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Proposed Norwood Pit Extension

MAXIMUM GROUNDWATER LEVEL REPORT

Drain Bros. Excavating Limited

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July
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Issue	Date	Description
1	November 5, 2025	Final Report
2	July 6	Final Report V2

Document Contents

1	Introduction	1
2	Proposed Site Development	2
3	Field Program	3
3.1	Borehole Drilling and Monitoring Well Installation	3
3.2	Groundwater Level Monitoring	3
4	Site Plan Recommendations.....	5

Tables

Table 1: Monitoring Well Construction Details.....	3
Table 2: Highest Groundwater Elevation.....	4

Figures

Figure 1: Site Location Plan	6
Figure 2: Proposed Phasing Sequence.....	7
Figure 3: Monitoring Well Location Plan	8
Figure 4: Predicted Max Groundwater Level Map.....	9

Appendices

Appendix A: Borehole Logs	
Appendix B: Individual Hydrographs	



1 Introduction

Tatham Engineering Limited (Tatham) has been retained by Drain Bros. Excavating Limited (Drain Bros) to complete this Maximum Predicted Water Table Report in support of an Aggregate Resources Act (ARA) Class A Pit Above Water Licence to allow for an extension of the existing Norwood Pit (Licences #3270, #624622), located on Part Lot 1 Concession 11, Part Lot 2 Concession 11, Part Lot 1 Concession 12, and Part Lot 2 Concession 12, in the Township of Douro-Dummer, County of Peterborough, hereafter referred to as the “Proposed Pit Extension” or “Site” as shown in Figure 1.

The Proposed Pit Extension is located east of the existing Norwood Pit. The Proposed Pit Extension lands are primarily comprised of agricultural fields and/or forests and wetlands and are bound by the former location of Dummer 12th Line Road followed by the existing Norwood Pit licenced areas #3270 and #624922 to the west, and a mixture of agricultural lands and rural residential properties to the east, south and north.

The purpose of this report is to identify the maximum predicted water table elevation, in metres above sea level (m asl), relative to the proposed depth of excavation.

This letter outlines the field program used at the site to determine the maximum predicted water table elevation. Additional details and results from the field investigations and monitoring program are summarized in the Norwood Pit Extension Level 1 and 2 Hydrogeological Assessment (Tatham, 2026).



2 Proposed Site Development

The Proposed Pit Extension consists of a Class A Above Water Pit with a licenced area of approximately 36.7 ha and an extractable area of approximately 28.1 ha.

Operations have been divided into two phases of extraction, with Phase 1 comprising approximately 17.6 ha of extraction area located immediately east of the former location of Dummer 12th Line Road and the existing licenced area #624922, while Phase 2 comprises approximately 10.5 ha of extraction area located to the east Phase 1.. Extraction will be initiated in Phase 1 and will continue through to Phase 2.

The depth of extraction will remain at least 1.5 m above the maximum predicted groundwater level outlined in this report. The proposed phasing sequence is shown in Figure 2.

The main Site access will be from South Dummer 11th Line Road utilizing the existing Norwood Pit entrance/exit.

The Proposed Pit Extension and existing licensed area #642922 will have a combined maximum extraction limit of 227,000 tonnes per year.

On-Site drainage of undisturbed areas will continue as per the existing drainage features while drainage of the extracted areas will be contained within the proposed extraction limits to ultimately infiltrate through the pit floor.



3 Field Program

3.1 BOREHOLE DRILLING AND MONITORING WELL INSTALLATION

The borehole drilling and monitoring well installation program was designed to allow for a detailed characterization of the groundwater regime.

Five boreholes, designated BH/MW24-1 through BH/MW24-5, were advanced by Choice Sonic Drilling Ltd. on May 24 and 27, 2024, to depths of 4.3 to 15.9 m below existing grade. Monitoring wells were installed in all boreholes and were constructed with 50 mm PVC riser pipe and 3.0 m long slotted screens. Annular space was filled with filter sand surrounding the well screen and 0.3 m above the well screen. The remaining annular space was backfilled with bentonite chips. All monitoring wells were finished with monument casings.

All monitoring wells were surveyed on July 23, 2024, using a Trimble R12i GNSS receiver, connected to the CANNET GNSS network via built in GNSS integrated antenna. The receiver is connected to a TSC7 controller using Trimble Access software for data collection. This equipment provides an accuracy of 8 mm horizontally and 15 mm vertically. Elevations provided reference the CGVD28 datum.

Monitoring well locations are presented in Figure 3, construction details are summarized in Table 1, and borehole logs are provided in Appendix A.

Table 1: Monitoring Well Construction Details

MONITORING WELL ID	GROUND SURFACE (m asl)	DEPTH (m bgs)	SCREENED ELEVATION (m asl)
BH/MW24-1	228.0	9.0	219.0 - 222.0
BH/MW24-2	223.4	6.0	217.4 - 220.4
BH/MW24-3	225.4	4.0	221.4 - 224.4
BH/MW24-4	224.5	7.0	217.5 - 220.5
BH/MW24-5	238.7	14.0	224.7 - 227.7

3.2 GROUNDWATER LEVEL MONITORING

Groundwater level monitoring on-site began in June 2024. All wells were equipped with an automatic pressure transducer recording continuously on a 4-hour frequency. The pressure transducer is calibrated using manual groundwater measurements and a barometric pressure transducer.



The results of the continuous groundwater level monitoring are provided on individual hydrographs for each monitoring well location presented within Appendix B. It is noted BH/MW24-3 and BH/MW24-5 were dry throughout the monitoring period and a hydrograph has not been prepared.

Seasonal fluctuations were noted at all monitoring wells illustrating higher groundwater levels during the Spring and Fall months and lower groundwater levels during the Summer and Winter months. The water levels in BH/MW24-2 show a bit more variability, with a peak in groundwater levels also noted between March and May.

The maximum groundwater elevations for each monitoring well location is presented in Table 2 and shown in Figure 4.

Table 2: Highest Groundwater Elevation

WELL ID	HIGHEST GROUNDWATER ELEVATION (m asl)
BH/MW24-1	223.1
BH/MW24-2	221.0
BH/MW24-3	Dry at 221.4
BH/MW24-4	222.7
BH/MW24-5	Dry at 224.7

The maximum groundwater table elevation ranged from 221.0 m to 224.7 m asl. It is noted for dry wells, the bottom of the well was considered to be the depth to groundwater. This is a very conservative approach as the water levels are below the bottom of the screen.



4 Site Plan Recommendations

- The ARA Site Plan shall identify the established seasonally high groundwater elevation as shown in Figure 4.
- The pit floor shall be maintained at minimum 1.5 m above the established seasonally high groundwater elevation as shown in Figure 4.

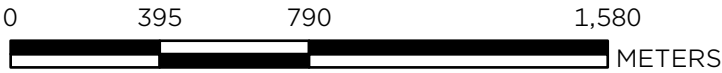
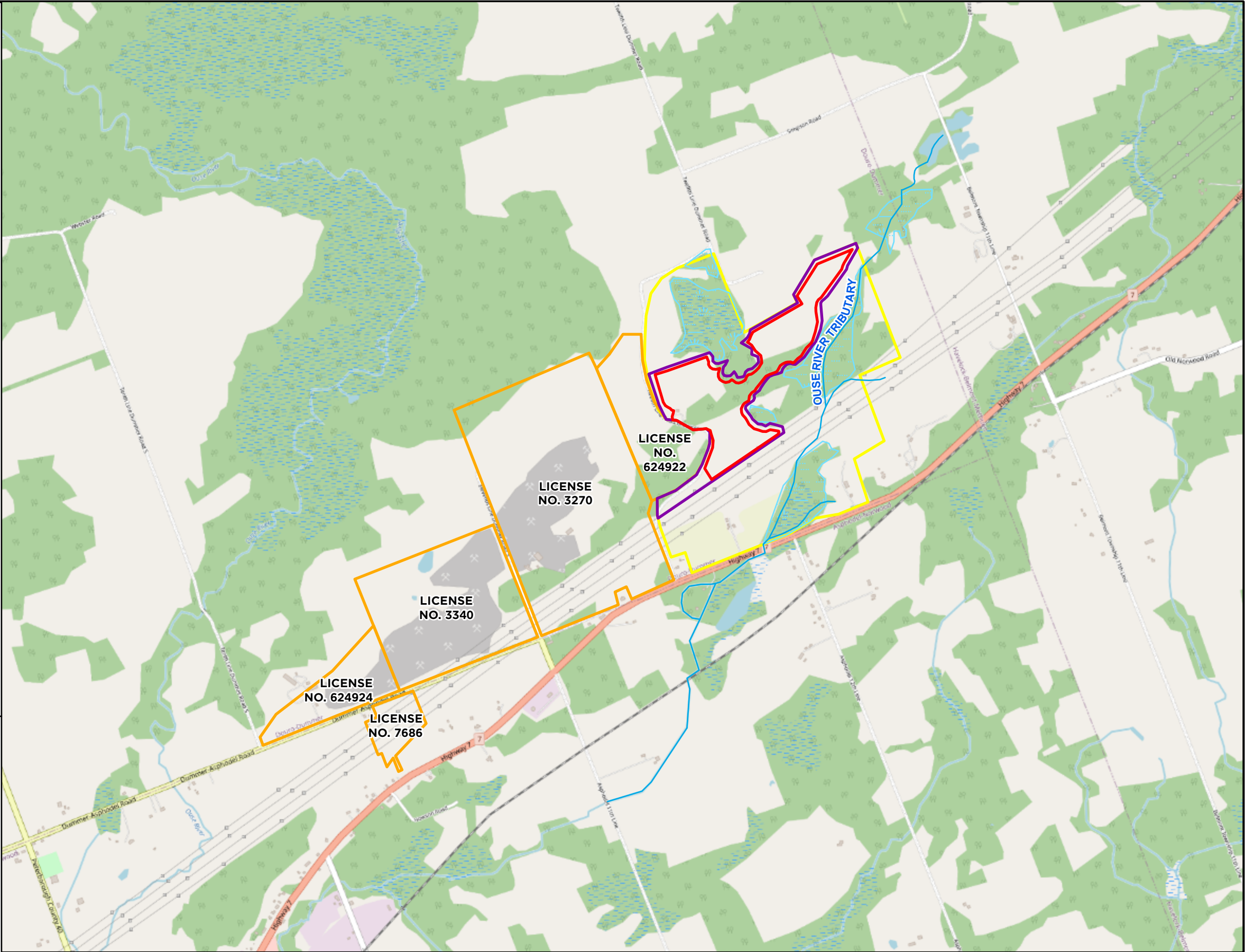




NOTES:
1. COORDINATE SYSTEM: NAD 1983 UTM
ZONE 17N
2. CONTAINS INFORMATION LICENSED
UNDER THE OPEN GOVERNMENT LICENSE -
ONTARIO.

LEGEND

- OTHER LANDS OWNED BY DRAIN BROS
- PROPOSED LIMIT OF EXTRACTION
- LICENSE BOUNDARY
- WATERCOURSE
- WETLAND
- EXISTING LICENSED AREAS



**NORWOOD PIT
MAXIMUM GROUNDWATER LEVEL REPORT
SITE LOCATION PLAN**

DWG. No.
FIG-1

SCALE: 1:20,000 | DRAWN: AO | DATE: JUN. 2026 | JOB NO. 424400

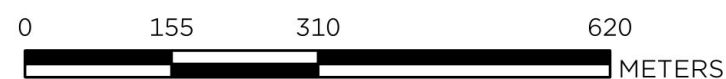
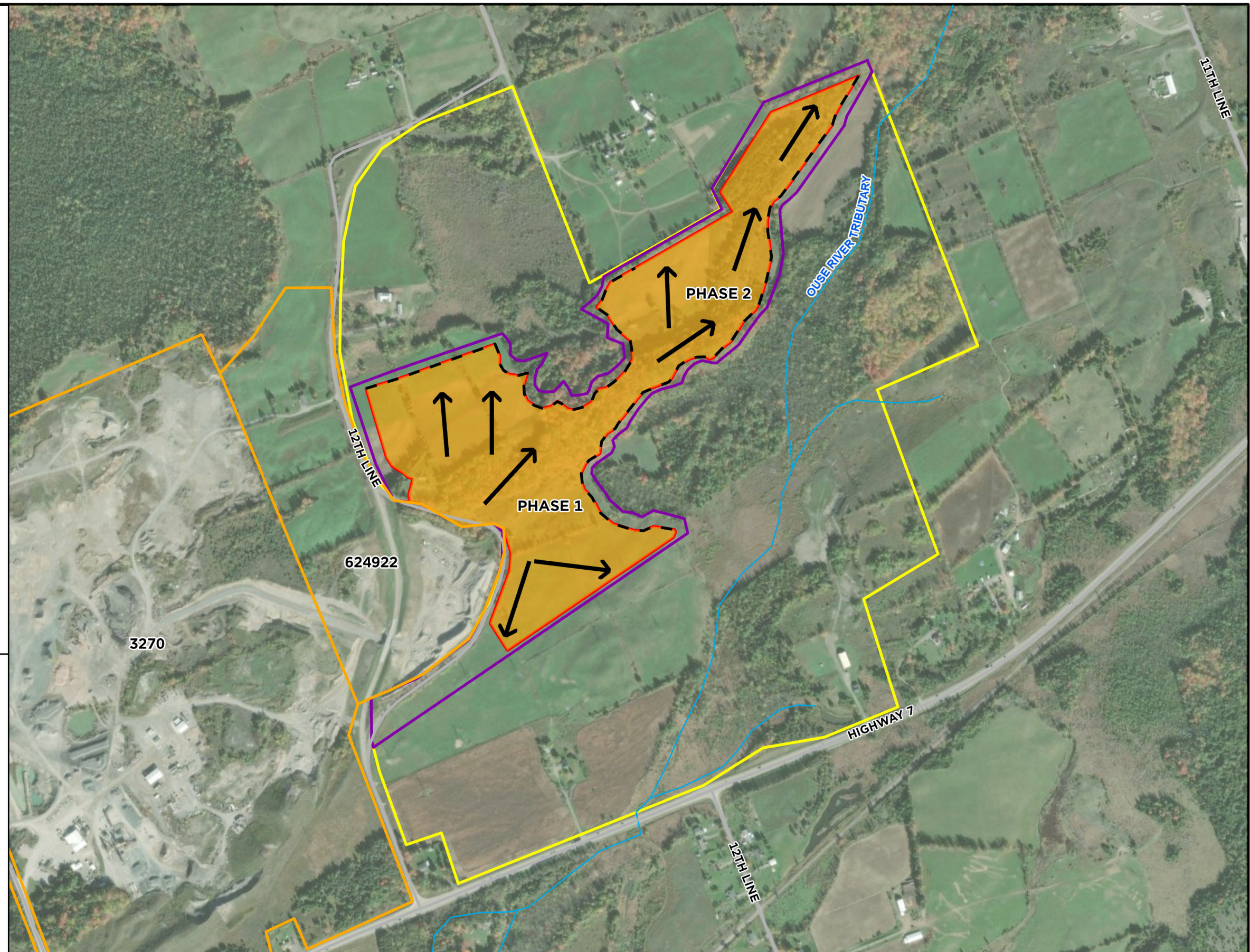


NOTES:

1. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE - ONTARIO.

LEGEND

- OTHER LANDS OWNED BY DRAIN BROS
- PROPOSED LIMIT OF EXTRACTION
- LICENSE BOUNDARY
- EXISTING LICENSED AREAS
- PROPOSED PHASES OF EXTRACTION
- PROPOSED DIRECTION OF EXTRACTION
- ROADS
- WATERCOURSE
- SILT FENCING



**NORWOOD PIT
MAXIMUM GROUNDWATER LEVEL REPORT
MINING PHASING PLAN**

DWG. No.
FIG-2

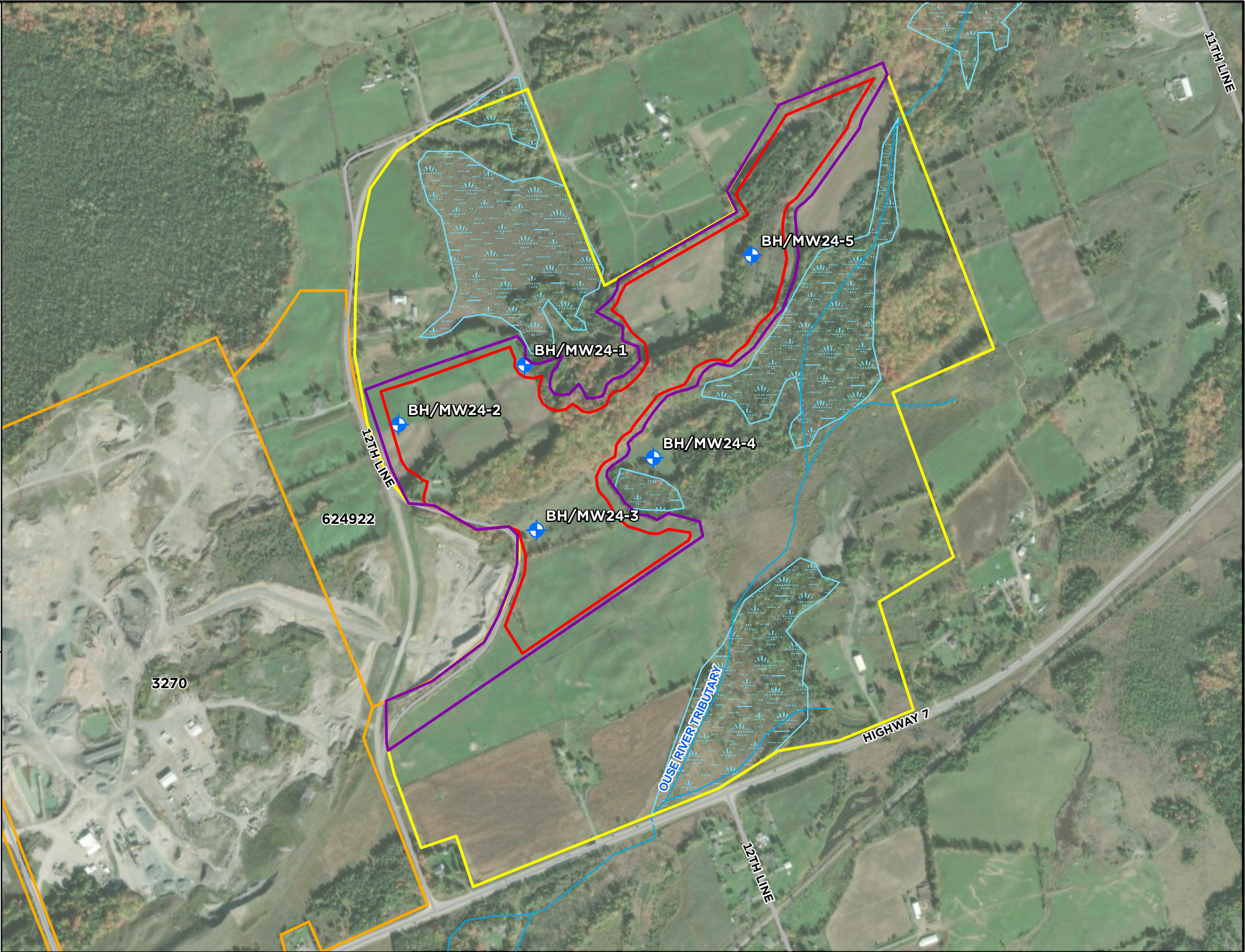
SCALE: 1:8,000	DRAWN: AO	DATE: JUN. 2026	JOB NO. 424400
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NOTES:
1. COORDINATE SYSTEM: NAD 1983 UTM
ZONE 17N
2. CONTAINS INFORMATION LICENSED
UNDER THE OPEN GOVERNMENT LICENSE -
ONTARIO.

LEGEND

- OTHER LANDS OWNED BY DRAIN BROS
- EXISTING LICENSED AREAS
- PROPOSED LIMIT OF EXTRACTION
- LICENSE BOUNDARY
- MONITORING WELL LOCATIONS
- ROADS
- WATERCOURSE
- WETLAND



0 155 310 620 METERS

TATHAM
ENGINEERING

NORWOOD PIT
MAXIMUM GROUNDWATER LEVEL REPORT
MONITORING WELL LOCATION PLAN

DWG. No. **FIG-3**

SCALE: 1:8,000

DRAWN: AO

DATE: JUN. 2026

JOB NO. 424400



NOTES:

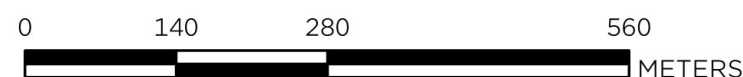
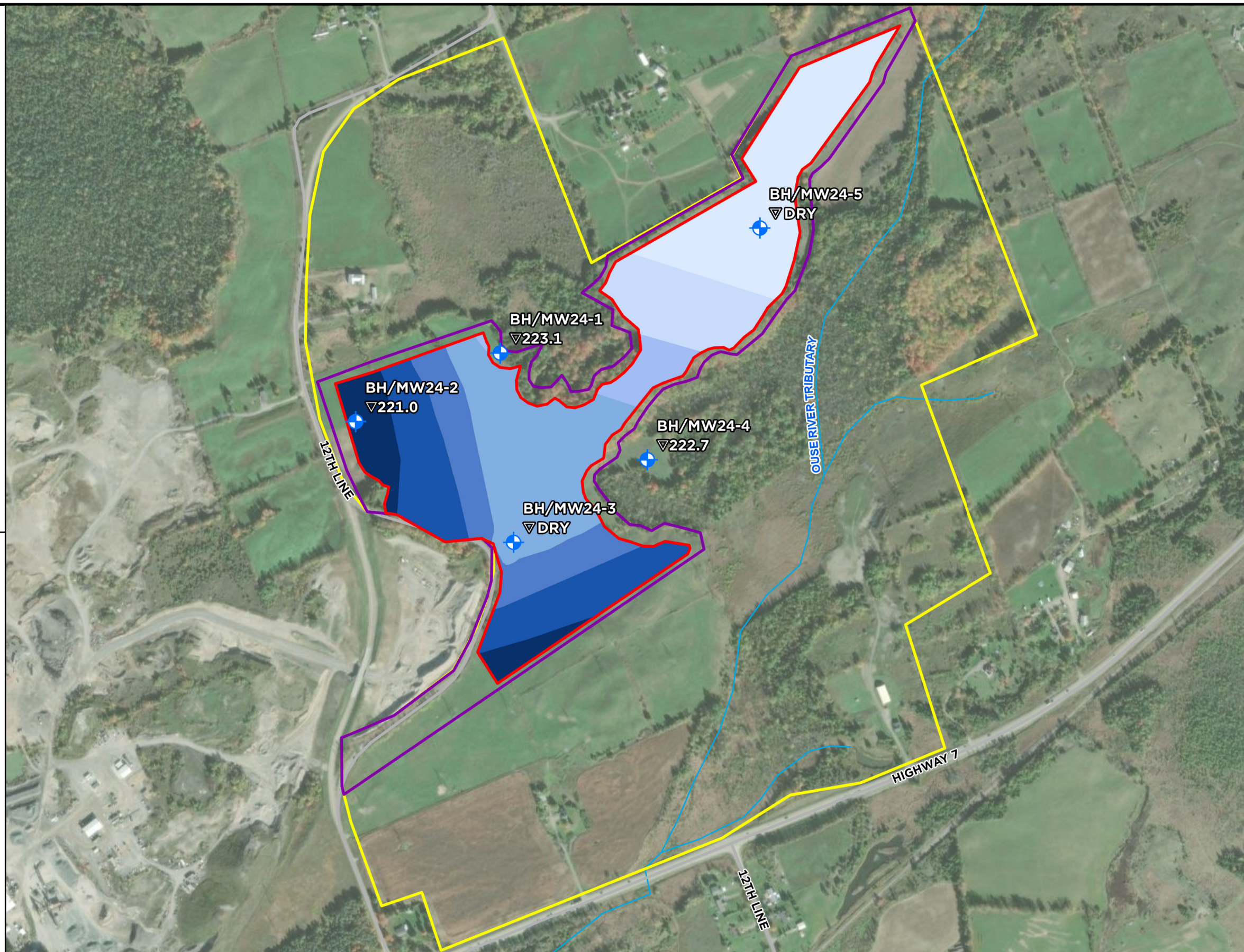
1. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N
2. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENSE - ONTARIO.

LEGEND

- ▬ PROPOSED LIMIT OF EXTRACTION
- ▬ LICENSE BOUNDARY
- ▬ OTHER LANDS OWNED BY DRAIN BROS
- ▬ ROADS
- + MONITORING WELL LOCATIONS
- ▬ WATERCOURSE

GROUNDWATER ELEVATION (m asl)

- < 221.5
- 221.5-222
- 222-222.5
- 222.5-223
- 223-223.5
- 223.5-224
- > 224



NORWOOD PIT
MAXIMUM GROUNDWATER LEVEL REPORT
MAXIMUM GROUNDWATER CONTOURS

SCALE: 1:7,000

DRAWN: AO

DATE: JUN. 2026

DWG. No.

FIG-4

JOB NO. 424400

Appendix A: Borehole Logs



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WELL NUMBER BH/MW24-1

PAGE 1 OF 1

CLIENT Drain Bros Excavating Ltd.

PROJECT NAME Norwood Pit Expansion, Duoro-Dummer

PROJECT NUMBER 424400

LOCATION 145 Dummer 12th Line Rd, 4818 Hwy 7 & 4862 Hwy 7

DATE STARTED 5/27/24 COMPLETED 5/27/24

GROUND ELEVATION 228 m HOLE SIZE 4.75"

DRILLING CONTRACTOR Choice Sonic Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Sonic Drilling

AT TIME OF DRILLING ---

LOGGED BY NT CHECKED BY KG

AT END OF DRILLING ---

NOTES _____

▼ AFTER DRILLING 5.32 m / Elev 222.68 m

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Stick Up Casing
	1		TOPSOIL: Brown, sand, trace to some gravel, trace organics, moist 0.60 227.40	
2	2		SAND AND GRAVEL: Brown, sand and gravel, cobbles and boulders, moist	
	3			
4	4			
	5		First water strike at 5.5 m	
6	6		7.00 221.00	
8	7		SILTY SAND TILL: Red to grey, silty sand, trace to some gravel, cobbles and boulders, sand and gravel layers throughout	
	8		9.80 218.20	
10			LIMESTONE	
			10.40 217.60	

Borehole terminated at 10.4 m bgs

Upon completion of drilling:
No cave
Water at 5.3 m

GENERAL BH / TP / WELL 424400 - NORWOOD PIT BH LOGS.GPJ GINT STD CANADA LAB.GDT 6/26/25



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WELL NUMBER BH/MW24-2

PAGE 1 OF 1

CLIENT Drain Bros Excavating Ltd.

PROJECT NAME Norwood Pit Expansion, Duoro-Dummer

PROJECT NUMBER 424400

LOCATION 145 Dummer 12th Line Rd, 4818 Hwy 7 & 4862 Hwy 7

DATE STARTED 5/24/24 COMPLETED 5/24/24

GROUND ELEVATION 223.4 m HOLE SIZE 4.75"

DRILLING CONTRACTOR Choice Sonic Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Sonic Drilling

AT TIME OF DRILLING ---

LOGGED BY NT CHECKED BY KG

AT END OF DRILLING ---

NOTES _____

▼ AFTER DRILLING 3.93 m / Elev 219.97 m

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Stick Up Casing
	1		TOPSOIL: Dark brown, sand, trace silt, trace organics, moist 0.46 223.44	
2	2		SAND: Brown, sand, trace gravel, moist to wet	Bentonite holeplug seal
	3		First water strike at 2.4 m	
4	4		SILTY SAND TILL: Brown, silty sand, trace to some gravel, cobbles and boulders, moist to wet 4.00 219.90	Filter sand and 50 mm diameter slotted screen
6	5		LIMESTONE	
	6		LIMESTONE 7.00 216.90 7.30 216.60	

Borehole terminated at 7.3 m bgs

Upon completion of drilling:
No cave
Water at 3.9 m



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Telephone: 7057339037

WELL NUMBER BH/MW24-3

PAGE 1 OF 1

CLIENT Drain Bros Excavating Ltd.

PROJECT NAME Norwood Pit Expansion, Duoro-Dummer

PROJECT NUMBER 424400

LOCATION 145 Dummer 12th Line Rd, 4818 Hwy 7 & 4862 Hwy 7

DATE STARTED 5/24/24 COMPLETED 5/24/24

GROUND ELEVATION 225.4 m HOLE SIZE 4.75"

DRILLING CONTRACTOR Choice Sonic Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Sonic Drilling

AT TIME OF DRILLING ---

LOGGED BY NT CHECKED BY KG

AT END OF DRILLING ---

NOTES _____

AFTER DRILLING ---

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Stick Up Casing
	1		TOPSOIL: Dark brown and black, sand, trace to some silt, moist 0.90 225.70	 Bentonite holeplug seal Filter sand and 50 mm diameter slotted screen
2	2		SAND: Brown, sand, moist 2.10 224.50	
			SILTY SAND TILL: Brown, silty sand, trace to some gravel, cobbles and boulders, moist to wet 2.70 223.90	
	3		SAND AND GRAVEL: Brown and grey, sand and gravel, trace clay, very moist to wet First water strike at 3.0 m	
4			LIMESTONE 4.00 222.60	
	4		LIMESTONE 4.30 222.30	
			Borehole terminated at 4.3 m bgs	Upon completion of drilling: No cave No water



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WELL NUMBER BH/MW24-4

PAGE 1 OF 1

CLIENT Drain Bros Excavating Ltd.

PROJECT NAME Norwood Pit Expansion, Duoro-Dummer

PROJECT NUMBER 424400

LOCATION 145 Dummer 12th Line Rd, 4818 Hwy 7 & 4862 Hwy 7

DATE STARTED 5/24/24 COMPLETED 5/24/24

GROUND ELEVATION 224.5 m HOLE SIZE 4.75"

DRILLING CONTRACTOR Choice Sonic Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Sonic Drilling

AT TIME OF DRILLING ---

LOGGED BY NT CHECKED BY KG

AT END OF DRILLING ---

NOTES _____

▼ AFTER DRILLING 2.14 m / Elev 222.36 m

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Stick Up Casing
	1		TOPSOIL: Dark brown, sand, trace silt, trace gravel, moist	
			0.90	223.60
	2		SAND: Brown, sand, trace to some gravel, moist to wet	
2				Bentonite holeplug seal
	3		First water strike at 2.4 m	
4				
	4			
6				
	5			
			7.00	217.50
	6		SILTY SAND TILL: Brown to grey, silty sand, trace to some gravel, cobbles and boulders, moist to wet	
8				
			8.50	216.00
			Grey silty sand layer from 8.2 to 8.5 m	
			Borehole terminated at 8.5 m bgs	Upon completion of drilling: No cave Water at 2.1 m

GENERAL BH / TP / WELL 424400 - NORWOOD PIT BH LOGS.GPJ GINT STD CANADA LAB.GDT 6/26/25



Tatham Engineering Ltd
645 Veterans Drive
L4N 9H8
Telephone: 7057339037

WELL NUMBER BH/MW24-5

PAGE 1 OF 1

CLIENT Drain Bros Excavating Ltd.

PROJECT NAME Norwood Pit Expansion, Duoro-Dummer

PROJECT NUMBER 424400

LOCATION 145 Dummer 12th Line Rd, 4818 Hwy 7 & 4862 Hwy 7

DATE STARTED 5/27/24 COMPLETED 5/27/24

GROUND ELEVATION 238.7 m HOLE SIZE 4.75"

DRILLING CONTRACTOR Choice Sonic Drilling Ltd.

GROUND WATER LEVELS:

DRILLING METHOD Sonic Drilling

AT TIME OF DRILLING ---

LOGGED BY NT CHECKED BY KG

AT END OF DRILLING ---

NOTES _____

▼ AFTER DRILLING 14.26 m / Elev 224.44 m

DEPTH (m)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				Stick Up Casing
	1		TOPSOIL: Dark brown, sand, trace silt, trace to some gravel, trace organics, moist 0.90 237.80	
	2		SAND AND GRAVEL: Brown, sand and gravel, trace to some silt, cobbles and boulders, moist	
	3			
5	4			
	5			
	6			
	7			
10	8			
	9			
	10			
			14.30 224.40	
15	11		LIMESTONE	
			15.90 222.80	

Bentonite
holeplug seal

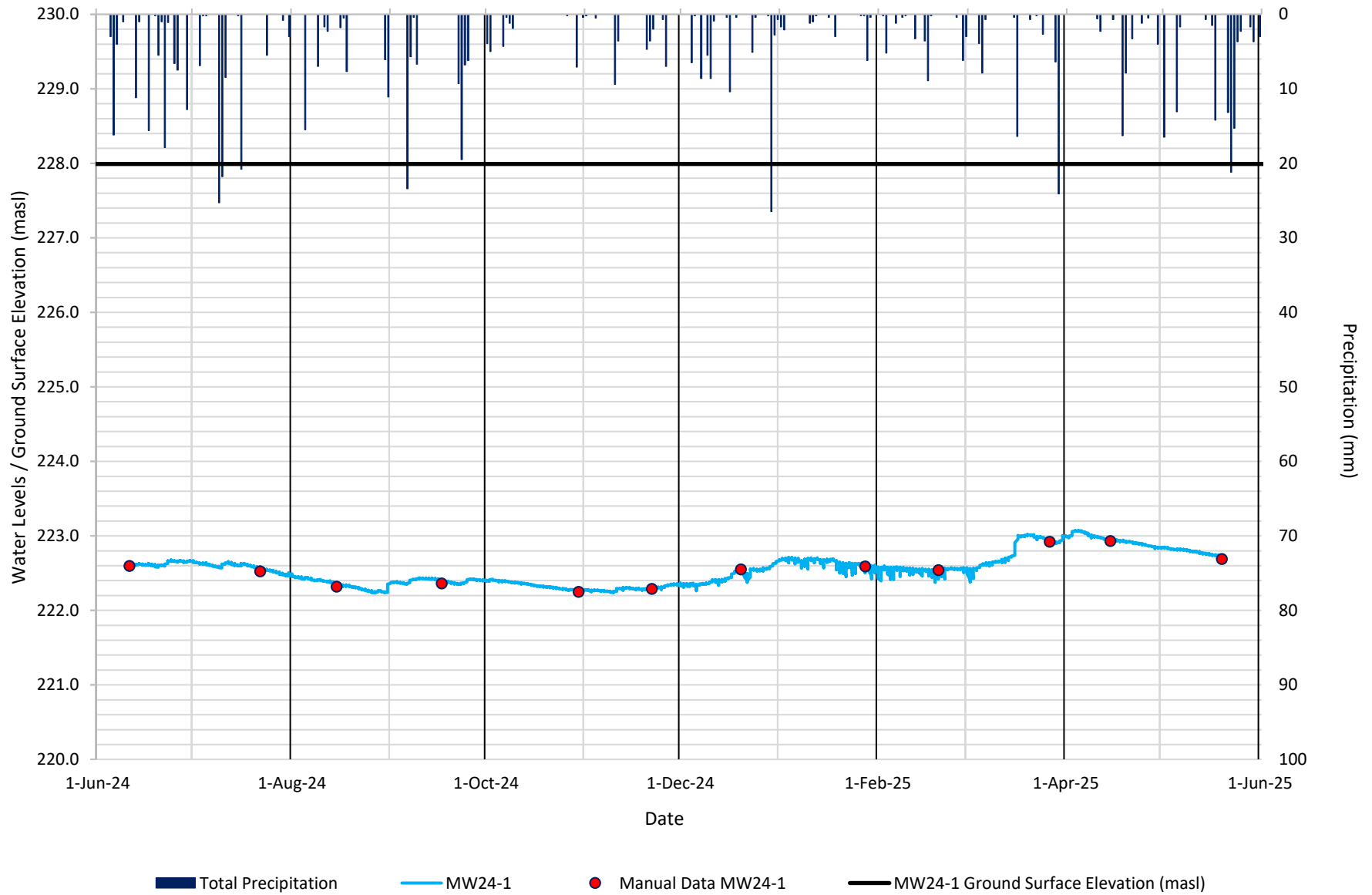
Filter sand
and 50 mm
diameter
slotted screen

Borehole terminated at 15.9 m bgs

Upon completion of drilling:
No cave
Water at 14.3 m

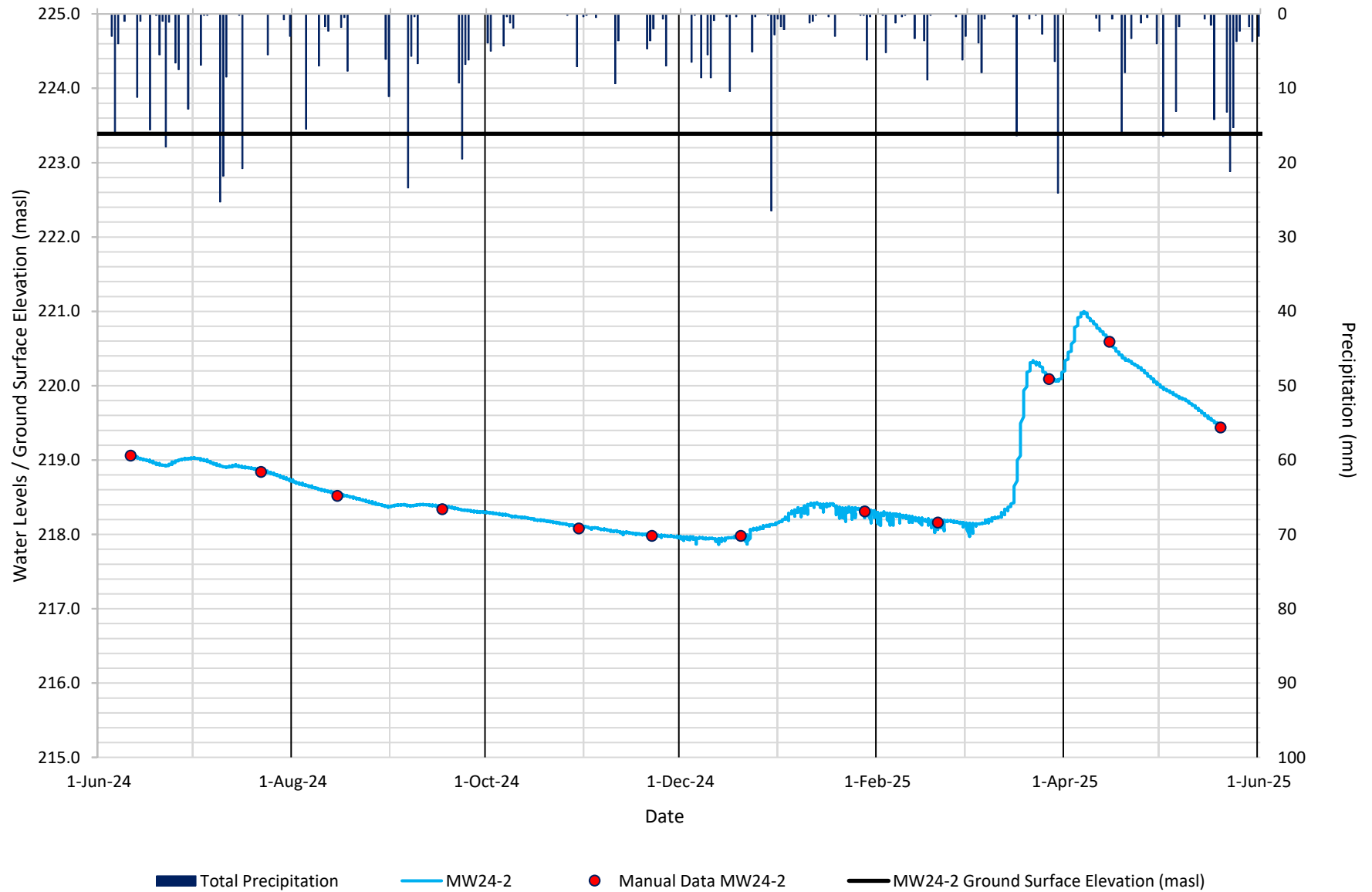
Appendix B: Individual Hydrographs

Norwood Pit Monitoring Well (MW24-1) Water Levels June 2024 - May 2025



Norwood Pit Monitoring Well (MW24-2)

Water Levels June 2024 - May 2025



Norwood Pit Monitoring Well (MW24-4)

Water Levels June 2024 - May 2025

