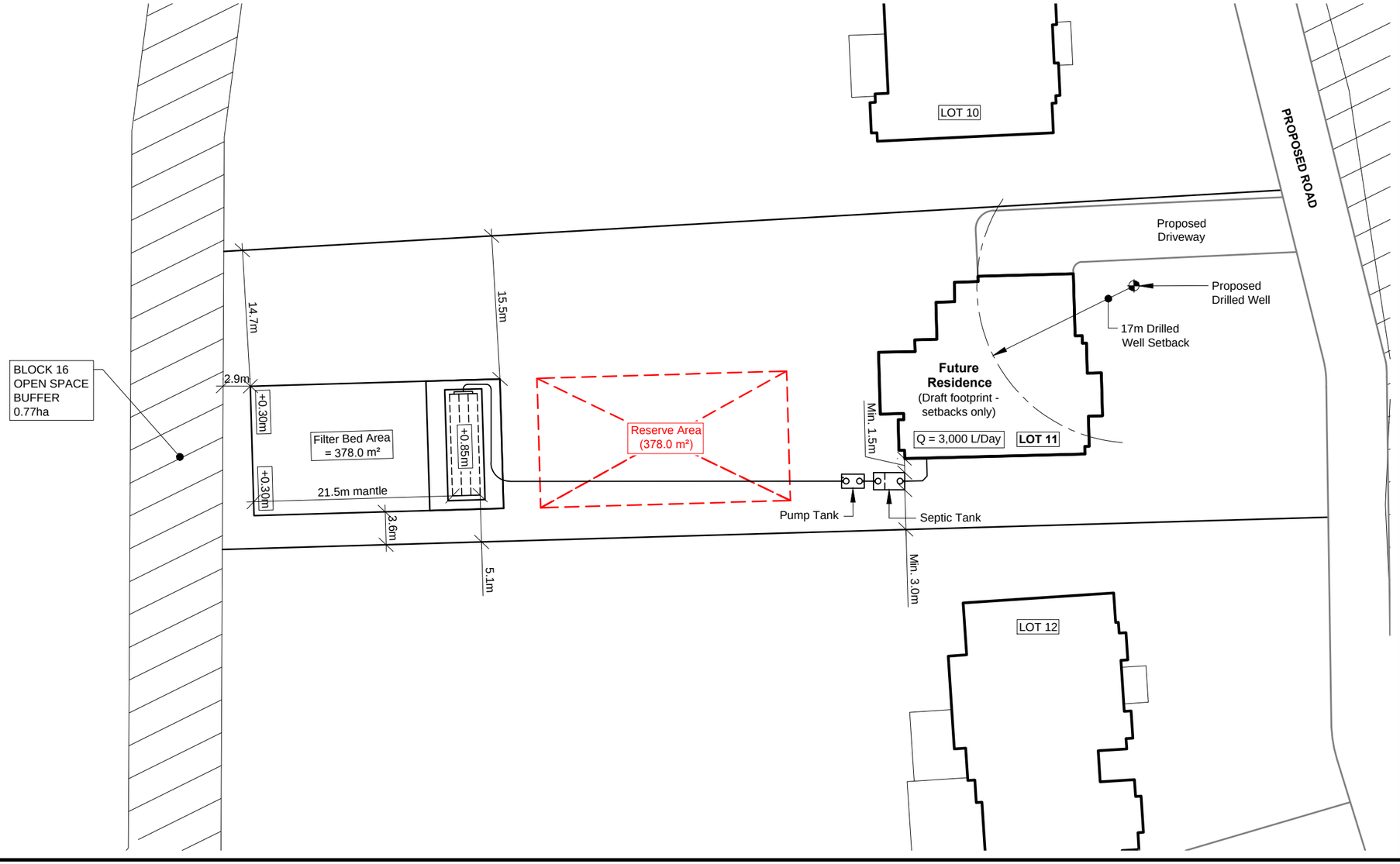
Mantle - Extending 21.5m from centreline of distribution piping.

Septic Area
Soil Percolation Time (T) = 30 min/cm
Loading Rate = 8 L/m²/day
Daily Sewage Flow (Q) = 3,000 L/day (min. required)
Area (prime + reserve) = 750 m² (min.) [3,000 / 8 x 2 areas]

*Based on Durham Region Health Department Lot Sizing Policy document, dated Oct. 2010

Note: Filter beds to be orientated such that the mantle is oriented in the direction of effluent flow.

Note: Maximum 4:1 slopes when grading off the edge of filter bed - TYP. all sides.



DATUM ELEVATIONS: FILTER BED

Existing Grade = 0.00m (Datum)	
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Proposed Residential Development
City of Pickering
Region of Durham

Typical Lot Layout (Lot 11)
Proposed Sewage System

Scale: 1:500	Designed By: ZS
Date: 13-JULY-2023	Drawn By: ZS
Project No.: D3534	Checked By: EG
	Drawing No.: SP-5

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