

The background of the document is a photograph of a construction site. It shows heavy machinery, including what appears to be a large drill or pile driver, with various metal components, bolts, and cables. The scene is somewhat dark and industrial, with some bright highlights on the machinery. Overlaid on this image are several large, semi-transparent geometric shapes in shades of grey, teal, and orange, which also appear in the company logo.

Dewatering Management Plan 142-160 Oxford Street, 13 Gipps Street & 6 Shadforth Street, Paddington (NSW)

Reference: P3569_05 Rev1

Date: 1 May 2026

Morrow Geotechnics Pty Ltd

2/5-7 Malta Street, Fairfield East NSW 2165

79/6 Bellambi Lane, Bellambi NSW 2518

E: info@morrowgeo.com.au

P: 02 8599 7579

ABN 42 605 892 126

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	Full Name & Title	Signature
Author	Andrew Butel Hydrogeologist/Senior Engineering Geologist	
Reviewer	Alan Morrow Principal Geotechnical Engineer	



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1. Introduction

1.1 Overview

Morrow Geotechnics Pty Ltd has carried out a Groundwater Study and prepared a Site Hydrogeology Report for the proposed development at 142-160 Oxford Street, 13 Gipps Street & 6 Shadforth Street, Paddington (the site).

The following geotechnical & hydrogeological reports have been prepared for the site:

- Morrow Geotechnics Pty Ltd, Geotechnical Investigation Report, *142-160 Oxford Street, 13 Gipps Street & 6 Shadforth Street, Paddington NSW*, referenced P3569_02 Rev1, and dated 15 December 2025 (MG 2025); and
- Morrow Geotechnics Pty Ltd, *Site Hydrogeology Report, 142-160 Oxford Street, 13 Gipps Street & 6 Shadforth Street, Paddington NSW*, referenced P3569_04, and dated 26 January 2026 (MG 2026);

The geotechnical report presents the results of site investigations for the proposed development and geotechnical recommendations for design and construction.

1.2 Proposed Development

Architectural plans for the proposed development have been prepared by Smart Design Studio for project 2510, 160 Oxford Street, Paddington and dated 18 December 2025. Morrow Geotechnics understands that the proposed development will involve construction of a seven storey mixed use multi-dwelling structure over four levels of basement carpark requiring excavation of approximately 15.0 metres below ground level (mBGL) to RL 39.98 mAHD.



Figure 1: Proposed Basement Dimensions (area approx. 1569 m², perimeter approx. 167 m)

1.3 Proposed Dewatering Schedule

Given the relatively low permeability of the shale profile encountered in the geotechnical investigation it is proposed to construct the basement as a **drained** soldier pile wall. Dewatering

through spear points and pumping is not proposed for the construction period, rather any groundwater seepage will be allowed to drain through strip drainage installed behind shotcrete panels and collected by sump pits within the basement. Water will be pumped off-site using a 80 mm submersible pump, discharging at a rate of 10L/sec,

The excavation program for the proposed basement is expected to take up to 8 months. Temporary construction dewatering is expected to occur for construction seepage inflows during this 8 month period.

1.4 Objectives

The objective of this Dewatering Management Plan is to identify a methodology for construction dewatering of the site such that:

- Construction dewatering volumes are quantified to be within acceptable thresholds;
- The location of any groundwater extraction works, if required, is clearly delineated;
- The process for disposal of extracted groundwater, if required, is clearly defined;
- The quality of any groundwater is assessed in accordance with ANZG/ANZECC guidelines for disposal off site, if required;
- The impact of groundwater drawdown on neighbouring properties is assessed;
- Provide a NSW Aquifer Interference Policy assessment of the proposed activity;
- Monitoring and contingency plans are outlined for safe management of construction dewatering;
- This Dewatering Management Plan will be used as the basis for approval to enable connection and discharge into Councils stormwater system.

2. Geological Model

The Soil Conservation Service of NSW Sydney 1:100,000 Soil Landscapes Series Sheet 9130 (2nd Edition) indicates that the erosional landscape at the site likely comprises the GyMEA Landscape. This landscape typically includes undulating rolling rises and low hills on Hawkesbury Sandstone. Soils are generally shallow to moderately deep (0.3 – 1 m) yellow earths and earthy sands. These soils are noted to present localized steep slopes, high soil erosion hazard, rock outcrops and shallow highly permeable soil.

Information on regional sub-surface conditions, referenced from the Department of Mineral Resources Geological Map Sydney 1:100,000 (Geological Series Sheet 9130) indicate that the site is located in (Rh) Hawkesbury Sandstone, which is typically comprised of medium to coarse-grained quartz sandstone, with very minor shale and laminite lenses.

Further discussion of the geological and geotechnical conditions at the site is provided in the Geotechnical Investigation Report (MG 2025) and in the Site Hydrogeology Report (MG 2026)

3. Hydrogeological Model

3.1 Hydrogeological Summary

A full hydrogeological assessment of the site has been carried out by Morrow Geotechnics as referenced in Section 1.1 above and hereafter referred to as MG 2026.

3.2 Summary of Groundwater Observations

Average groundwater levels are recorded within the following units;

- BH202 Unit 4 – Class IV Sandstone;
- BH203 Unit 6 – Class II Sandstone; and
- BH204 Unit 5 – Class III Sandstone.

Average groundwater levels across the site range from RL 46.02 to 48.66 mAHD. Water levels within the monitoring wells were slightly responsive to rainfall events during the monitoring period. This is inferred to result from surface water infiltration following rainfall recharging the groundwater.

Based on the geotechnical investigation and groundwater monitoring it is possible to conclude that the hydrogeological conditions at the site are of a phreatic water table within a generally low permeability rock mass. Groundwater levels are dipping towards the south.

On the basis of ongoing groundwater monitoring it is recommended that a design groundwater level for site is taken at the following;

- South (BH203 & BH204) – 47.80 mAHD
- North (BH202) – 49.40 mAHD

The following design permeabilities have been adopted for the site;

- Unit 1 Fill/Topsoil – N/A
- Unit 2 Residual Soil – N/A
- Unit 3 Class V Sandstone – 1.78×10^{-7}
- Unit 4 Class IV Sandstone – 1.78×10^{-7}
- Unit 5 Class III Sandstone – 1.78×10^{-7}
- Unit 6 Class III Sandstone – 1.78×10^{-7}

The permeability of 1.54×10^{-8} was calculated by averaging the results of the rising head tests excluding the BH204 defect permeability.

4. Groundwater Flow Modelling

4.1 Proposed Shoring and Groundwater Management

Morrow Geotechnics understands that the structural design will be for a drained basement. No spear points or wells are proposed for extraction of groundwater at the site. Groundwater seepage will be allowed to drain to sump pits within the basement. Any accumulation of groundwater within the sump pit would be dewatered by pumping from the sump pit using appropriate environmental controls as discussed in this Dewatering Management Plan.

4.2 Analytical Seepage Modelling

Groundwater seepage analysis for flow into the drained basement has been calculated using a Plaxis 2D Flow Module. Plaxis is a 2D finite element and limit equilibrium software package used for design of geotechnical and hydrogeological design of structures such as excavations, dams, embankments and tunnels. PLAXIS 2D calculates deformations, soil stresses, water flow and groundwater pressures.

The Plaxis Flow Module allows complex groundwater head distributions to be calculated at any point in time with time dependent groundwater flow calculations. PLAXIS Flow displays contours and vectors of groundwater flow, pore pressures, saturation, suction, and Darcy flux. For curves, options exist to visualize the development of groundwater head and pore pressures in time through various calculation phases, providing valuable insight in the groundwater flow process.

The limitation of the 2D Plaxis Flow module is that it is likely to overestimate the groundwater flow volumes and groundwater drawdown due to 2D cross sectional analysis.

4.2.1 Modelling Inputs

Geological profiles, groundwater levels and hydraulic permeabilities have been entered into the analytical model as per the hydrogeological model presented in the MG 2026 SHR for the site.

For the formation of the model a mean annual deep drainage groundwater recharge flux of 20 mm per year (Australian National Water Commission, 2005) has been assumed.

Two cross sections have been modelled as shown on **Figure 2** below.

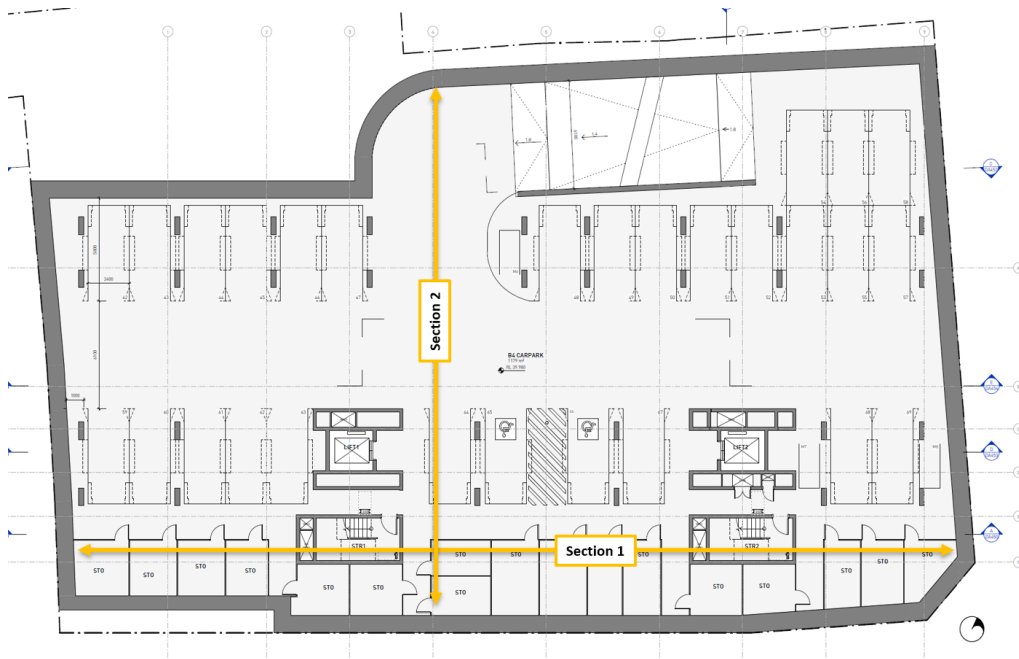


Figure 2: Modelling Cross Section 1 and 2

The Plaxis model has been set up as a “Flow Only” calculation using the “Transient Groundwater Flow” stage types. Given the relatively low permeability of soil and rock units obtained from the hydraulic conductivity testing, a model width of 200 m and model depth of 100 m was adequate for modelling the full extent of groundwater impacts from the proposed development.

Vertical model boundaries were set as open to allow infinite recharge of flow at model boundaries at the initial ground levels.

Short term flow modelling was based on the initial 24 hour period following excavation. The flow rates from short term modelling have been applied to the entire construction period as a worst case scenario given that flow rates reduce quickly after the initial 24 hour flow period. This has been taken as a conservative approach.

Long-term flow modelling was based off stabilised flow after allowing the model to run for a 100 day period. Steady flow rates for all models have been achieved at 100 days.

4.2.2 Modelled Seepage

Typical Plaxis outputs for each groundwater flow modelling and groundwater head drawdown curves are shown in **Figure 3** and **Figure 4** below.

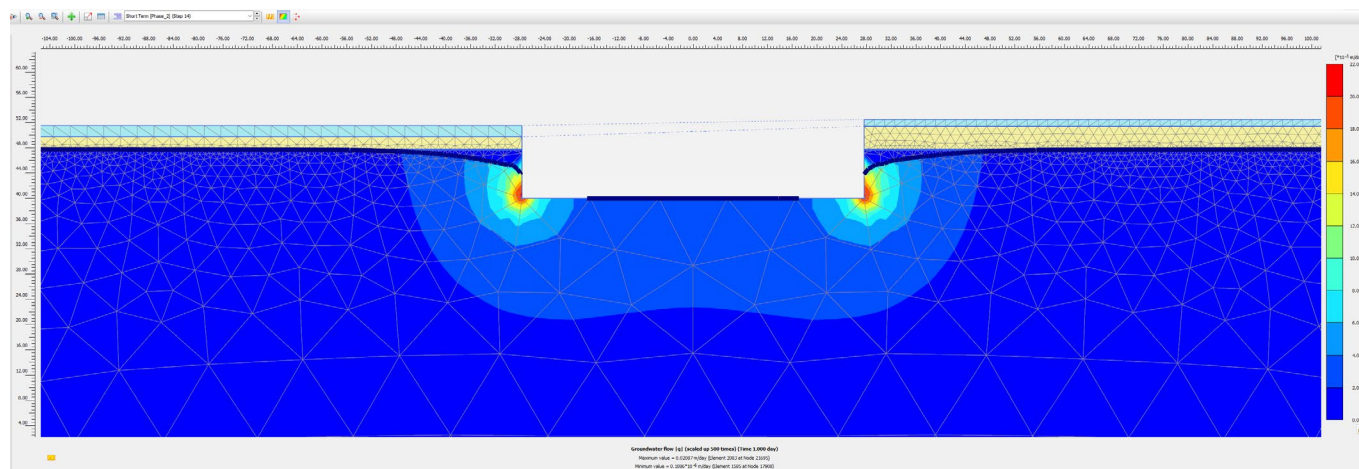


Figure 3: Typical aquifer flow conditions (Section 1 short term flow shown).

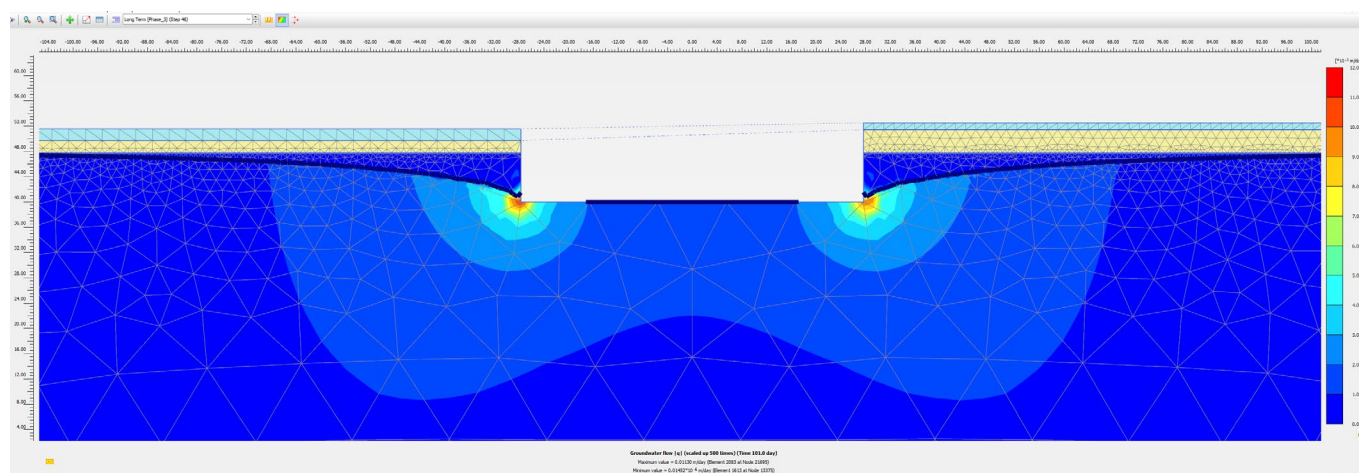


Figure 4: Typical aquifer flow conditions (Section 1 long term flow shown).

Full outputs of Plaxis results are included in the Plaxis output reports attached as **Appendix A**.

Tabulated results of seepage calculations for each of the above cases are presented in **Table 1**.

Table 1 Seepage Calculations

Analysis Case	Up Gradient Seepage to Excavation Face (L/day/m)	Down Gradient Seepage to Excavation Face (L/day/m)	Excavation Base Seepage (L/day/m ²)
Section 1 Short Term	72.22	72.82	2.95
Section 1 Long Term	25.61	28.51	1.40
Section 2 Short Term	69.77	44.42	4.02
Section 2 Long Term	25.57	15.26	2.75

Peak upgradient and downgradient seepage rates have been generalized across the 50% of the basement area each as a worst-case projection of groundwater flows. Calculations of total volume of seepage inflow have been based on an excavation perimeter of approximately 167 m and an excavation base area of approximately 1569 m².

Based on the above seepage rates and the size of the proposed excavation, the expected seepage to a drained basement is modelled to be:

- Short Term Flows for Temporary Dewatering During Construction
5.95 ML/year
- Long Term Flows during Service Life of Structure Following Completion of Construction
2.64 ML/year

Projected seepage inflows for a drained basement (**3.96 ML** over 8 month build) are above the WaterNSW threshold for exemption from the requirement of a Water Access License. A **Water Supply Works Approval** and **Water Access Licence** (unless an exemption applies) will be required for the construction phase of the development.

4.2.3 Modelled Groundwater Drawdown

Drawdown water level is within 2 m of preconstruction levels at a distance of less than 33 m from the excavation face on all boundaries. According to the Bureau of Meteorology (BOM) Australian Groundwater Explorer no “Water Supply Works” bores are present within 500 m of the site. The results of the drawdown modelling showed less than 200 mm groundwater drawdown at a maximum distance of 90 m from the excavation.

Groundwater drawdown as been assessed from the Plaxis model. Tabulated results of drawdown calculations for each of the above cases are presented in **Table 2**.

Table 2 Modelled Groundwater Drawdown

Analysis Case	Up Gradient Drawdown (m)				Down Gradient Drawdown (m)				Distance to Minimal Drawdown < (200 mm)
	Distance Behind Excavation Face				Distance Behind Excavation Face				
	0.5 m	5 m	10 m	20 m	0.5 m	5 m	10 m	20 m	
Section 1 Short Term	2.86	1.74	1.09	0.34	3.45	1.93	1.17	0.35	24.75
Section 1 Long Term	6.88	5.02	4.13	2.74	6.93	5.04	4.21	2.77	89.89
Section 2 Short Term	3.58	1.09	0.49	0.31	3.45	2.49	1.71	0.78	42.41
Section 2 Long Term	7.48	5.88	4.53	3.08	6.77	5.13	3.89	2.64	76.22

Based on the modelling the predicted groundwater drawdown impact on neighbouring properties is negligible.

5. NSW Aquifer Interference Policy Impact Assessment

The Water Management Act 2000 includes the concept of ensuring “no more than minimal harm” for the granting of approvals.

For the purposes of this assessment the Groundwater Source is assessed as a “Fracture Rock Water Source.”

The impact assessment has been based on the following three assessment criteria:

- **Water Table -**

Less than or equal to 10% cumulative variation in the water table, allowing for typical climatic “post-water sharing plan” variations, 40m from any:

- a) high priority groundwater dependent ecosystem; or
- b) high priority culturally significant site;

listed in the schedule of the relevant water sharing plan.

A maximum of a 2 m decline cumulatively at any water supply work.

Measured variations in the water table were shown at between 0.62 m and 0.81 m over the monitoring period. Morrow Geotechnics has carried out a search of registered water supply works and none are present within 100 m of the proposed excavation.

Analysis presented within this DMP shows that all drawdown effects of the proposed works are less than 200 mm at less than approximately 90 m away from the excavation, therefore Morrow Geotechnics can confirm that the proposed works will have “minimal impact” on the Water Table.

- **Water Pressure -**

A cumulative pressure head decline of not more than 40% of the “post-water sharing plan” pressure head above the base of the water source to a maximum of a 2m decline, at any water supply work.

Analysis presented within this DMP shows that all drawdown effects of the proposed works are less than 200 mm at less than 90 m away from the excavation, therefore Morrow Geotechnics can confirm that the proposed works will have “minimal impact” on the Water Pressure at registered water supply works.

- **Water Quality -**

Any change in the groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 m from the activity.

Water quality monitoring will be carried out throughout the works as indicated in **Section 7** of this report. The works are not projected to cause any detrimental effect to the water quality beyond 40 m from the activity.

Based on the assessment of the proposed works achieving the requirements of Level 1 minimal impact considerations, Morrow Geotechnics can confirm that the proposed works will do no more than minimal harm to Water Quality.

6. Water Discharge Methodology

During the works it is proposed to dewater for excavation below the water table. All water must be detained on site prior to discharge to ensure it meets the ANZG (2018) standards.

The process for assessing that water is safe for discharge to Council stormwater systems is as follows:

1. All seepage water within the proposed excavation must be detained on site for testing prior to discharge to stormwater. The site detention should comprise a sump pit which is a minimum 2 m x 2 m x 1 m deep, maintained at the location shown on **Figure 5** below (one sump pit per basement excavation). This will be excavated as the excavation level is lowered to maintain a sump point within the basement. In the event of a high period of rainfall the existing sump pit can be expanded to accommodate the increased volume of water. The sump is only required where existing stormwater systems are removed.
2. Prior to the discharge of water from the site, sampling of the discharge water must be undertaken by an environmental specialist. **Water quality testing must take place prior to the discharge of any stormwater/groundwater from the site.** The proposed sump pit volume of 4000L will be sufficient to hold the groundwater while awaiting the lab results for a period of up to 2 weeks, the water quality testing will be scheduled for a 24 hour turn around.

Water quality testing is to the published threshold values of the ANZG (2018) guidelines for marine water systems. Where thresholds for analytes are not given in ANZG (2018), ANZECC (2000) and NEPM (2013) guidelines have been used.

3. If water quality testing returns analyte values within ANZG, ANZECC and NEPM a threshold values then the detained water can be discharged to Council stormwater system in accordance with the following requirements:
 - a) The discharge rate will be limited to 10 L/sec per pump to ensure no damage is caused to Council infrastructure. The proposed pumping rate is low in comparison to the capacity of

all but the smallest stormwater drains and is highly unlikely to cause overload at any point in the drainage system.

- b) Water quality testing must be undertaken prior to discharge as per the schedule shown in **Table 4** below. No groundwater is to be discharged before the laboratory results are received and interpreted.
- If water quality testing exceeds ANZG, ANZECC and NEPM threshold values then water treatment facilities must be set up on site prior to any discharge from site. This can be achieved by either mixing the discharge water with fresh water to dilute the metal concentration. This may require water storage on site in tanks depending on the progression of the excavation works. Alternatively, water treatment facilities such as those shown below must be established on site to treat stormwater/groundwater prior to any discharge from site. The system must be verified to have reduced analyte levels to below relevant thresholds prior to discharge to stormwater. An indicative water treatment option prior to discharge to stormwater is shown in **Figure 6** below.

There are various water treatment solutions available for wastewater management, tailored to remove contaminants efficiently. A qualified contractor can design and implement the appropriate system based on specific needs. Potential treatment options include:

- **Sediment Tanks:** These tanks offer a simple and effective solution for water with high levels of suspended solids. Internal baffles increase settling time for continuous water flow, improving sediment separation. Chemical dosing units can also be integrated to enhance settling rates, effectively reducing Total Suspended Solids (TSS).
- **Siltstoppers:** Designed to accelerate the settling process, siltstoppers significantly reduce the time needed to remove sediment from impacted water, lowering TSS levels.
- **Chemical Dosing Units:** A variety of chemical dosing systems are available to manage pH levels, reduce TSS, and remove heavy metals from wastewater.
- **Chemically Enhanced Primary Treatment (CEPT):** CEPT systems combine clarification with chemical dosing and control to treat wastewater through a physio-chemical process. These systems manage pH levels, reduce TSS, remove heavy metals and hydrocarbons, and facilitate solids and sludge handling.
- **Media Filtration:** Media filtration systems are designed to treat contaminants that cannot be removed by physio-chemical methods. These systems adsorb dissolved-phase pollutants and can be used for particle filtration or water polishing (removal of colour and odour). The media type determines the contaminants removed, including heavy metals, hydrocarbons, Total Organic Carbon (TOC), nitrates, and ammonia.
- **Sludge Thickening Tanks:** These tanks are used to store and separate sludge and slurry by-products, facilitating efficient solids management and handling.

These solutions ensure efficient wastewater treatment, addressing a variety of contaminants and enabling safe discharge or reuse.

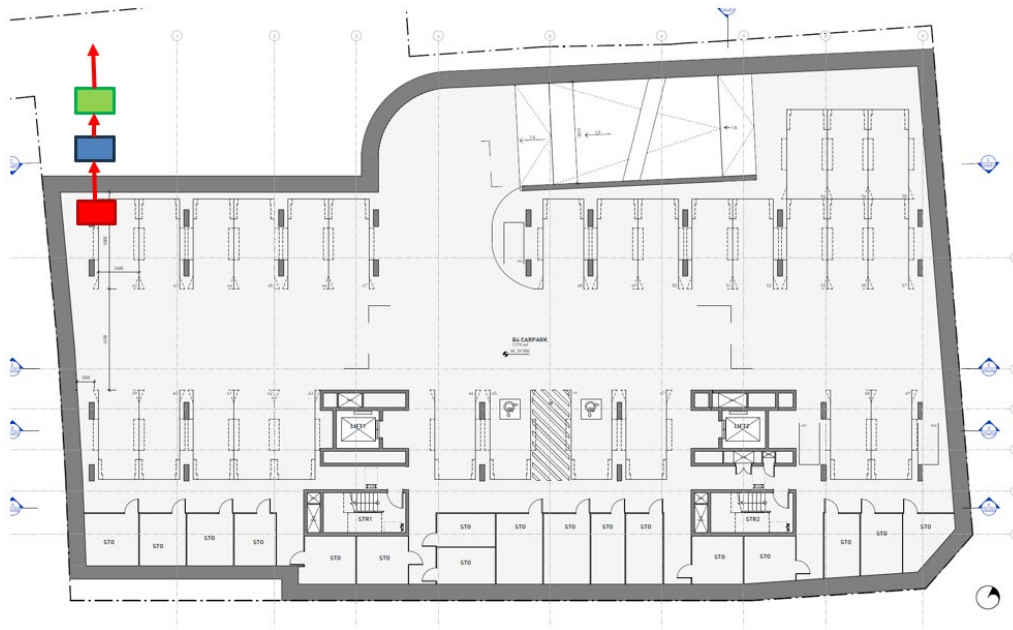


Figure 5: Construction Dewatering Flowpath

1. RED: Water drains in the site to sump pit in corner of excavation.
2. BLUE: Water pumped to Settlement Tank at Natural Ground Level for management of TSS (if required).
3. GREEN: Water enters CEPT system and dosing unit (if required) for management of pH and dissolved metals.
4. Water discharged to council stormwater system.



Figure 6: Indicative possible treatment system where analyte values exceed Council, ANZG or NEPM threshold values

7. Groundwater Monitoring

7.1 Water Level Monitoring

During the excavation period the water level must be monitored **daily** within the installed groundwater monitoring wells to ensure that excessive groundwater drawdown does not occur.

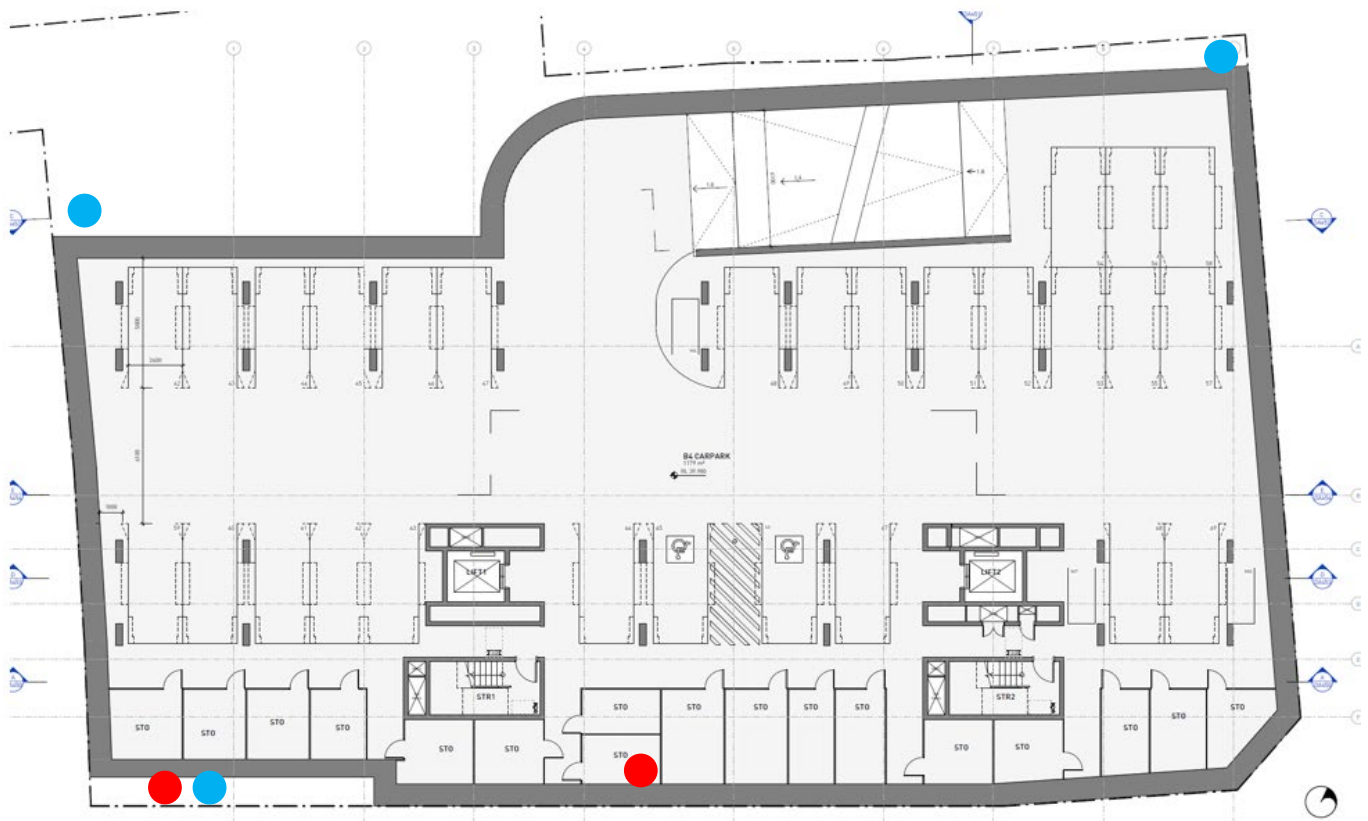


Figure 7: Groundwater level monitoring locations

- Existing Monitoring Well Location
- Proposed Monitoring Well Location

It is anticipated that the existing wells will be destroyed during excavation. Prior to excavation two additional wells must be installed as replacements.

Groundwater readings are to be taken at a minimum of three monitoring wells during construction. Due to the existing wells likely being damaged during demolition they must be replaced with a “like for like” well. “Like for like” protocols include all aspects of well construction such as well materials, screened zone, plug depth, etc. Installation details of the existing wells can be found in Section 3.1 of the MG 2026 Site Hydrogeology Report.

Prior to the commencement of bulk earthworks at least one round of monitoring should be undertaken to establish baseline readings. Pre works measurements should be forwarded to the project stakeholders outlined in **Table 5**. During the works phase readings should be taken daily until works have been completed and no further drawdown is detected.

All groundwater data is to be presented to the project geotechnical and structural engineers along with details of the monitoring visit including:

- date and time of monitoring;
- progress of works at time of monitoring;
- weather conditions during and preceding the monitoring; and
- any further comments relative to the monitoring.

Morrow Geotechnics recommends that drawdown limits are set at 3500 mm below baseline readings. Groundwater modelling showed groundwater variation of up to approximately 810 mm over the 3 month monitoring period. The finite element modelling also showed that the impacts of groundwater drawdown are negligible on neighbouring structures within the geological profile encountered at the site.

The following threshold criteria should be adopted during construction:

- **Alert:** If drawdown levels are less than 70% of the agreed value, works should continue. Monitoring should continue to be carried out at the nominated intervals and monitoring reports forwarded to the relevant stakeholders as outlined in **Table 5**.
- **Alarm:** If drawdown levels are greater than 70% but less than 100% of the agreed value, the geotechnical engineer, structural engineer and client representatives should be notified and the monitoring data reviewed. Ongoing monitoring events should continue undertaken at 24 hour intervals until notified otherwise by nominated engineers in consultation with client and WaterNSW.
- **Action:** If drawdown levels are greater than 100% of the agreed value excavation should cease immediately. The geotechnical engineer, structural engineer, WaterNSW and client representatives should be notified and work should cease until a risk management/contingency plan is implemented to safeguard neighbouring structures. Monitoring should continue daily during this period.

Table 3 Summary of Monitoring Conditions

Criteria	
Monitoring Points	Well locations as shown in Figure 7 above
Agreed Drawdown Limit	3500 mm
Alert Level	< 2450 mm
Alarm Level	2450 - 3500 mm
Action Level	> 3500 mm

7.2 Water Inflow Monitoring

Modelling of the site has shown a predicted groundwater inflow rate during construction of **114.42 kL/week**. During the excavation period the pumpout volume must be monitored to ensure that excessive groundwater extraction does not occur.

The following threshold criteria should be adopted during construction:

- **Alert (less than 11.43 kL/day):** If extraction levels are less than 70% of the agreed value, works should continue. Monitoring should continue to be carried out at the nominated intervals and monitoring reports forwarded to the relevant stakeholders as outlined in **Table 5**.
- **Alarm (11.43 to 16.34 kL/day):** If extraction levels are greater than 70% but less than 100% of the agreed value, the geotechnical engineer, structural engineer and client representatives

should be notified and the monitoring data reviewed. Ongoing monitoring events should continue undertaken at 24 hour intervals until notified otherwise by nominated engineers in consultation with client and WaterNSW.

- **Action (greater than 16.34 kL/day):** If extraction levels are greater than 100% of the agreed value excavation should cease immediately. The geotechnical engineer, structural engineer, WaterNSW and client representatives should be notified and work should cease until a risk management/contingency plan is implemented to safeguard neighbouring structures. Monitoring should continue daily during this period.

7.3 Water Quality Monitoring

During excavation works water quality samples from the discharged water must be tested according to the frequency outlined in **Table 4** below.

Water samples are to be sent to a NATA accredited laboratory for testing against council, NHMRC (2010), ANZG (2018), ANZECC (2000) and NEPM (2013) standards. Relevant water quality results are presented in **Table 8** to **Table 12** of the MG2026 report.

If analyte values exceed the published threshold values of the council, NHMRC (2010), ANZG (2018), ANZECC (2000) and NEPM (2013) guidelines for marine water systems then the geotechnical engineer structural engineer, WaterNSW and client representatives should be notified.

Initial water quality testing indicates concentrations of **Cobalt, Copper, Iron, Manganese, Nickel** and **Zinc** exceed the *marine* threshold guideline values. The **Turbidity** value of 43 NTU exceeds the ANZECC (2000) guideline value (10 NTU).

Baseline conditions at the site must be considered in preparation of a response to exceedances of NHMRC, ANZG, ANZECC and NEPM thresholds.

Table 4 List of Required Laboratory Tests and Schedule

Type	Corresponding laboratory analyses	Testing requirements	Testing Frequency
Physical Parameters	Alkalinity (bicarbonate, carbonate, hydroxide and total), electrical conductivity (EC), pH, redox potential (Eh), total dissolved solids (TDS), total hardness, temperature, dissolved oxygen (DO)	Mandatory	Daily while discharging water
Other Physical Parameters	Turbidity* (NTU), total suspended solids* (TSS), total organic carbon* (TOC), sodium absorption ratio* (SAR)	Mandatory for discharge to any receiving waters	Weekly while discharging water
Major Anions	Sulfate (SO ₄), chloride (Cl), carbonates (CO ₃), bromide (Br), fluoride (F)	Mandatory	Weekly while discharging water
Major Cations	Calcium (Ca), magnesium (Mg), sodium (Na), potassium (K)	Mandatory	Weekly while discharging water
Ionic Balance	Cation/anion balance (as a percentage)	Mandatory	Weekly while discharging water

Type	Corresponding laboratory analyses	Testing requirements	Testing Frequency
Dissolved Inorganics and Dissolved Heavy metals	Aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmium (Cd), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), manganese (Mn), mercury (Hg), molybdenum (Mo), nickel (Ni), selenium (Se), silica (dissolved SiO ₂), silver (Ag), strontium (Sr), uranium (U), vanadium (V), zinc (Zn)	Mandatory for baseline thereafter negotiable, depending on site setting unless otherwise required by another regulatory body	Weekly while discharging water
Nutrients	Ammonia (NH ₃), nitrate (NO ₃), total nitrogen (N), oxidised nitrogen (N), total phosphorus (P), reactive phosphorus (P)	Mandatory for baseline thereafter negotiable, depending on site setting unless otherwise required by another regulatory body	As specified by WaterNSW
Microbiological Organisms	Faecal coliforms, faecal streptococci, Escherichia coli	Mandatory for baseline thereafter negotiable, depending on site setting unless otherwise required by another regulatory body	As specified by WaterNSW
Organics	Benzene toluene ethylbenzene xylene (BTEX), polycyclic aromatic hydrocarbons (PAHs), total recoverable hydrocarbons (TRHs)	Mandatory for baseline thereafter negotiable, depending on site contamination status unless otherwise required by another regulatory body	As specified by WaterNSW
Other	Range of analytes relevant to site-specific contaminants of environmental concern—for example: • pesticides (OCPS, OPPs) • polychlorinated biphenyls (PCBs) • semivolatile chlorinated hydrocarbons (SVOCs) • volatile chlorinated hydrocarbons (VOCs) • chlorinated aliphatics • phenols • perfluoroalkyl and polyfluoroalkyl substances (PFAS)	As required by the NSW EPA or accredited site auditor (for properties regulated under the Contaminated Land Management Act 1997), on the advice of a specialist environmental consultant or as required by another regulatory body	As specified by WaterNSW

7.4 Contingency Measures

Contingency measures are to be determined by the project geotechnical and structural engineers in response to groundwater drawdown behaviour observed during the excavation. Possible contingency measures may include:

- Inspection of ground conditions on neighbouring sites;
- Ceasing excavation during updates to excavation support design;
- Groundwater reinjection;

- Permeation grouting to reduce the permeability of native material.

7.5 Reporting and Record Keeping

A record of groundwater taken is a condition of the **Water Supply Works Approval & Water Access Licence** (unless an exemption applies) and must be submitted when or before the approval is surrendered. The dewatering completion report must include;

- A record of metered volumes taken must be recorded either weekly or daily.
- A summary of water level measurements taken daily from monitoring bores.
- A record of water quality testing.

7.6 Project Stakeholders

Table 5 Stakeholder Contacts

Contact Person		Contact Details
Hydrogeologist/ Geotechnical Engineer	Andrew Butel Morrow Geotechnics	andy@morrowgeo.com.au 0427 357 856
WaterNSW		enquiries@waterNSW.com.au 1300 662 077

8. Management of Ongoing Discharge

Ongoing groundwater seepage has been modelled to be less than 2.64 ML/year for the service life of the structures. The design of the basement OSD and pump out system must allow for this volume of water in addition to stormwater volumes.

There are two other sources of water to the pump-out system which have been identified by the project hydraulic engineer:

1. Rainwater catchment to impermeable areas of the development.
2. Fire sprinkler pump tests.

The total volume of water which will flow into the OSD tank from rain water and fire system testing will dilute the groundwater at a sufficient rate to bring the groundwater exceedances for suspended metals to below ANZG guideline levels.

No further ongoing treatment of groundwater is necessary.

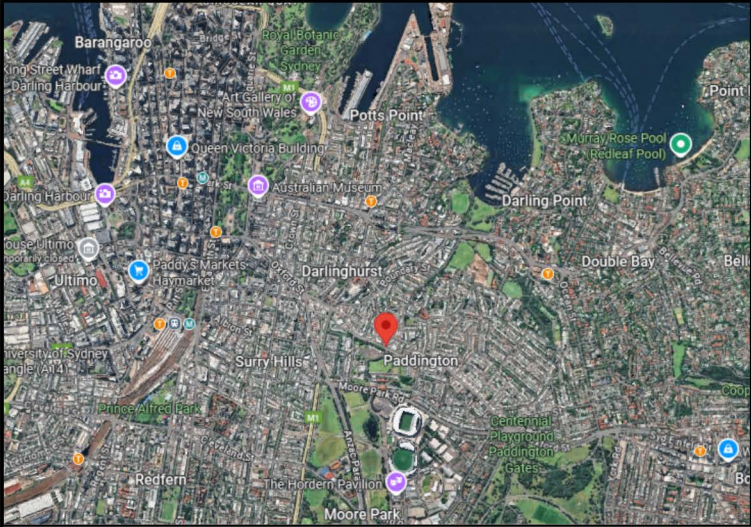
9. Conclusions and Recommendations

This development will be assessed as a State Significant Development (SSD) under the NSW Government's *Environmental Planning and Assessment Act 1979*. This report, along with the MC 2026 Site Hydrogeology Report, will be used as part of the SSD application process.

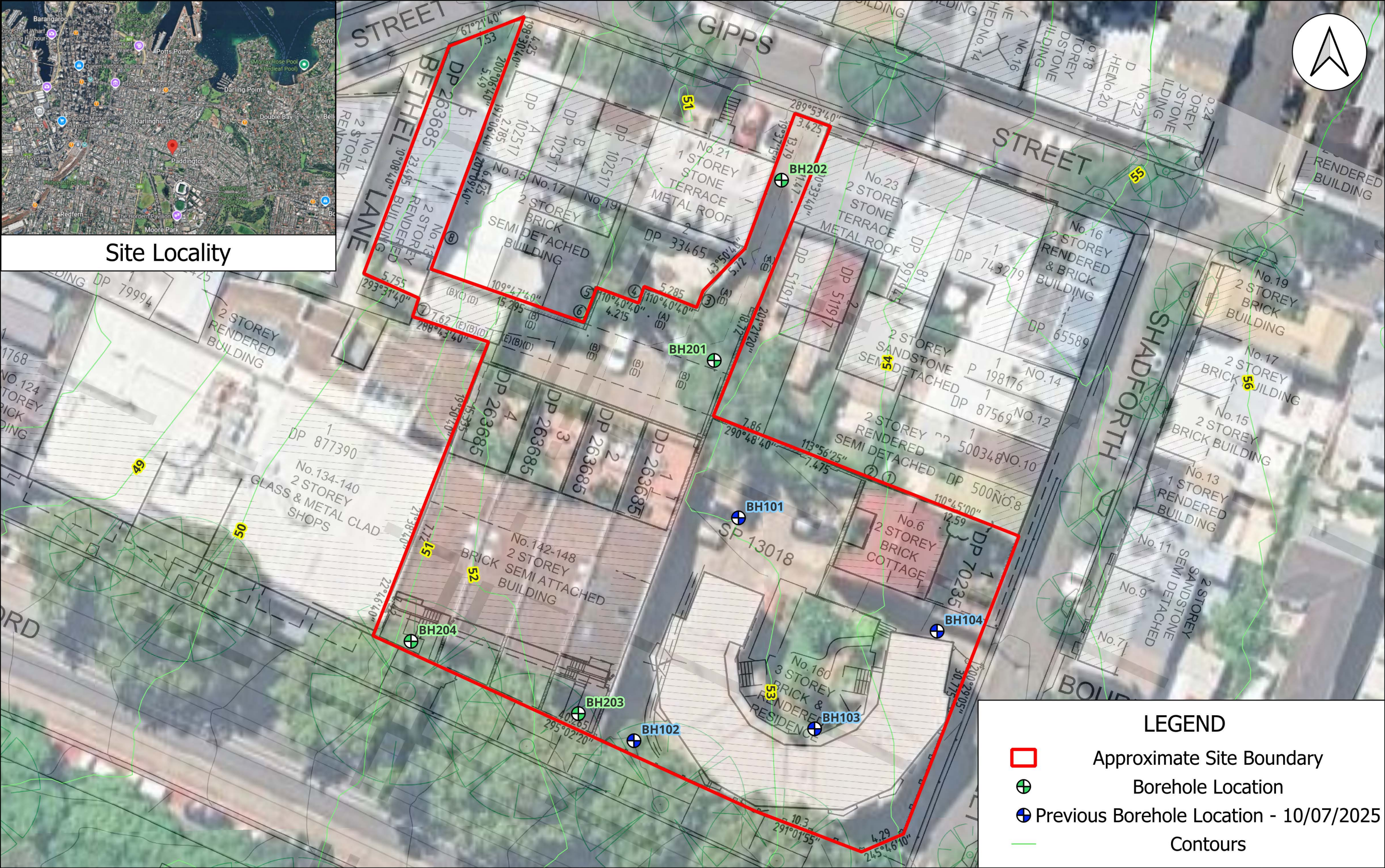
10.Statement of Limitations

The advice and parameters presented in this Groundwater Management Plan are for assessment of the expected groundwater seepage based upon the proposed development and encountered site conditions at the investigation locations.

We draw your attention to the document "Important Information", which is attached to this letter. The statements presented in this document are intended to advise you of what your realistic expectations of this report should be. The document is not intended to reduce the level of responsibility accepted by Morrow Geotechnics, but rather to ensure that all parties who may rely on this report are aware of the responsibilities each assumes in so doing.



Site Locality



LEGEND

- Approximate Site Boundary
- ⊕ Borehole Location
- ⊕ Previous Borehole Location - 10/07/2025
- Contours

NOTE:
1. Drawing projection in GDA2020 / MGA zone 56, adapted from aerial imagery from "SIX Maps", accessed 14/10/2025.
2. Elevation data sourced from ELVIS - Elevation and Depth - Foundation Spatial Data Framework, accessed 14/10/2025, provided by Geoscience Australia and NSW Government – Spatial Services.

010203040 m

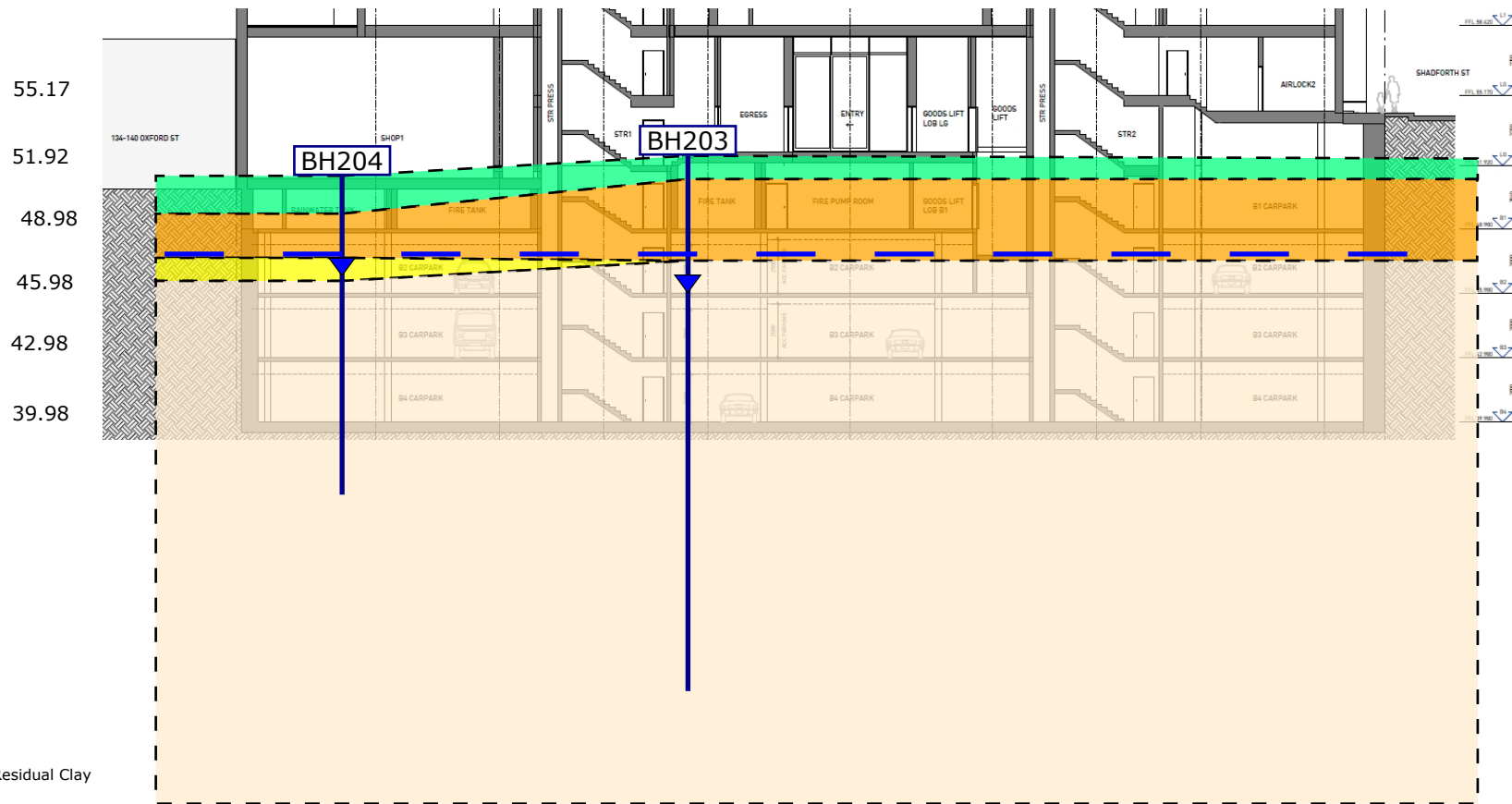
Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

DRAWN BY:	OAP
Approved:	KS
Date:	14/10/2025

Toohy Miller Pty Ltd

Geotechnical Investigation
142-160 Oxford Street, 13 Gipps Street & 6
Shadeforth Street, Paddington NSW
Borehole Location Plan

Drawing:	1
Project:	P3569
Revision:	0



- Unit 1/2 - Fill/Residual Clay
- Unit 3 - Class V Sandstone
- Unit 4 - Class IV Sandstone
- Unit 5 - Class III Sandstone
- Unit 6 - Class II Sandstone

▼ Average Groundwater Level (BH202 - 48.66 mAHD, BH203 - 46.02 mAHD, BH204 - 46.85 mAHD)

— — — Design Groundwater Level (BH202 - 49.40 mAHD, BH203 - 47.80 mAHD, BH204 - 47.80 mAHD)

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79/6 Bellambi Lane, Bellambi NSW 2518

P: 02 8599 7579 | E: info@morrowgeo.com.au

Project
Geotechnical Investigation

Project Address
**142-160 Oxford Street, 13 Gipps Street & 6
Shadforth Street, Paddington NSW**

Drawing Title
Section 1

Client
Springland Developments Pty Ltd

Project Number
P3569

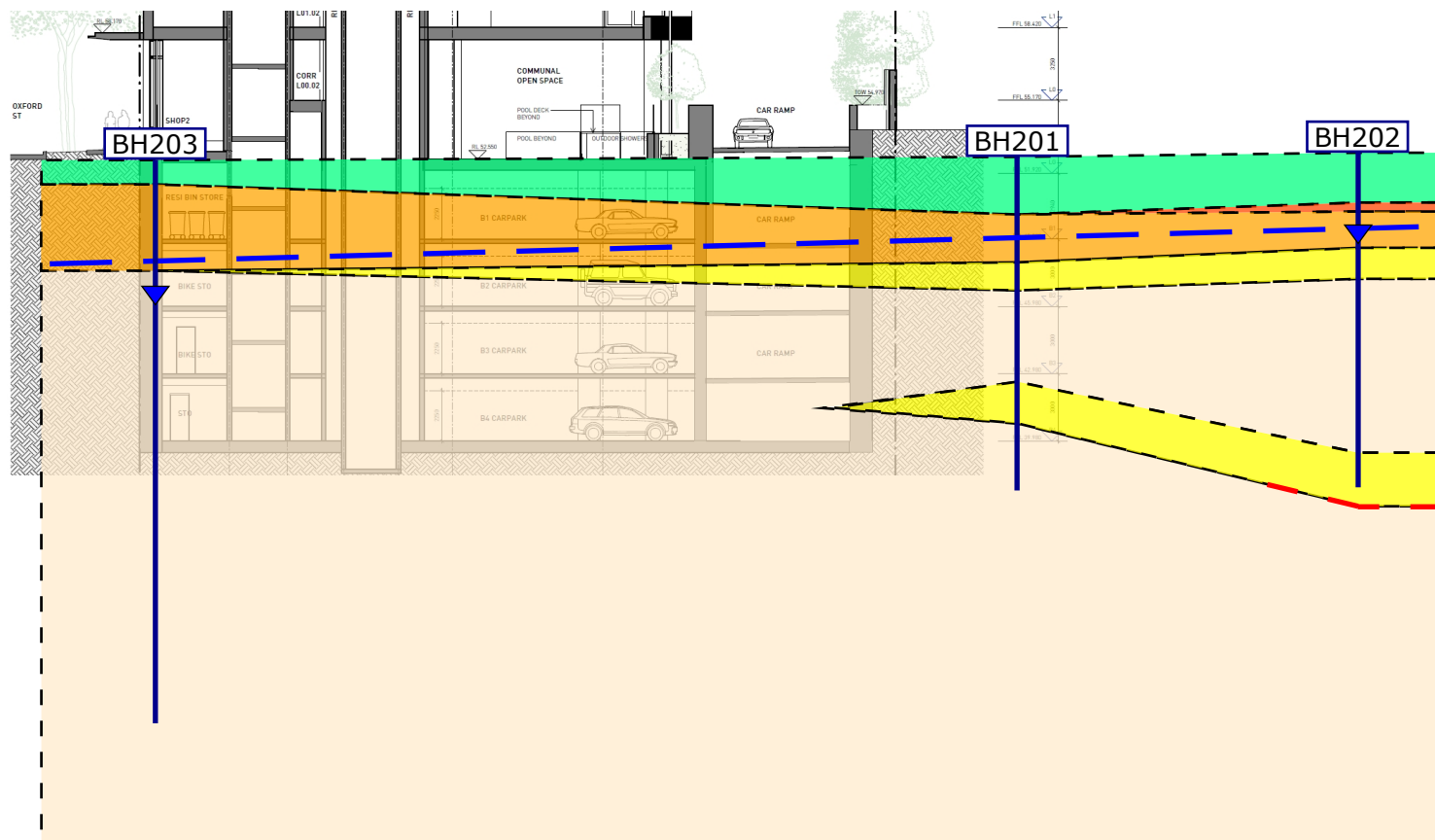
Figure

1

Scale:
Not To Scale

Drawn By:
AB

Date:
26 February 2026



- Unit 1/2 - Fill/Residual Clay
- Unit 3 - Class V Sandstone
- Unit 4 - Class IV Sandstone
- Unit 5 - Class III Sandstone
- Unit 6 - Class II Sandstone

Average Groundwater Level (BH202 - 48.66 mAHD, BH203 - 46.02 mAHD, BH204 - 46.85 mAHD)

Design Groundwater Level (BH202 - 49.40 mAHD, BH203 - 47.80 mAHD, BH204 - 47.80 mAHD)

Inferred Unit Boundary

morrow

2/5-7 Malta Street, Fairfield East NSW 2165

79/6 Bellambi Lane, Bellambi NSW 2518

P: 02 8599 7579 | E: info@morrowgeo.com.au

Project
Geotechnical Investigation

Project Address
**142-160 Oxford Street, 13 Gipps Street & 6
Shadforth Street, Paddington NSW**

Drawing Title
Section 2

Client
Springland Developments Pty Ltd

Project Number
P3569

Figure

Scale:
Not To Scale

Drawn By:
AB

Date:
26 February 2026

2

APPENDIX A

**BOREHOLE LOGS, EXPLANATORY NOTES AND SITE
PHOTOS**



Morrow Geotechnics

Sydney Gadigal Land: 2/5-7 Malta Steet, Fairfield East NSW 2155

Phone: 02 8599 7579

Geotechnical Log - Borehole

BH101

UTM	: 56H	Excavator	: Hand Tools	Job Number	: P3569
Easting (m)	: 335696.45	Excavator Supplier	: MG	Client	: Toohey Miller
Northing (m)	: 6249306.20	Logged By	: Omer Turkarslan	Project	: Paddington
Ground Elevation	: 53.4 (m)	Reviewed By	: Ozzie Baskan	Location	: 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth	: 0.4 m BGL	Date	: 07/07/2025	Loc Comment	:

Drilling Method	Water	Testing	Elevation Depth (m)	Material Type	Graphic Log	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
			53.3	Non-Soil		CCT	Non-Soil - Concrete	0.1			
★Hand Auger▲			0.1	FILL		FILL	GRAVELLY SANDY CLAY medium plasticity, fine to medium grained sand, brown, pale brown and pale grey, trace silt, w < pl.				w < PL
							BH101 Refusal at 0.4 m (on sandstone bedrock)				



Morrow Geotechnics

Sydney Gadigal Land: 2/5-7 Malta Steet, Fairfield East NSW 2155
Phone: 02 8599 7579

Geotechnical Log - Borehole

BH102

UTM	: 56H	Excavator	: Hand Tools	Job Number	: P3569
Easting (m)	: 335686.15	Excavator Supplier	: MG	Client	: Toohey Miller
Northing (m)	: 6249284.41	Logged By	: Omer Turkarslan	Project	: Paddington
Ground Elevation	: 52.6 (m)	Reviewed By	: Ozzie Baskan	Location	: 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, N
Total Depth	: 0.4 m BGL	Date	: 07/07/2025	Loc Comment	:

Drilling Method	Water	Testing	Elevation Depth (m)	Material Type	Graphic Log	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
			52.5 0.1	Non-Soil		CCT	Non-Soil - Concrete	0.1			
Hand Auger				FILL		FILL	GRAVELLY SANDY CLAY medium plasticity, fine to medium grained sand, brown and pale brown, trace silt, w < pl.				w < PL
							BH102 Refusal at 0.4 m (on sandstone bedrock)				



Morrow Geotechnics

Sydney Gadigal Land: 2/5-7 Malta Steet, Fairfield East NSW 2155

Phone: 02 8599 7579

Geotechnical Log - Borehole

BH103

UTM : 56H Excavator : Hand Tools Job Number : P3569
Easting (m) : 335701.78 Excavator Supplier : MG Client : Toohey Miller
Northing (m) : 6249284.62 Logged By : Omer Turkarslan Project : Paddington
Ground Elevation : 55.3 (m) Reviewed By : Ozzie Baskan Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, N
Total Depth : 1.4 m BGL Date : 07/07/2025 Loc Comment :

Drilling Method	Water	Testing	Elevation Depth (m)	Material Type	Graphic Log	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
		DCP									
Hand Auger		0	55.1	TOPSOIL		CI-CH	GRAVELLY SANDY CLAY medium to high plasticity, fine to medium grained sand, brown, pale brown and pale grey, trace silt, w < pl.	0.2			w < PL
		3									
		15	0.2	FILL		FILL	GRAVELLY SANDY CLAY stiff to very stiff, medium plasticity, fine to medium grained sand, brown, pale brown and pale grey, trace silt, with cobble size gravel (<70mm), w < pl.	0.5			w < PL
		5									
		2									
		14									
		6									
		3									
		1									
		1									
		1									
		2									
		3									
		2									
		5					BH103 Refusal at 1.4 m				
		2									
		3									
		8									
		4									
		13									
		11									
		12									
		+25									

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335686.34	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249317.07	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.67(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.15 m	Date : 13/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Testing	Elevation Depth (m)	Graphic Log	Material Type	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
			SPT									
				52.5		Non-Soil	CCT	Pavement Concrete 200mm.	0.2			
				0.2				FILL GRAVELLY SAND: medium dense, poorly graded, medium to coarse grained, medium to coarse sized gravel, black and grey, dry, high resistance.				
						FILL	FILL			MD		D
									1.0			
									2.0			
									2.6			
			7,10,7 (N=17)	50.1								
				2.6		Residual	CL	SANDY CLAY: stiff, low plasticity, fine grained sand, pale grey, w < pl.	2.7	St		w < PL
				50.0								
				2.7				Commenced Coring at 2.7 m				

Job Number : P3569
Client : Toohy Miller
Project : Paddington
Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street,
Loc Comment :

NMLC Coring

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335686.34	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249317.07	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.67(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.15 m	Date : 13/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
			48.7										
			4.0		SST	SANDSTONE: moderately weathered, low to medium strength, pale grey and orange, fine grained, distinct bedding fabric.	4.0	MW			RQD = 71.7391 % TCR = 100%		4.03, P, 5°, PL, RO, CL, OP
	Outflow - 100%		48.1				4.55		D: 0.25, A: 0.35				4.48, P, 2°, PL, RO, STN, OP
			4.5		CL	Core Loss Core Loss 190mm.							4.5, P, 2°, PL, RO, STN, OP
			47.9				4.74						4.55-4.74, CORELOSS, 5°, PL, RO, CL, OP
			4.7		SST	SANDSTONE: moderately weathered, low to medium strength, pale grey and orange, fine grained, distinct bedding fabric.		MW					4.76, P, 5°, PL, RO, STN, OP
	Outflow - 100%		47.7				5.0		D: 0.32, A: 0.49		RQD = 84.93% TCR = 86.99%		
			5.0			SANDSTONE: slightly weathered, medium strength, pale grey and pale brown, fine to medium grained, indistinct bedding fabric, oriented 1-10.							
							6.0		D: 0.69, A: 0.68				5.95, P, 5°, PL, RO, CL, OP
													5.98, P, 5°, PL, RO, STN, OP
													6.24, P, 2°, PL, RO, CL, OP
					SST			SW					
							7.0		D: 0.82, A: 1.16		RQD = 98.36% TCR = 100%		
	Outflow - 100%												7.53, P, 5°, UN, RO, CL, OP
													7.53, P, 5°, UN, RO, CL, OP

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335686.34	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249317.07	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.67(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 15.15 m	Date : 13/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
			44.7		SST	SANDSTONE: slightly weathered, high strength, pale grey and pale brown, medium grained, distinct bedding fabric, oriented 1-10.	8	SW		Very Low Low Medium High Very High Extremely High	RQD = 98.36% TCR = 100%		8.03, P, 5°, PL, RO, CL, OP
			8.0						D: 1.01, A: 1.08				
			43.6				9.0						
			9.1				9.05		D: 0.71, A: 1.53				
			42.9				9.75						
			9.8				10.0		D: 1.01, A: 1.67				
			41.7		LAM	LAMINITE: slightly weathered, medium strength, pale grey and dark grey, fine to medium grained, distinct lamination fabric, oriented 1-5.	10.95	SW		Very Low Low Medium High Very High Extremely High	RQD = 77.53% TCR = 100%		9.47-9.52, JT, 30°, UN, RO, STN, OP 9.7, P, 5°, PL, RO, STN, OP 9.74-10, JT, 90°, PL, RO, CL, OP 10.15, P, 5°, PL, RO, STN, OP 10.47, P, 5°, PL, RO, STN, OP 10.8, P, 5°, PL, RO, STN, OP 10.95, CS, 5°, PL, RO, STN, OP 11.15, P, 5°, PL, RO, CT, OP, clay 11.2, P, 5°, PL, RO, CT, OP, clay 11.29-11.3, XWS 11.3-11.6, XWS
			10.9				11.0		D: 1.00, A: 0.56				
			41.1				11.6						
			11.6										
					SST	SANDSTONE: moderately to slightly weathered, medium to high strength, pale grey and pale orange, fine to medium grained.		MW-SW			RQD = 74.8466% TCR = 100%		

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335686.34	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249317.07	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.67(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth : 15.15 m	Date : 13/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
 NMLC Coring	 Outflow - 100%				SST	SANDSTONE: moderately to slightly weathered, medium to high strength, pale grey and pale orange, fine to medium grained. (continued)		MW-SW	D: 0.90, A: 1.09	Very Low Low Medium High Very High Extremely High	RQD = 74.8466 % TCR = 100%		12-12.1, CRF
			39.7 13.0			As above, but: high strength, medium to coarse grained.	13.0		D: 1.22, A: 1.27				12.85-12.95, JT, 90°, PL, RO, CL, OP
 Outflow - 100%					SST		14.0	MW-SW	D: 1.14, A: 1.81	Very Low Low Medium High Very High Extremely High	RQD = 91.36% TCR = 100%		13.5, P, 5°, PL, RO, CL, OP 13.57, P, 5°, PL, RO, CT, OP, clay
							15.0		D: 0.98, A: 1.39				14, P, 5°, PL, RO, CL, OP 14.43, P, 5°, PL, RO, CT, OP 14.65, P, 5°, PL, RO, CT, OP, clay 14.74, P, 5°, PL, RO, CL, OP
						BH201 Reached Target Depth at 15.15 m							

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford street, Paddington NSW

JOB NUMBER: P3569

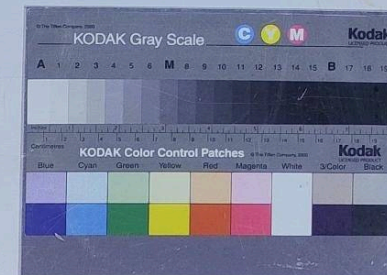
LOGGED BY: JA

BOREHOLE ID: BH201

DEPTH: 2.7m - 7.0m

CORE TRAY NO.: 1

DATE: 13/10/25



morrow

Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH201 Box 1 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH201

BH Depth

2.7m to 7.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford Street, Paddington NSW

JOB NUMBER: P3569

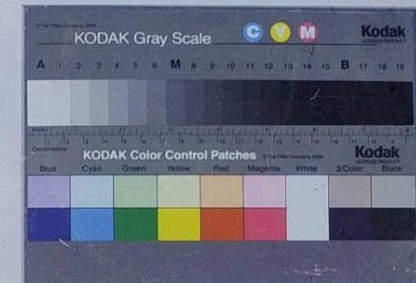
LOGGED BY: JA

BOREHOLE ID: BH201

DEPTH: 7.0m - 12.0m

CORE TRAY NO.: 2

DATE: 13/10/25



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2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH201 Box 2 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH201

BH Depth

7.0m to 12.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford street, Paddington NSW

JOB NUMBER: P3569

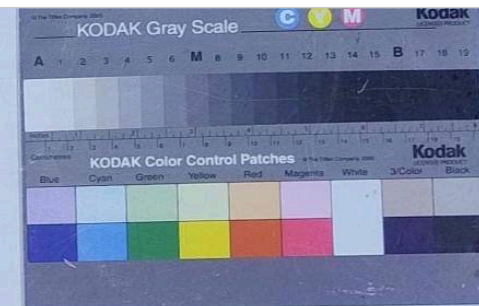
LOGGED BY: JA

BOREHOLE ID: BH201

DEPTH: 12.0m - 15.0m

CORE TRAY NO.: 3

DATE: 13/10/25



morrow

Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH201 Box 3 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH201

BH Depth

12.0m to 15.0m

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335697.62	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249340.21	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.74(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.17 m	Date : 14/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Testing	Elevation Depth (m)	Graphic Log	Material Type	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
			SPT									
				52.6 0.1		Non-Soil	CCT	Pavement Concrete 110mm.	0.11			
						FILL	FILL	FILL GRAVEL: very loose, poorly graded, angular, coarse sized, Construction waste(bricks).		VL		
				51.4 1.3		Residual	SC	CLAYEY SAND: medium dense, well-graded, fine grained, medium plasticity clay, white and orange, wet, low resistance.	1.3			
			0,0,16 (N=16)						2.0	MD		W
				50.4 2.3		Rock	SST	SANDSTONE (XW): Sandy Clay - stiff, pale grey and orange, medium plasticity, fine grained sand, high resistance.	2.3	St	XW	W
								Commenced Coring at 2.6 m	2.6			

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335697.62	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249340.21	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.74(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.17 m	Date : 14/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing		RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)	Estimated Strength Very Low Low Medium High Very High Extremely High			
		A											
							1.0						
							2.0						
						Commenced Coring at 2.6 m							
			50.0 2.7		SST	SANDSTONE (XW): Sandy Clay - stiff, pale grey and orange, medium plasticity, fine grained sand, high resistance. SANDSTONE: highly weathered, low strength, pale grey and orange red, fine grained.	2.7						2.6-2.7, XWS
							3.0		D: 0.45, A: 0.35		RQD = 57.5% TCR = 100%		2.75, P, 2", PL, RO, STN, OP 2.76, P, 2", PL, RO, STN, OP
					SST			HW	D: 0.16, A: 0.15				3.16, P, 2", PL, RO, STN, OP
									D: 0.22, A: 0.19		RQD = 93.4783 % TCR = 100%		

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335697.62	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249340.21	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.74(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.17 m	Date : 14/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
			48.4		SST	SANDSTONE: highly weathered, low strength, pale grey and orange red, fine grained. (continued)	4.35	HW			RQD = 93.4783 % TCR = 100%		4.18, P, 2°, PL, RO, STN, OP 4.25-4.26, P, 10°, CV, RO, STN, OP 4.28, P, 2°, PL, RO, STN, OP
			47.4		SST	SANDSTONE: slightly to fresh weathered, low to medium strength, pale grey, fine to medium grained, oriented 1-10.	5.0	SW-F	D: 0.30, A: 0.53				4.49, P, 2°, PL, RO, CL, OP
			47.4		SST	SANDSTONE: slightly to fresh weathered, medium strength, pale grey, fine to medium grained, oriented 1-10.	5.3	SW-F	D: 0.52, A: 0.52				4.85-4.87, IS, clay
			46.7		SST	SANDSTONE: fresh weathered, medium strength, pale grey, medium grained, oriented 1-10.	6.4		D: 1.00, A: 1.11				5.65, P, 10°, PL, RO, CL, OP 5.75, P, 5°, PL, RO, CL, OP
			46.7		SST	SANDSTONE: fresh weathered, medium strength, pale grey, medium grained, oriented 1-10.	7.0	F	D: 0.85, A: 1.08				

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335697.62	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249340.21	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.74(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.17 m	Date : 14/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing		Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)					
					SST	SANDSTONE: fresh weathered, medium strength, pale grey, medium grained, oriented 1-10. (continued)		F	D: 1.07, A: 1.05		Very Low Low Medium High Very High Extremely High	RQD = 100% TCR = 100%	30 100 300 1000 3000	
			42.5 10.2				9.0 10.0 10.2	F	D: 1.32, A: 1.62			RQD = 97.76% TCR = 100%		8.76, P, 5°, PL, RO, CT, OP, clay
			41.7 11.0			SANDSTONE: fresh weathered, high strength, pale grey and dark grey, medium grained, generally massive with shale lenses.	10.2 11.0	F	D: 1.77, A: 1.78					10.55-10.59, XWS, clay
						SANDSTONE: fresh weathered, high strength, pale grey, medium grained, generally massive.	11.0 15.17	F	D: 1.27, A: 1.66			RQD = 96.52% TCR = 100%		

UTM : 56H	Driller Rig : Christie Rig	Job Number : P3569
Easting : 335697.62	Driller Supplier : BG Drilling	Client : Toohey Miller
Northing : 6249340.21	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.74(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth : 15.17 m	Date : 14/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
NMLC Coring	Outflow - 0%	50mm PVC Slotted			SST	SANDSTONE: fresh weathered, high strength, pale grey, medium grained, generally massive. (continued)		F	D: 1.50, A: 1.28	Very Low Low Medium High Very High Extremely High	RQD = 96.52% TCR = 100%	30 100 300 1000 3000	12, P, 3°, PL, RO, CL, OP
			D: 1.27, A: 1.54				12.1, P, 3°, PL, RO, CL, OP						
							13.0		D: 2.33, A: 1.98				13.62, P, 3°, PL, RO, CL, OP
							14.0						13.8, P, 10°, PL, RO, CT, OP, clay
													13.9, P, 3°, PL, RO, CL, OP
													13.98, P, 3°, PL, RO, CL, OP
													14, P, 3°, PL, RO, CL, OP
													14.05-14.06, P, 10°, PL, RO, CL, OP
													14.19-14.2, P, 10°, PL, RO, CL, OP
													14.56-14.57, P, 10°, PL, RO, CL, OP
											RQD = 100% TCR = 100%		14.74, P, 10°, PL, RO, CL, OP
													14.9, P, 5°, PL, RO, CL, OP
									D: 2.11, A: 2.18				15, P, 5°, PL, RO, CL, OP
						BH202 Reached Target Depth at 15.17 m							

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford Street, Paddington NSW

JOB NUMBER: P3569

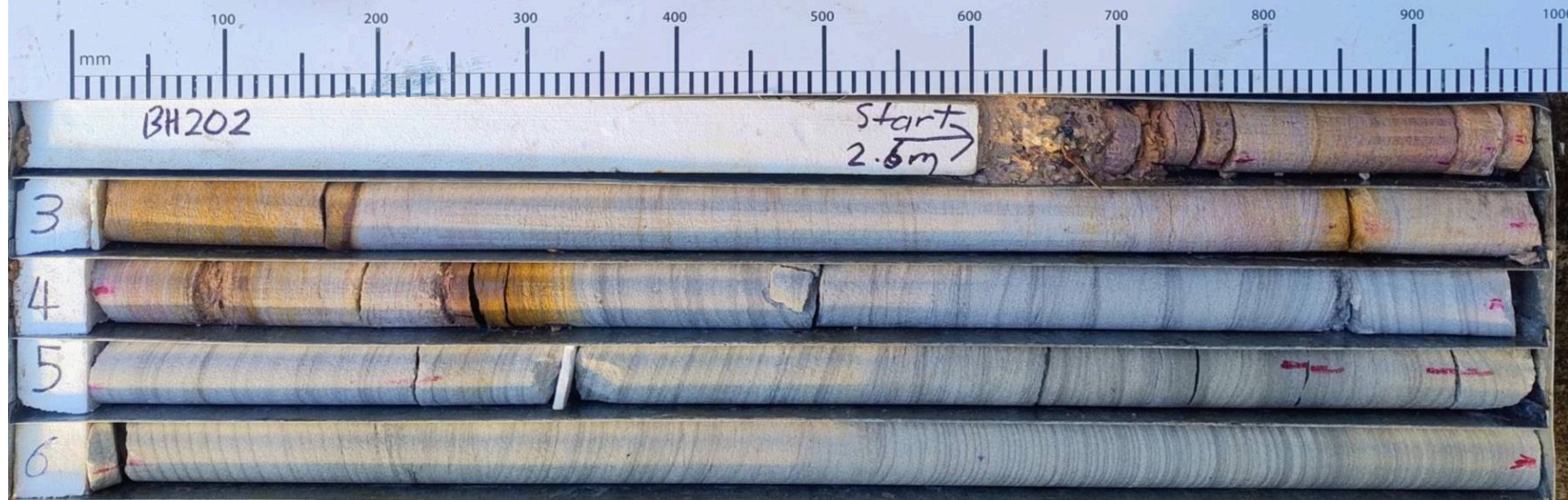
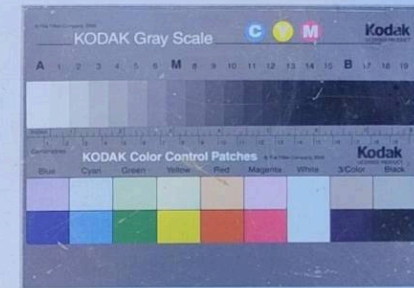
LOGGED BY: JA

BOREHOLE ID: BH202

DEPTH: 2.6m - 7.0m

CORE TRAY NO.: 1

DATE: 14/10/25



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79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH202 Box 1 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH202

BH Depth

2.60m to 7.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford Street, Paddington NSW

JOB NUMBER: P3569

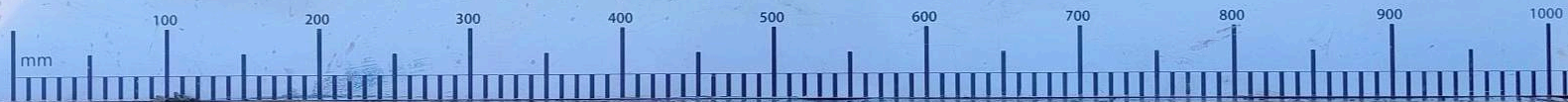
LOGGED BY: JA

BOREHOLE ID: BH202

DEPTH: 7.0m - 12.0m

CORE TRAY NO.: 2

DATE: 14/10/25



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2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH202 Box 2 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH202

BH Depth

7.0m to 12.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160 - 142 Oxford Street, Paddington NSW

JOB NUMBER: P3569

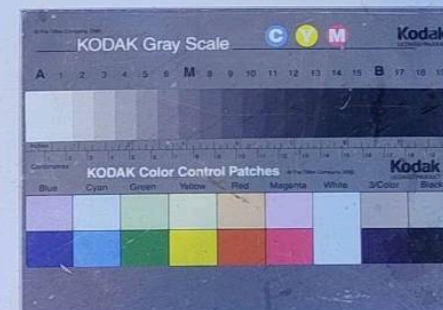
LOGGED BY: JA

BOREHOLE ID: BH202

DEPTH: 12.0m - 15.17m

CORE TRAY NO.: 3

DATE: 14/10/25



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2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH202 Box 3 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

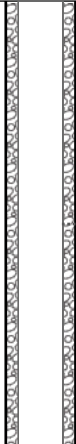
BH No

BH202

BH Depth

12.0m to 15.17m

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Testing	Elevation Depth (m)	Graphic Log	Material Type	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
Hand Auger		BH203 		52.2		TOPSOIL	SM	SILTY SAND: loose, poorly graded, fine grained, brown and black, dry, no resistance.	0.3	L		D
				52.0		FILL	FILL	FILL GRAVELLY SAND: loose, poorly graded, fine grained, medium to coarse sized gravel, pale grey and brown, with silt, dry, low resistance.	0.5	L		D
Diatube				51.4		Non-Soil	CCT	Pavement Concrete.	1.0			
				1.1				Commenced Coring at 1.15 m	1.15			

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
		BH203											
						Commenced Coring at 1.15 m	1.0						
			51.3		SST	SANDSTONE: highly weathered, very low to low strength, red and orange, fine grained, indistinct bedding fabric, dry, high resistance. Core Loss Core Loss. SANDSTONE: highly weathered, low strength, pale grey and red orange, fine to medium grained, distinct bedding fabric, oriented 1-10.	1.2	HW					
			1.2		CL		1.35						1.2-1.35, CORELOSS
			51.2										1.43-1.44, P, 20°, PL, RO, STN, OP 1.47, P, 10°, PL, RO, STN, OP 1.5, P, 2°, PL, RO, CL, OP
			1.4						D:0.05, A:0.25				
					SST		2.0	HW	D:0.06, A:0.20				1.77, P, 5°, PL, RO, STN, OP 1.9, P, 5°, PL, RO, STN, OP
									D:0.11, A:0.19				2.6, P, 5°, PL, RO, STN, OP
													2.74-2.75, P, 10°, PL, RO, STN, OP
													2.94, P, 2°, PL, RO, STN, OP 2.96, P, 2°, PL, RO, STN, OP 2.98, P, 2°, PL, RO, STN, OP
			49.4			SANDSTONE: highly weathered, low strength, pale grey and orange red, fine grained, indistinct bedding fabric, dry, oriented 1-10.	3.0		D:0.33, A:2.80				
			3.1		SST		3.1	HW					3.42-3.43, P, 10°, PL, RO, STN, OP
									D:0.21, A:0.37				3.68, P, 2°, PL, RO, STN, OP

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description
			Depth (m)						Is(50)				
NMLC Coring													

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
			42.5 10.0		SST	SANDSTONE: slightly to fresh weathered, medium strength, pale grey and grey, medium grained, distinct bedding fabric, oriented 1-10. (continued)	9.0	SW-F	D:0.84, A:1.03		RQD = 100% TCR = 100%		
									D:0.67, A:1.00				
			10.0			SANDSTONE: slightly weathered, medium to high strength, pale grey, fine to medium grained, distinct bedding fabric, oriented 1-10°, with carbonaceous inclusions.	10.0		D:0.70, A:1.30		RQD = 90.48% TCR = 100%		10.4, P, 5°, UN, RO, CL, OP 10.48-10.49, P, 10°, UN, RO, CL, OP
			11.0		SST		11.0	SW	D:0.28, A:1.05		RQD = 98.75% TCR = 100%		11.19, P, 2°, UN, RO, CL, OP 11.33, P, 2°, UN, RO, CL, OP

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
			40.5				12						
			12.0			SANDSTONE: slightly to fresh weathered, high strength, pale grey and grey, medium grained, distinct bedding fabric, oriented 1-10.			D:1.25, A:1.40		RQD = 98.75% TCR = 100%		
	Outflow - 100%												
							13.0		D:1.23, A:1.41		RQD = 100% TCR = 100%		
	Outflow - 100%												
					SST			SW-F					
							14.0		D:0.67, A:1.29		RQD = 100% TCR = 100%		
	Outflow - 50%	50mm PVC Slotted											
							15.0		D:0.61, A:1.00		RQD = 100% TCR = 100%		
			37.1			SANDSTONE: moderately to slightly weathered, high strength, orange and pale grey, medium to coarse grained.	15.45				RQD = 100% TCR = 100%		
			15.4		SST			MW-SW					

Job Number : P3569
Client : Toohey Miller
Project : Paddington
Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street,
Loc Comment :

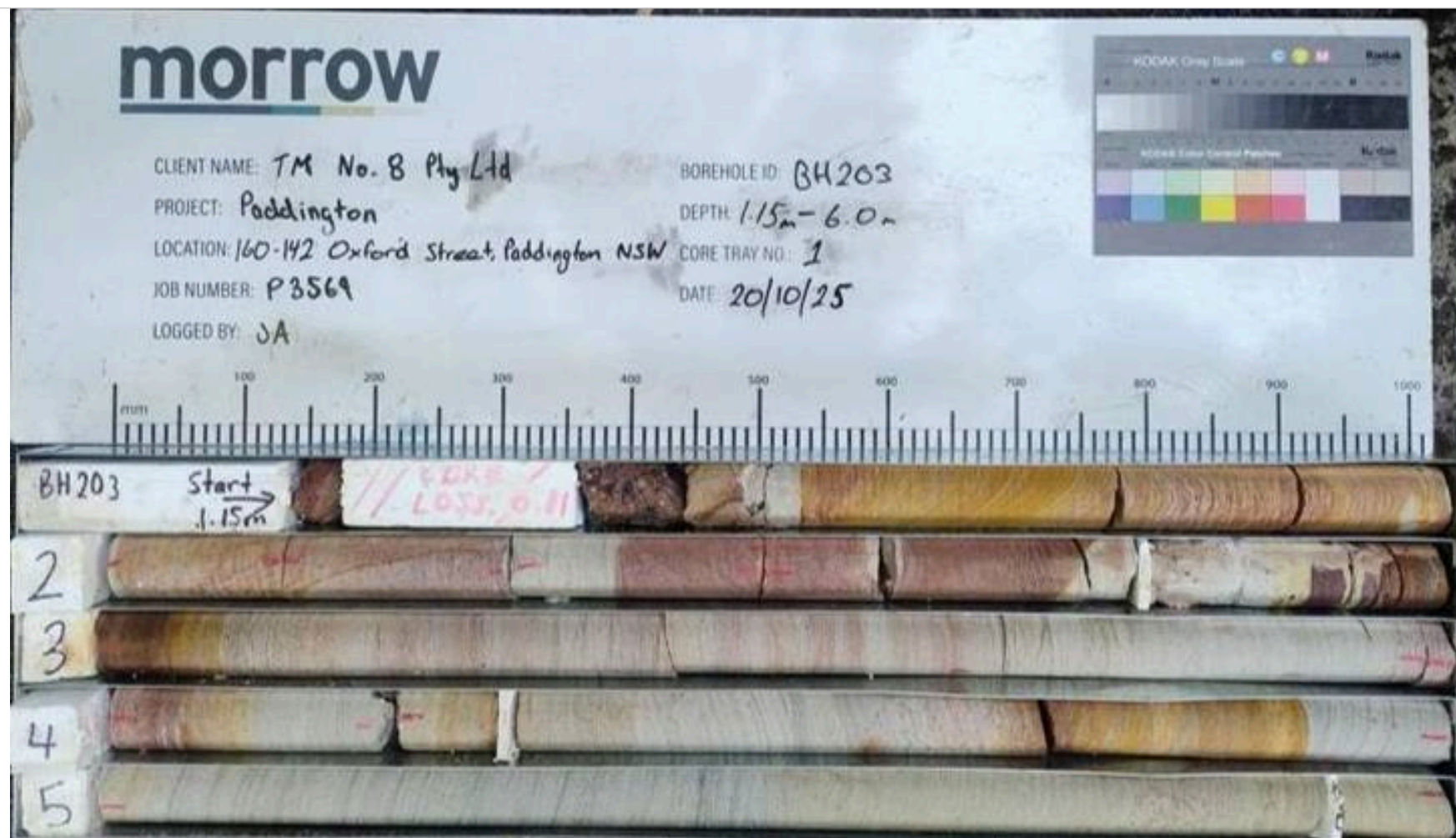
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UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
NMLC Coring	Outflow - 30%	50mm PVC Slotted			SST	SANDSTONE: moderately to slightly weathered, high strength, orange and pale grey, medium to coarse grained. (continued)		MW-SW	D:1.86, A:2.02	Very Low Low Medium High Very High Extremely High	RQD = 100% TCR = 100%	30 100 300 1000 3000	
			31.2		SST	SANDSTONE: slightly to fresh weathered, high strength, pale grey and grey, medium grained, distinct bedding fabric, oriented 1-10.	21.0	SW-F	D:1.45, A:1.95		RQD = 100% TCR = 100%	30 100 300 1000 3000	20.65, P, 2°, PL, RO, CL, OP
			21.3				21.3						
	Outflow - 30%						22.0		D:1.42, A:1.43				
							23.0		D:1.82, A:1.71				
											RQD = 100% TCR = 100%		

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335681.56	Driller Supplier : Geoassist Pty Ltd	Client : Toohey Miller
Northing : 6249285.82	Logged By : Jordan Andonoski	Project : Paddington
RL : 52.52(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, P
Total Depth : 25.53 m	Date : 20/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
		50mm PVC Slotted			SST	SANDSTONE: slightly to fresh weathered, high strength, pale grey and grey, medium grained, distinct bedding fabric, oriented 1-10. (continued)	25.0	SW-F	D:1.63, A:1.43		RQD = 100% TCR = 100%		24.11, P, 7°, PL, RO, CL, OP
									D:1.05, A:1.39				
						BH203 Reached Target Depth at 25.53 m							



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 79/6 Bellambi Lane, Bellambi NSW 2518
 E: info@morrowgeo.com.au
 P: 02 8599 7579

Photo description

BH203 Box 1 of 5

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH203

BH Depth

1.15m to 6.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

BOREHOLE ID: BH203

PROJECT: Paddington

DEPTH: 6.0m - 11.0m

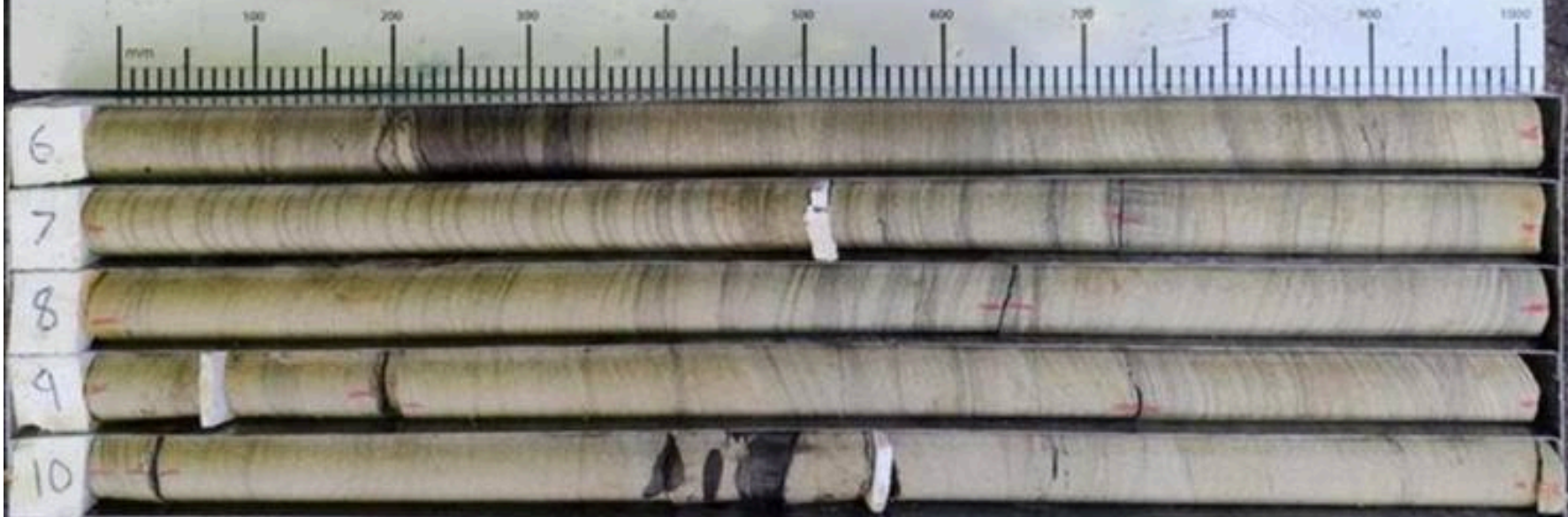
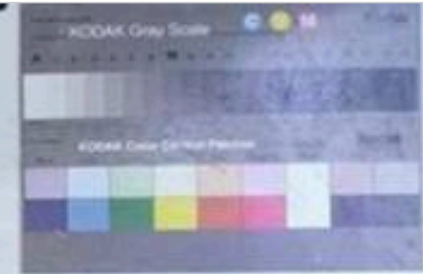
LOCATION: 160-142 Oxford Street, Paddington NSW

CORE TRAY NO: 2

JOB NUMBER: P3569

DATE: 20/10/25

LOGGED BY: JA



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E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH203 Box 2 of 5

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH203

BH Depth

6.0m to 11.0m

morrow

CLIENT NAME: TM No. 8 Pty Ltd

PROJECT: Paddington

LOCATION: 160-142 Oxford Street, Paddington NSW

JOB NUMBER: P3569

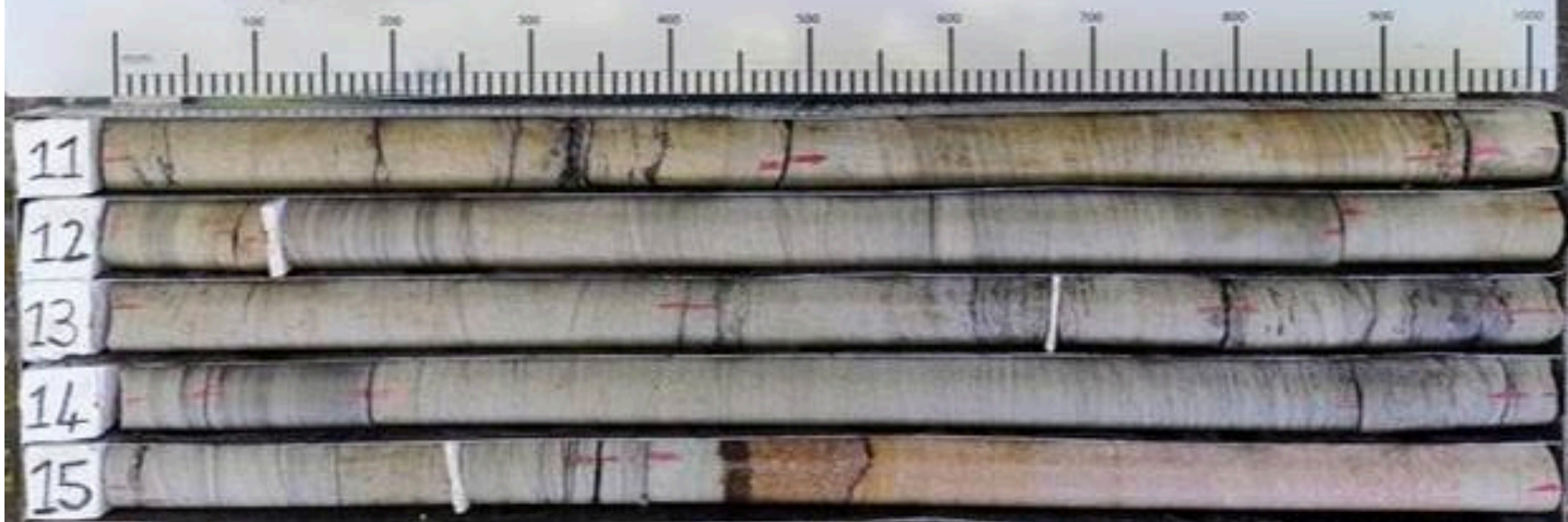
LOGGED BY: JA

BOREHOLE ID: BH203

DEPTH: 11.0m - 16.0m

CORE TRAIL NO: 3

DATE: 20/10/25



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79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH203 Box 3 of 5

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

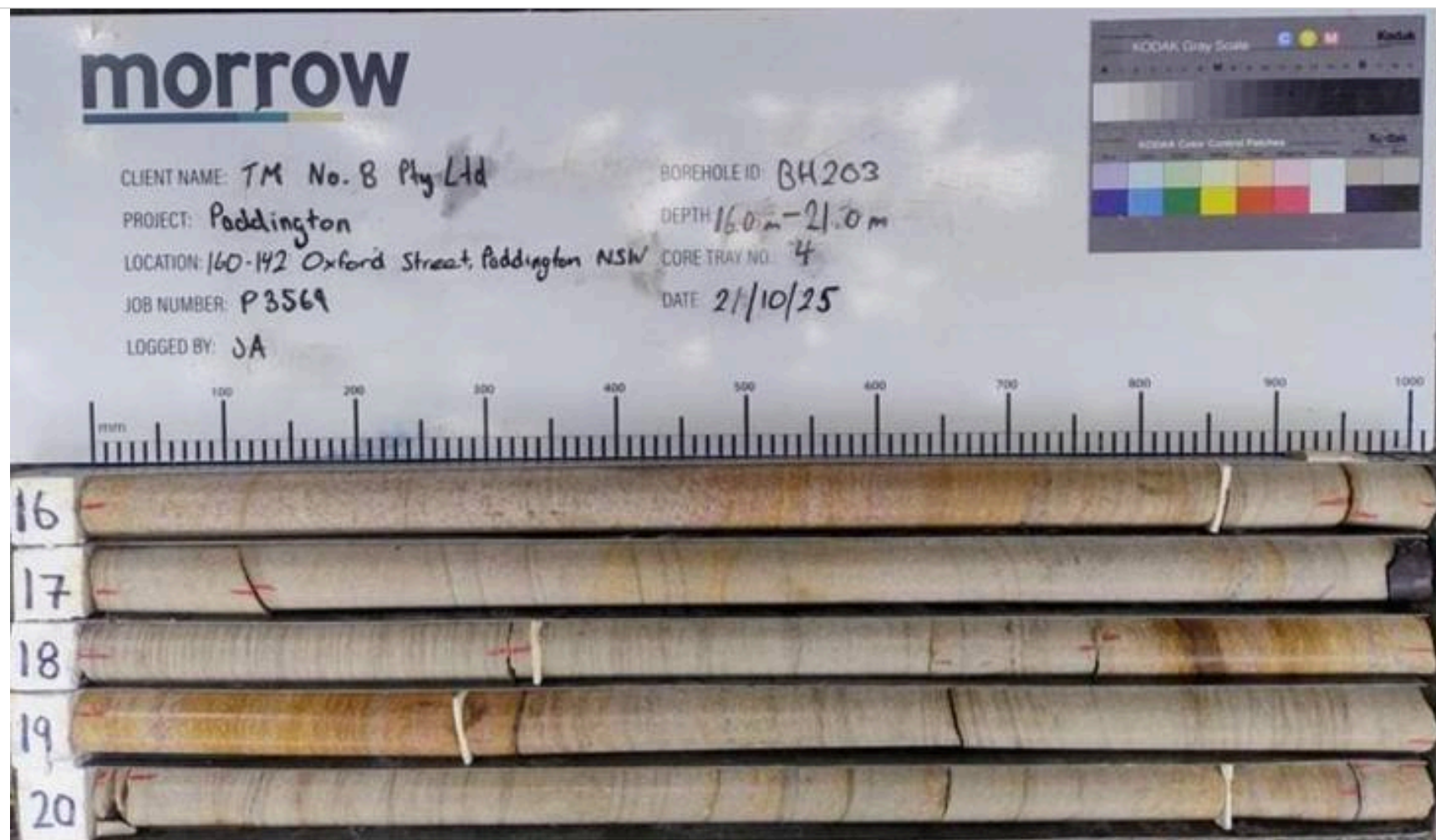
Not to Scale

BH No

BH203

BH Depth

11.0m to 16.0m



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 79/6 Bellambi Lane, Bellambi NSW 2518
 E: info@morrowgeo.com.au
 P: 02 8599 7579

Photo description

BH203 Box 4 of 5

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

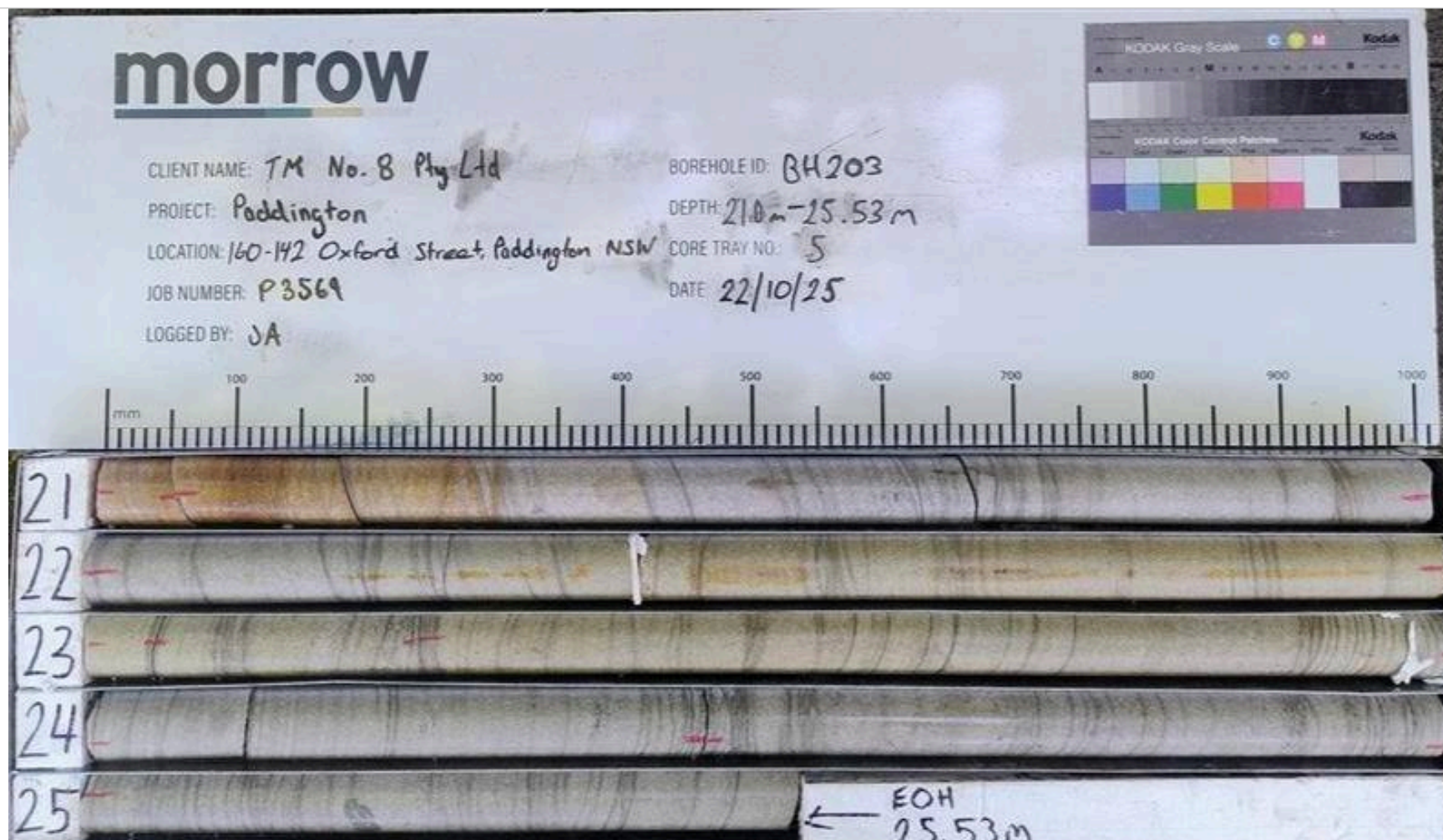
Not to Scale

BH No

BH203

BH Depth

16.0m to 21.0m



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 E: info@morrowgeo.com.au
 P: 02 8599 7579

Photo description

BH203 Box 5 of 5

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH203

BH Depth

21.0 to 25.53m

Drilling Method	Water	Well Diagram	Testing	Elevation	Graphic Log	Material Type	Classification Code	Material Description	Depth (m)	Consistency	Weathering	Moisture
				Depth (m)								
						TOPSOIL	SM	SILTY GRAVELLY SAND: loose to medium dense, poorly graded, fine grained, fine sized gravel, dark brown, moist.		L-MD		M
				51.0		FILL	FILL	FILL GRAVELLY SAND: poorly graded, moist, With over sized fill particles, concrete layer at 1.0 m.	0.5			M
				50.9 0.6					0.6			
								Commenced Coring at 0.6 m				

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335673.32	Driller Supplier : Hard Access Drilling	Client : Toohey Miller
Northing : 6249279.50	Logged By : Mahmoud Jangidaryan	Project : Paddington
RL : 51.55(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 15.18 m	Date : 22/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
		BH204											
						Commenced Coring at 0.6 m							
						Core Loss.							0.6-1.75, CORELOSS
					CL		1.0						
							1.75						1.75-1.8, CS
					FILL	FILL GRAVELLY SAND: poorly graded, moist, With oversized fill particles, concrete layer at 1.0 m.	1.81						1.85, P, 5°
						SANDSTONE: highly weathered, low strength, pale grey pale orange purple, very fine grained.	2.0		d:0.57; a:0.60				1.97-2.06, XWS
					SST			HW	d:0.24; a:0.27				
							2.79						2.73, P, 5°
					CL	Core Loss.	2.86						2.76, P, 5°, PL, SO, CL, OP
							3.0						2.79-2.86, CORELOSS
					SST	SANDSTONE: highly weathered, low strength, pale yellow and purple, fine grained.		HW					2.86-2.92, JT, 70°, PL, RO, CL, OP
							3.35		d:0.20; a:0.24				2.93, P, 10°, PL, RO, CL, OP
						As above, but: highly weathered, medium strength, pale grey pale orange purple, very fine grained.		HW					
					SST				d:0.52; a:0.36				3.36, P, 5°, PL, RO, CL, OP
													3.57, P, 5°, PL, RO, CL, OP
													3.76, P, 5°, PL, RO, CL, OP
													3.87, P, 10°, PL, RO, CL, OP
													3.9-3.92, P, 30°, PL, RO, CL, OP

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335673.32	Driller Supplier : Hard Access Drilling	Client : Toohey Miller
Northing : 6249279.50	Logged By : Mahmoud Jangidaryan	Project : Paddington
RL : 51.55(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.18 m	Date : 22/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
NMLC Coring		50mm PVC Slotted	47.3		SST	As above, but: highly weathered, medium strength, pale grey pale orange purple, very fine grained. (continued)	4.3	HW	d:0.57; a:0.62		RQD = 92.24% TCR = 97.83%		4.17-4.18, P, 10°, PL, RO, CL, OP
			4.3		SST	SANDSTONE: slightly weathered, medium strength, pale grey grey, with carbonaceous laminations.							4.23-4.25, P, 15°, PL, RO, CL, OP
													4.37, P, 5°, PL, RO, CL, OP
													4.81, P, 5°, PL, RO, CL, OP
							5.0	SW	d:0.57; a:0.71				4.94, P, 5°, PL, RO, CL, OP
			45.5			As above, but: slightly to fresh weathered, medium to high strength.	6.4		d:0.82; a:1.03		RQD = 100% TCR = 100%		6.28, P, 5°, PL, RO, CL, OP
			6.0										
					SST		7.0	SW-F	d:0.61; a:1.06				7.33, P, 10°, PL, RO, CL, OP
Outflow - %100											RQD = 100% TCR = 100%		7.66, P, 5°, PL, RO, CL, OP
													7.84, P, 5°, PL, RO, CL, OP
													7.93, P, 5°, PL, RO, CL, OP

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335673.32	Driller Supplier : Hard Access Drilling	Client : Toohey Miller
Northing : 6249279.50	Logged By : Mahmoud Jangidaryan	Project : Paddington
RL : 51.55(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Melbourne
Total Depth : 15.18 m	Date : 22/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
NMLC Coring		50mm PVC Slotted			SST	As above, but: slightly to fresh weathered, medium to high strength. (continued)	9.0	SW-F	d:1.17; a:1.07	Very Low Low Medium High Very High Extremely High	RQD = 100% TCR = 100%	30 100 300 1000 3000	8.34, P, 5°, PL, RO, CL, OP
									d:0.83; a:0.75				
									d:0.88; a:1.21				
							10.0		d:1.41; a:1.35	RQD = 100% TCR = 100%			9.88, P, 5°, PL, RO, CL, OP
							11.0						11.81-11.82, P, 5°, PL, RO, CL, OP

UTM : 56H	Driller Rig : Man-Portable	Job Number : P3569
Easting : 335673.32	Driller Supplier : Hard Access Drilling	Client : Toohey Miller
Northing : 6249279.50	Logged By : Mahmoud Jangidaryan	Project : Paddington
RL : 51.55(m)	Reviewed By : Krishna Shakya	Location : 142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, 1
Total Depth : 15.18 m	Date : 22/10/2025	Loc Comment :

Drilling Method	Water	Well Diagram	Elevation	Graphic Log	Classification Code	Material Description	Depth (m)	Weathering	Testing	Estimated Strength	RQD% and TCR%	Defect Spacing (mm)	Defect Description type, inclination, planarity, roughness, coating, thickness
			Depth (m)						Is(50)				
					SST	As above, but: slightly to fresh weathered, medium to high strength. (continued)	13.0 14.0 14.72 15.0	SW-F	d:1.72; a:1.86		RQD = 100% TCR = 100% RQD = 100% TCR = 100%	30 100 300 1000 3000	12.58, P, 5°, PL, RO, CL, OP 13.09, P, 10°, PL, VR, CL, OP 13.35, P, 15°, PL, RO, CL, OP 13.86, P, 15°, PL, VR, CL, OP 14.42, P, 5°, PL, RO, CL, OP 14.6, P, 5°, PL, RO, CL, OP 14.72, P, 10°, PL, RO, CL, OP
			36.8 14.7		SST	As above, but: slightly weathered, high strength, brown purple, fine to medium grained.	14.72	SW	d:1.83; a:2.00				
						BH204 Reached Target Depth at 15.18 m							

morrow

CLIENT NAME: *TOOHEY MILLER PTY LTD*
PROJECT: *Paddington*
LOCATION: *142 Oxford Street*
JOB NUMBER: *P3569*
LOGGED BY: *MJ*

BOREHOLE ID: *BH204*
DEPTH: *1.75 to 6.0 m*
CORE TRAY NO.: *1 of 3*
DATE: *22,10,25*



morrow

Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH204 - Box 1 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH204

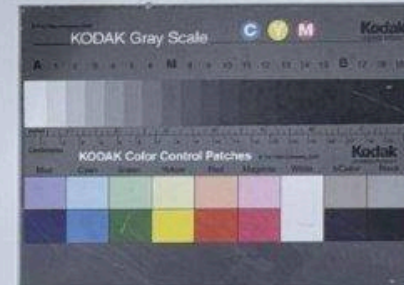
BH Depth

0.6m to 6.0m

morrow

CLIENT NAME: *TOOHEY MILLER PTY LTD*
PROJECT: *Paddington*
LOCATION: *142 Oxford Street*
JOB NUMBER: *P3569*
LOGGED BY: *MJ*

BOREHOLE ID: *BH204*
DEPTH: *6.0 to 11.0 m*
CORE TRAY NO.: *2 of 3*
DATE: *22, 10, 25*



morrow

Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH204 - Box 2 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH204

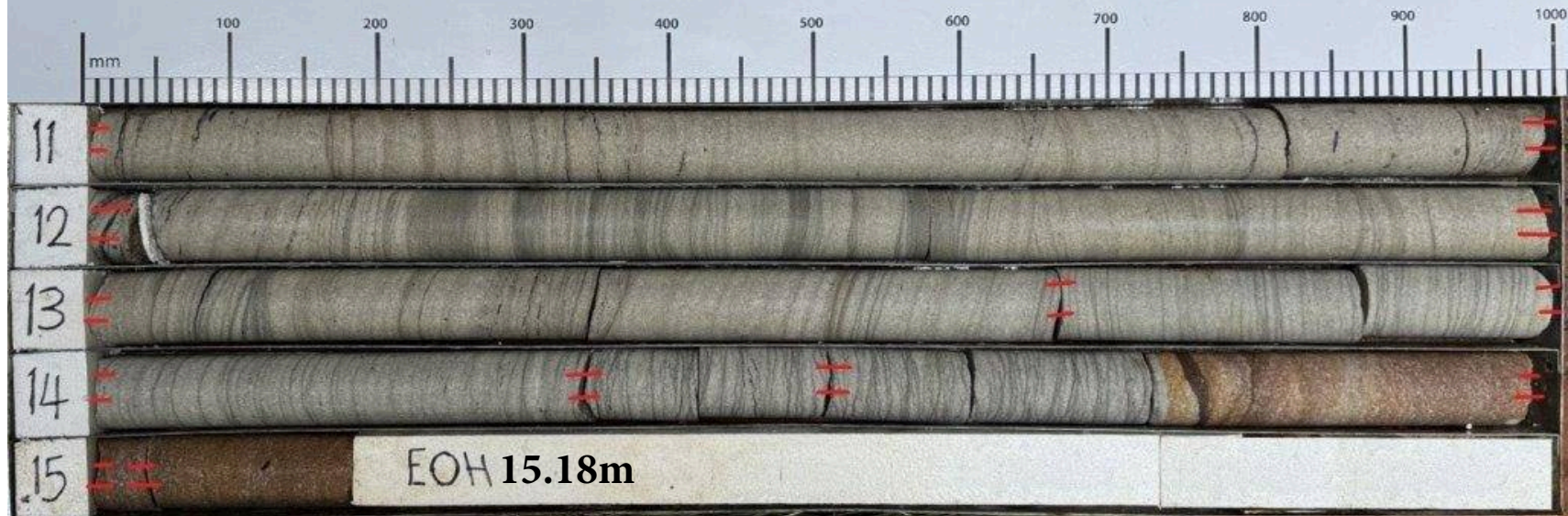
BH Depth

6.0m to 11.0m

morrow

CLIENT NAME: **TOOHEY MILLER PTY LTD**
PROJECT: **Paddington**
LOCATION: **142 Oxford Street**
JOB NUMBER: **P3569**
LOGGED BY: **MJ**

BOREHOLE ID: **BH204**
DEPTH: **11.0 to 15.18m**
CORE TRAY NO.: **3 of 3**
DATE: **22,10,25**



morrow

Morrow Geotechnics Pty Ltd ABN 42 605 892 126
2/5-7 Malta Street, Fairfield East NSW 2165
79/6 Bellambi Lane, Bellambi NSW 2518
E: info@morrowgeo.com.au
P: 02 8599 7579

Photo description

BH204 - Box 3 of 3

Client

Toohy Miller

Location

142-148 & 160 Oxford Street, 13 Gipps Street, & 6 Shadeforth Street, Paddington NSW, Australia

Project name

Paddington

Project No

P3569

Scale

Not to Scale

BH No

BH204

BH Depth

11.0m to 15.18m

GENERAL

Information obtained from site investigations is recorded on log sheets. The "Cored Drill Hole Log" presents data from an operation where a core barrel has been used to recover material - commonly rock. The "Non-Core Drill Hole - Geological Log" presents data from an operation where coring has not been used and information is based on a combination of regular sampling and insitu testing. The material penetrated in non-core drilling is commonly soil but may include rock. The "Excavation - Geological Log" presents data and drawings from exposures of soil and rock resulting from excavation of pits, trenches, etc.

The heading of the log sheets contains information on Project Identification, Hole or Pit Identification, Location and Elevation. The main section of the logs contains information on methods and conditions, material substance description and structure presented as a series of columns in relation to depth below the ground surface which is plotted on the left side of the log sheet. The common depth scale is 8m per drill log sheet and about 3-5m for excavation logs sheets.

As far as is practicable the data contained on the log sheets is factual. Some interpretation is inevitable in the identification of material boundaries in areas of partial sampling, the location of areas of core loss, description and classification of material, estimation of strength and identification of drilling induced fractures. Material description and classifications are based on SAA Site Investigation Code AS 1726 - 1993 with some modifications as defined below.

These notes contain an explanation of the terms and abbreviations commonly used on the log sheets.

DRILLING

Drilling & Casing

ADV	Auger Drilling with V-Bit
ADT	Auger Drilling with TC Bit
WB	Wash-bore drilling
RR	Rock Roller
NMLC	NMLC core barrel
NQ	NQ core barrel
HMLC	HMLC core barrel
HQ	HQ core barrel

Drilling Fluid/Water

The drilling fluid used is identified and loss of return to the surface estimated as a percentage.

Drilling Penetration/Drill Depth

Core lifts are identified by a line and depth with core loss per run as a percentage. Ease of penetration in non-core drilling is abbreviated as follows:

VE	Very Easy
E	Easy
M	Medium
H	High
VH	Very High

Groundwater Levels

Date of measurement is shown.

Standing water level measured in completed boreholeLevel taken during or immediately after drilling

D	Disturbed
B	Bulk
U	Undisturbed
SPT	Standard Penetration Test
N	Result of SPT (sample taken)
PBT	Plate Bearing Test
PZ	Piezometer Installation
HP	Hand Penetrometer Test

EXCAVATION LOGS

Explanatory notes are provided at the bottom of drill log sheets. Information about the origin, geology and pedology may be entered in the "Structure and other Observations" column. The depth of the base of excavation (for the logged section) at the appropriate depth in the "Material Description" column. Refusal of excavation plant is noted should it occur. A sketch of the exposure may be added.

MATERIAL DESCRIPTION – SOIL

Classification Symbol - In accordance with the Unified Classification System (AS 1726-1993, Appendix A, Table A1)

Material Description - In accordance with AS 1726-1993, Appendix A2.3

Moisture Condition

D	Dry, looks and feels dry
M	Moist, No free water on remoulding
W	Wet, free water on remoulding

Consistency - In accordance with AS 1726-1993, Appendix A2.5

VS	Very Soft	< 12.5 kPa
S	Soft	12.5 – 25 kPa
F	Firm	25 – 50 kPa
St	Stiff	50 – 100 kPa
VSt	Very Stiff	100 – 200 kPa
H	Hard	> 200 kPa

Strength figures quoted are the approximate range of undrained shear strength for each class.

Density Index. (%) is estimated or is based on SPT results.

VL	Very Loose	< 15 %
L	Loose	15 – 35 %
MD	Medium Dense	35 – 65 %
D	Dense	65 – 85 %
VD	Very Dense	> 85 %

MATERIAL DESCRIPTION -ROCK

Material Description

Identification of rock type, composition and texture based on visual features in accordance with AS 1726-1993, Appendix A3.1-A3.3 and Tables A6a, A6b and A7.

Core Loss

Is shown at the bottom of the run unless otherwise indicated.

Bedding

Thinly Laminated	< 6 mm
Laminated	6 - 20
Very Thinly Bedded	20 - 60
Thinly Bedded	60 - 200
Medium Bedded	200 - 600
Thickly Bedded	600 - 2000
Very Thickly Bedded	> 2000

Weathering - No distinction is made between weathering and alteration. Weathering classification assists in identification but does not imply engineering properties.

Fresh (F)	Rock substance unaffected by weathering
Slightly Weathered (SW)	Rock substance partly stained or discoloured. Colour and texture of fresh rock recognisable.
Moderately Weathered (MW)	Staining or discolouration extends throughout rock substance. Fresh rock colour not recognisable.
Highly Weathered (HW)	Stained or discoloured throughout. Signs of chemical or physical alteration. Rock texture retained.
Extremely Weathered (EW)	Rock texture evident but material has soil properties and can be remoulded.

Strength - The following terms are used to described rock strength:

Rock Strength Class	Abbreviation	Point Load Strength Index, $I_s(50)$ (MPa)
Extremely Low	EL	< 0.03
Very Low	VL	0.03 to 0.1
Low	L	0.1 to 0.3
Medium	M	0.3 to 1
High	H	1 to 3
Very High	VH	3 to 10
Extremely High	EH	≥ 10

Strengths are estimated and where possible supported by Point Load Index Testing of representative samples. Test results are plotted on the graphical estimated strength by using Diametral Point Load Test and Axial Point Load Test.

Where the estimated strength log covers more than one range it indicates the rock strength varies between the limits shown.

MATERIALS STRUCTURE/FRACTURES

ROCK

Natural Fracture Spacing - A plot of average fracture spacing excluding defects known or suspected to be due to drilling, core boxing or testing. Closed or cemented joints, drilling breaks and handling breaks are not included in the Natural Fracture Spacing.

Visual Log - A diagrammatic plot of defects showing type, spacing and orientation in relation to core axis.

Defects		Defects open in-situ or clay sealed Defects closed in-situ Breaks through rock substance
	  	

Additional Data - Description of individual defects by type, orientation, in-filling, shape and roughness in accordance with AS 1726-1993, Appendix A Table A10, notes and Figure A2.

Orientation - angle relative to the plane normal to the core axis.

Type	BP JT SM FZ SZ VN FL CL DL HB DB	Bedding Parting Joint Seam Fracture Zone Shear Zone Vein Foliation Cleavage Drill Lift Handling Break Drilling Break
Infilling	CN X Clay KT CA Fe Qz MS MU	Clean Carbonaceous Clay Chlorite Calcite Iron Oxide Quartz Secondary Mineral Unidentified Mineral
Shape	PR CU UN ST IR DIS	Planar Curved Undulose Stepped Irregular Discontinuous
Roughness	POL SL S RF VR	Polished Slickensided Smooth Rough Very Rough

SOIL

Structures - Fissuring and other defects are described in accordance with AS 1726-1993, Appendix A2.6, using the terminology for rock defects.

Origin - Where practicable an assessment is provided of the probable origin of the soil, eg fill, topsoil, alluvium, colluvium, residual soil

APPENDIX B

PLAXIS FLOW MODELLING REPORTS

PLAXIS Report

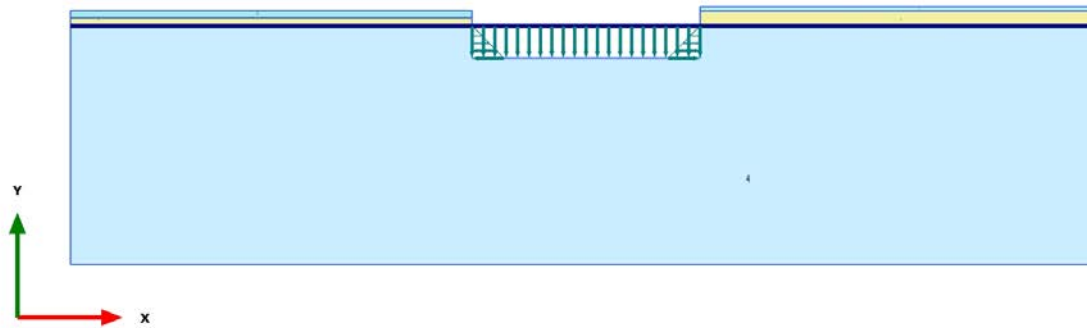
Filename	P3569_Paddington_Section1(GW).p2dx
Directory	C:\Users\Plaxis\Morrow Geotechnics\MG - Documents\1. Projects\P3500-P3599\P3569_Paddington, 142-160 Oxford, 13 Gipps, & 6 Shadeforth St\08_Groundwater\
Title	P3569_Paddington_Section1(GW)
Model	Plane strain
Elements	15-Noded
PLAXIS Version	Version 2024.2.0.1144

1.1.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Materials plot



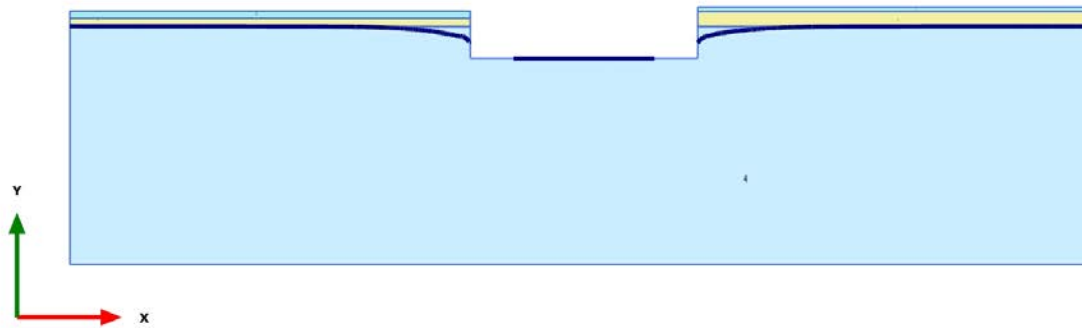
Materials plot

1.1.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Materials plot



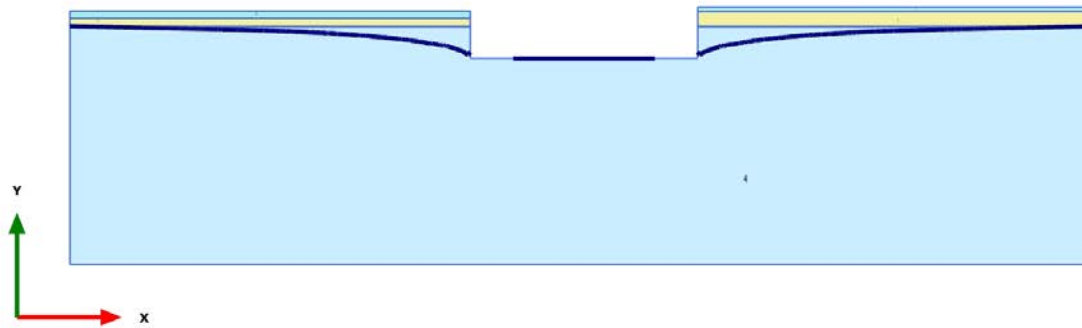
Materials plot

1.1.1.3 Calculation results, Short Term [Phase_2] (2/14), Materials plot



Materials plot

1.1.1.4 Calculation results, Long Term [Phase_3] (3/46), Materials plot



Materials plot

1.1.2.1.1 Materials - Soil and interfaces - Mohr-Coulomb

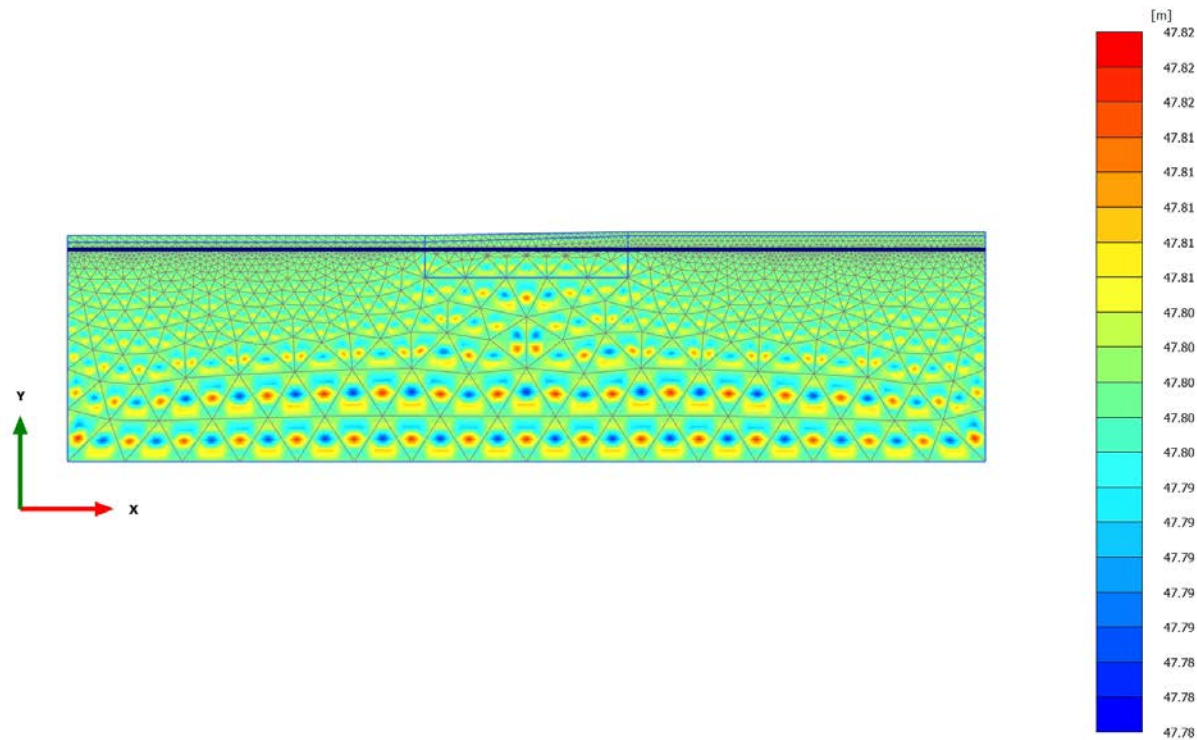
Identification number		1	2	3	4
Identification		Soil	Class V	Class IV	Class III/II
Soil model		Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Drainage type		Drained	Drained	Drained	Drained
Colour					
Comments					
y _{unsat}	kN/m ³	18.00	24.00	24.00	24.00
y _{sat}	kN/m ³	19.00	24.00	24.00	24.00
e _{init}		0.5000	0.5000	0.5000	0.5000
n _{init}		0.3333	0.3333	0.3333	0.3333
Input method		SDOF equivalent	SDOF equivalent	SDOF equivalent	SDOF equivalent
Rayleigh α		0.000	0.000	0.000	0.000
Rayleigh β		0.000	0.000	0.000	0.000
ξ_1	%	0.000	0.000	0.000	0.000
ξ_2	%	0.000	0.000	0.000	0.000
f ₁	Hz	0.1000	0.1000	0.1000	0.1000
f ₂	Hz	1.000	1.000	1.000	1.000
E' _{ref}	kN/m ²	20.00E3	20.00E3	20.00E3	20.00E3

Identification number		1	2	3	4
v (nu)		0.3000	0.3000	0.3000	0.3000
G_ref	kN/m ²	7692	7692	7692	7692
E_oed	kN/m ²	26.92E3	26.92E3	26.92E3	26.92E3
E'_inc	kN/m ² /m	0.000	0.000	0.000	0.000
y_ref	m	0.000	0.000	0.000	0.000
V_s	m/s	64.75	56.07	56.07	56.07
V_p	m/s	121.1	104.9	104.9	104.9
c'_ref	kN/m ²	100.0	100.0	100.0	100.0
φ' (phi)	°	45.00	45.00	45.00	45.00
ψ (psi)	°	0.000	0.000	0.000	0.000
c'_inc	kN/m ² /m	0.000	0.000	0.000	0.000
y_ref	m	0.000	0.000	0.000	0.000
Tension cut-off		True	True	True	True
Tensile strength	kN/m ²	0.000	0.000	0.000	0.000
Determination		v-undrained definition	v-undrained definition	v-undrained definition	v-undrained definition
v_u definition method		Direct	Direct	Direct	Direct
v_u,equivalent (nu)		0.4950	0.4950	0.4950	0.4950
Skempton B		0.9783	0.9783	0.9783	0.9783
K_w,ref/n	kN/m ²	750.0E3	750.0E3	750.0E3	750.0E3
Classification type		Standard	Standard	Standard	Standard
Soil class (Standard)		Coarse	Coarse	Coarse	Coarse

Identification number		1	2	3	4
< 2 µm	%	10.00	10.00	10.00	10.00
2 µm - 50 µm	%	13.00	13.00	13.00	13.00
50 µm - 2 mm	%	77.00	77.00	77.00	77.00
Use defaults		False	False	False	False
k_x	m/day	0.01537	0.01537	0.01537	0.01537
k_y	m/day	0.01537	0.01537	0.01537	0.01537
Void ratio dependency		False	False	False	False
c_k		1000E12	1000E12	1000E12	1000E12
n_init		0.3333	0.3333	0.3333	0.3333
-ψ_unsat	m	10.00E3	10.00E3	10.00E3	10.00E3
c_s	kJ/t/K	0.000	0.000	0.000	0.000
λ_s	kW/m/K	0.000	0.000	0.000	0.000
ρ_s	t/m ³	2.600	2.600	2.600	2.600
Thermal expansion type		Isotropic	Isotropic	Isotropic	Isotropic
α_sv	1/K	0.000	0.000	0.000	0.000
Phase change		False	False	False	False
D_v	m ² /day	0.000	0.000	0.000	0.000
f_Tv		0.000	0.000	0.000	0.000
Stiffness determination		Derived	Derived	Derived	Derived
Strength determination		Rigid	Rigid	Rigid	Rigid
R_inter		1.000	1.000	1.000	1.000

Identification number		1	2	3	4
Consider gap closure		True	True	True	True
Cross permeability		Impermeable	Impermeable	Impermeable	Impermeable
Drainage conductivity, dk	m ³ /day/m	0.000	0.000	0.000	0.000
R_thermal	m ² K/kW	0.000	0.000	0.000	0.000
K_0 determination		Automatic	Automatic	Automatic	Automatic
K_0,x		0.2929	0.2929	0.2929	0.2929
K_0,z		0.2929	0.2929	0.2929	0.2929

2.1.1.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater head

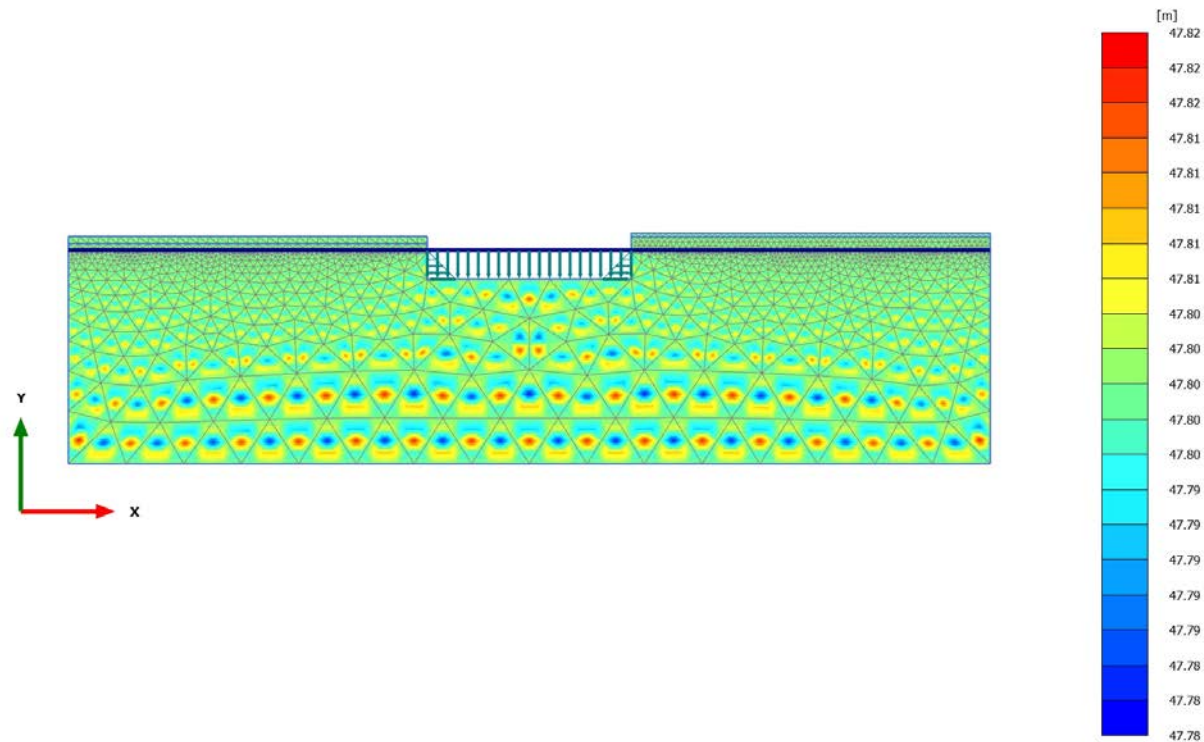


Groundwater head (scaled up 0.200 times) (Time 0.000 day)

Maximum value = 47.82 m (Element 2025 at Node 13318)

Minimum value = 47.78 m (Element 2026 at Node 21382)

2.1.1.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Groundwater head

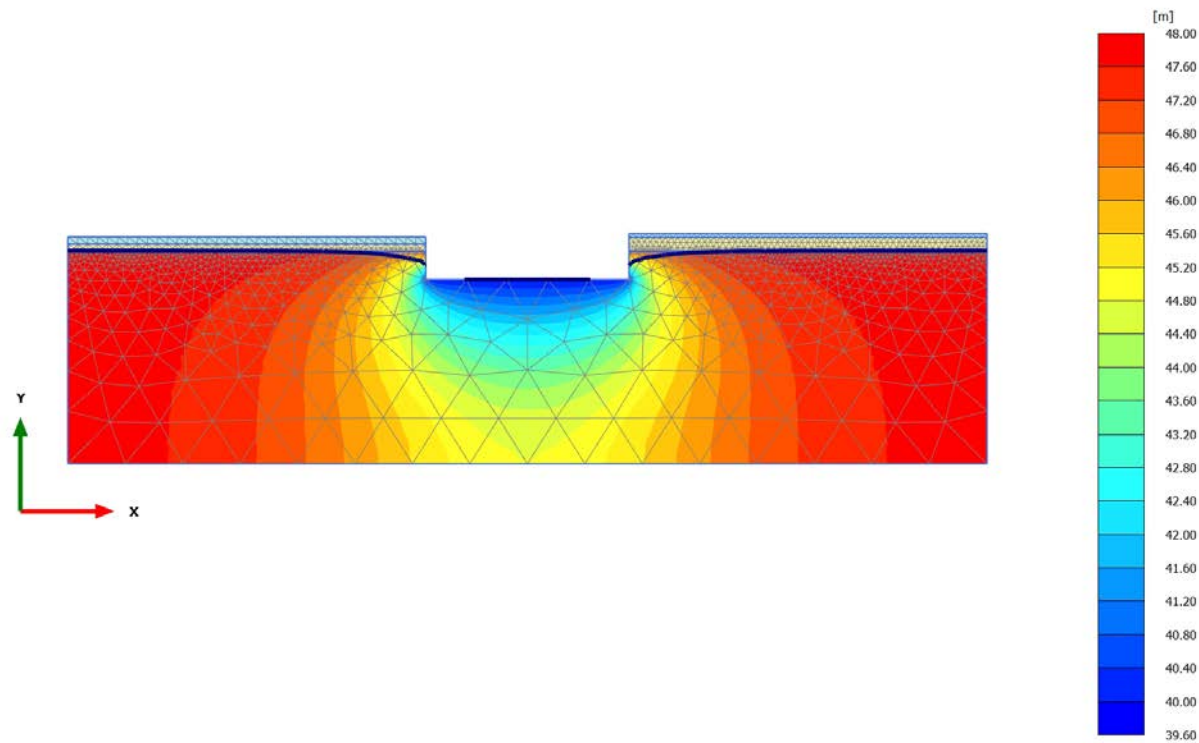


Groundwater head (scaled up 0.200 times) (Time 0.000 day)

Maximum value = 47.82 m (Element 2025 at Node 13318)

Minimum value = 47.78 m (Element 2026 at Node 21382)

2.1.1.1.3 Calculation results, Short Term [Phase_2] (2/14), Groundwater head

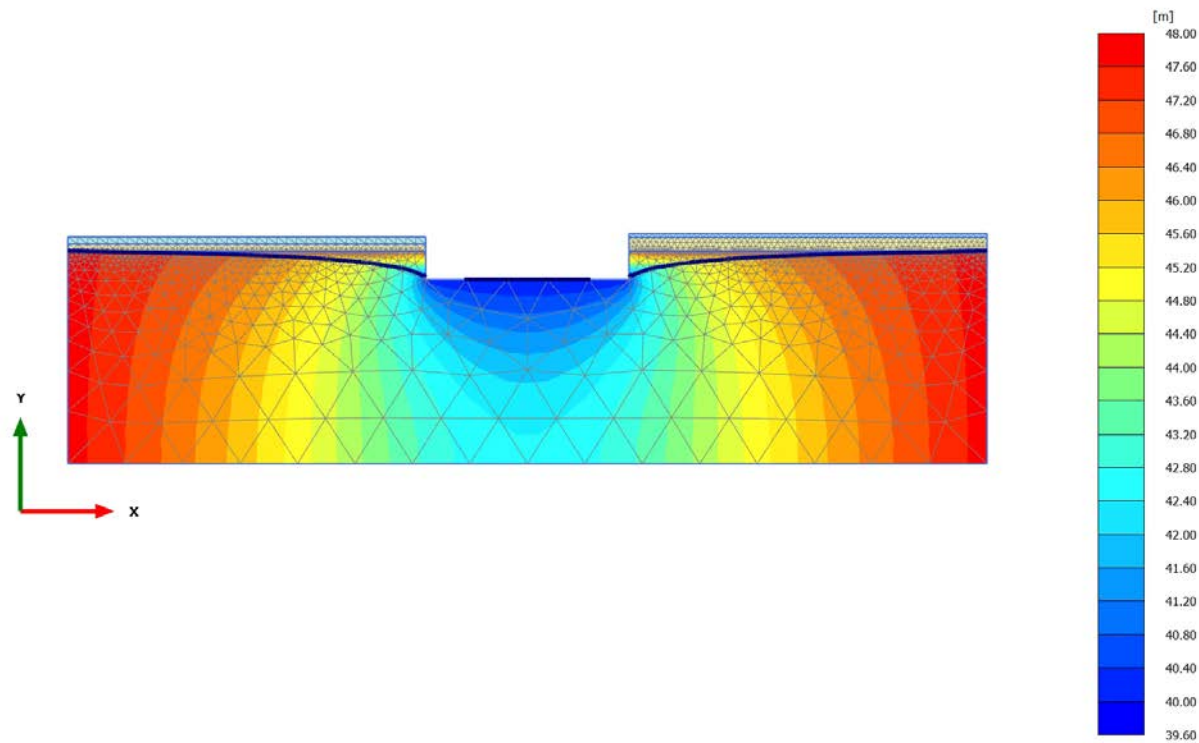


Groundwater head (scaled up 0.200 times) (Time 1.000 day)

Maximum value = 47.80 m (Element 2024 at Node 24325)

Minimum value = 40.00 m (Element 2064 at Node 20797)

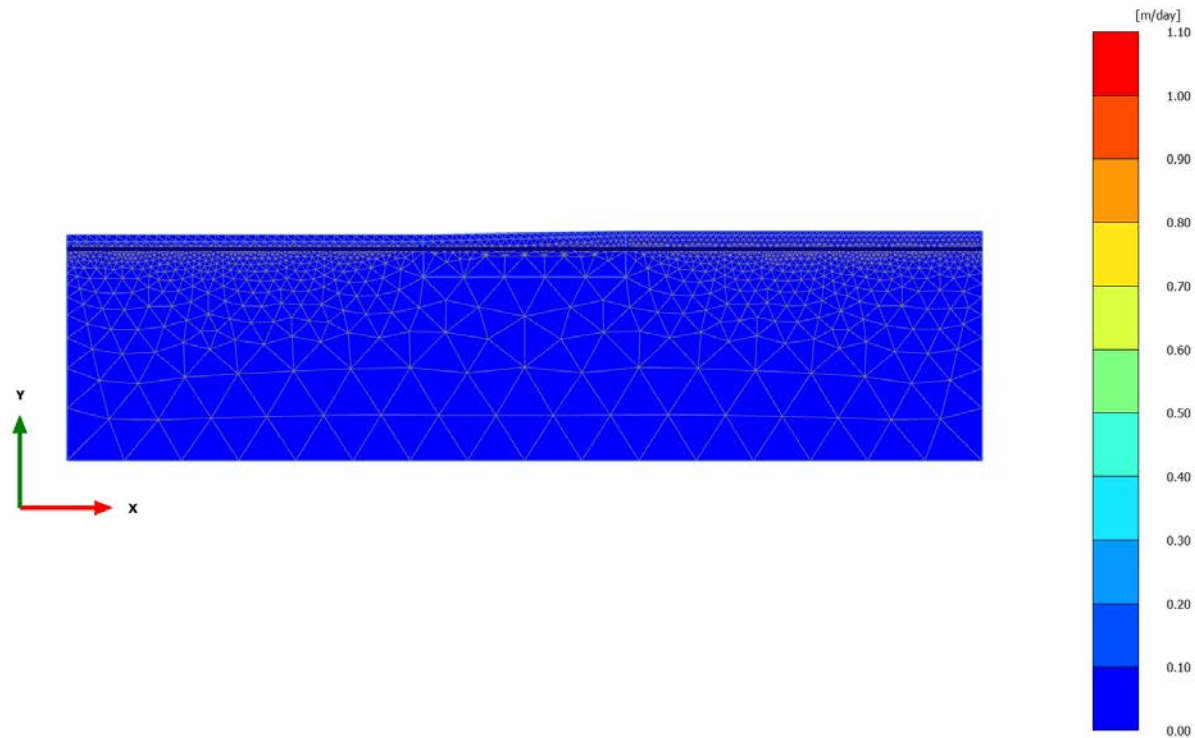
2.1.1.1.4 Calculation results, Long Term [Phase_3] (3/46), Groundwater head



Groundwater head (scaled up 0.200 times) (Time 101.0 day)

Maximum value = 47.80 m (Element 2024 at Node 24325)

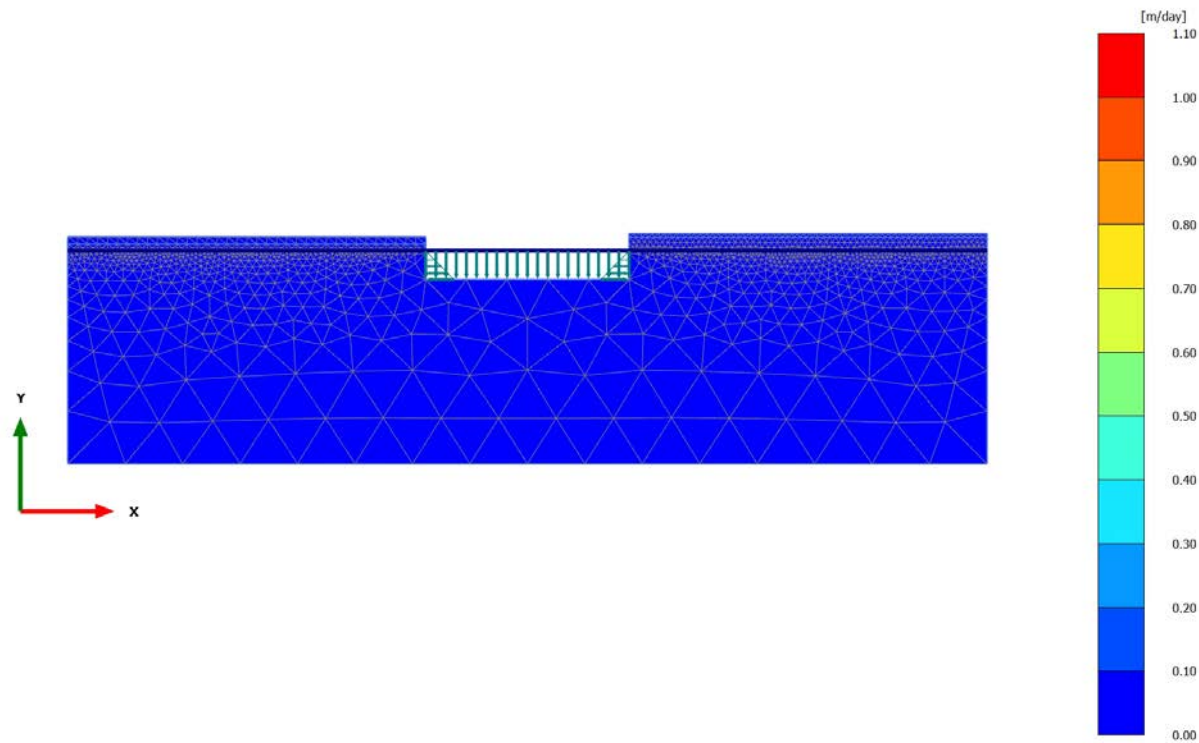
Minimum value = 40.00 m (Element 2064 at Node 20797)

2.1.2.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 1.00×10^9 times) (Time 0.000 day)

Maximum value = 0.01706×10^{-12} m/day (Element 1592 at Node 27975)

Minimum value = 0.000 m/day (Element 1998 at Node 21956)

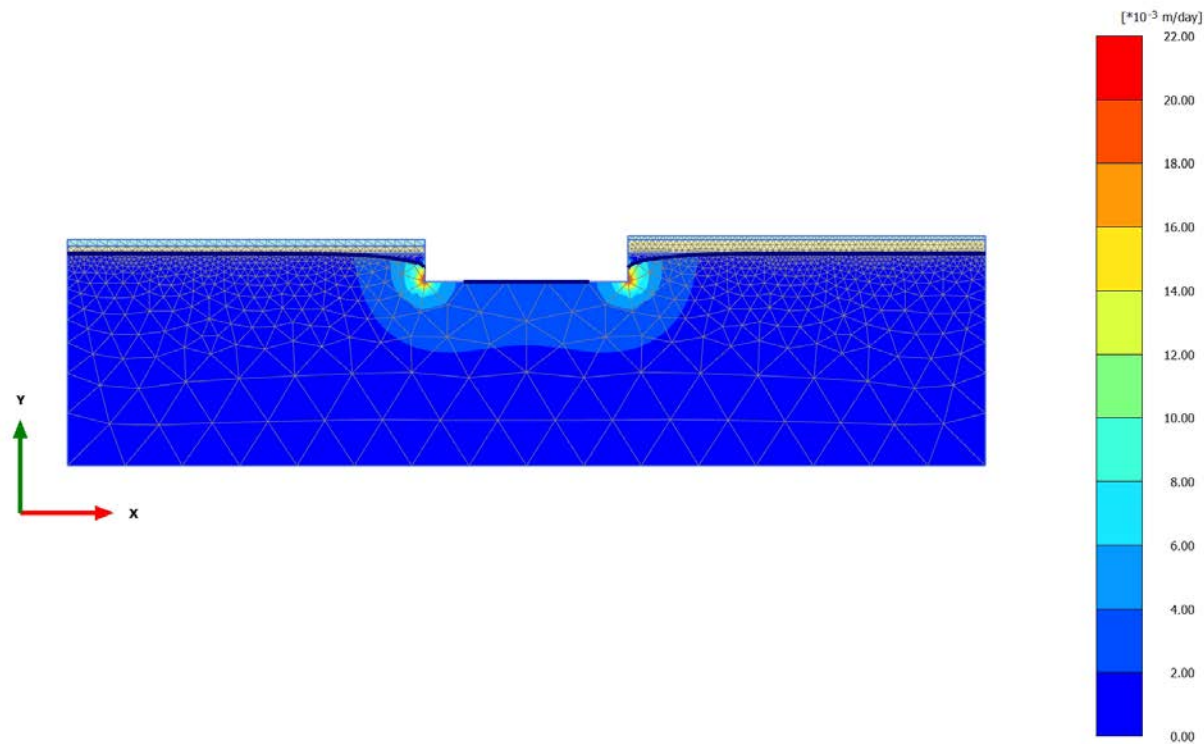
2.1.2.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 1.00×10^9 times) (Time 0.000 day)

Maximum value = 0.02167×10^{-12} m/day (Element 1079 at Node 19101)

Minimum value = 0.000 m/day (Element 2005 at Node 14792)

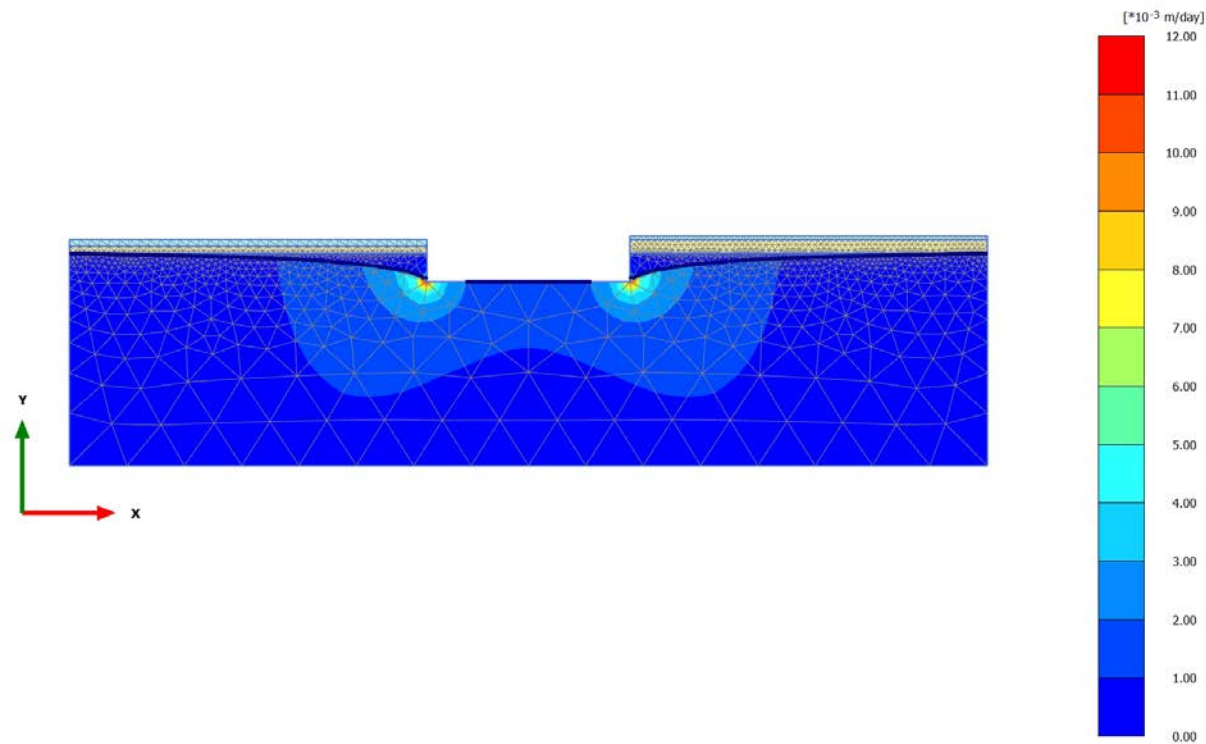
2.1.2.1.3 Calculation results, Short Term [Phase_2] (2/14), Groundwater flow $|q|$



Groundwater flow $|q|$ (scaled up 500 times) (Time 1.000 day)

Maximum value = 0.02087 m/day (Element 2083 at Node 21695)

Minimum value = 0.1086×10^{-6} m/day (Element 1585 at Node 17908)

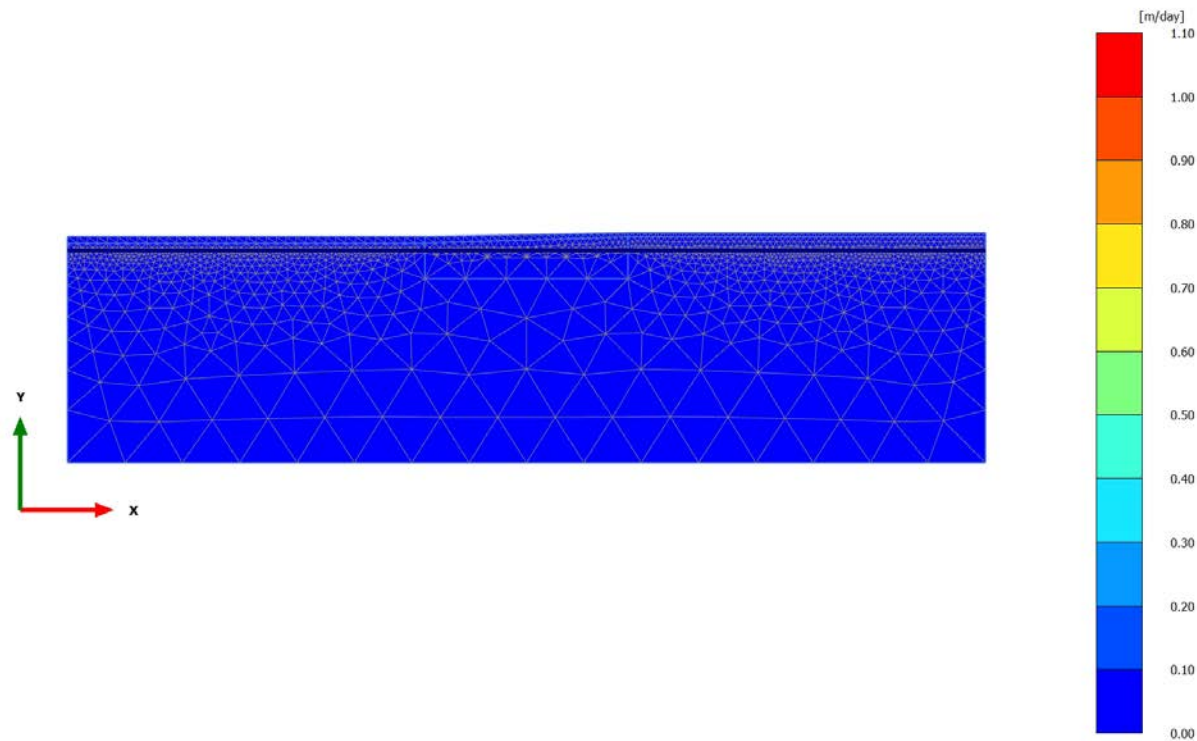
2.1.2.1.4 Calculation results, Long Term [Phase_3] (3/46), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 500 times) (Time 101.0 day)

Maximum value = 0.01130 m/day (Element 2083 at Node 21695)

Minimum value = 0.01452×10^{-6} m/day (Element 1613 at Node 13375)

4.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater flow $|q|$

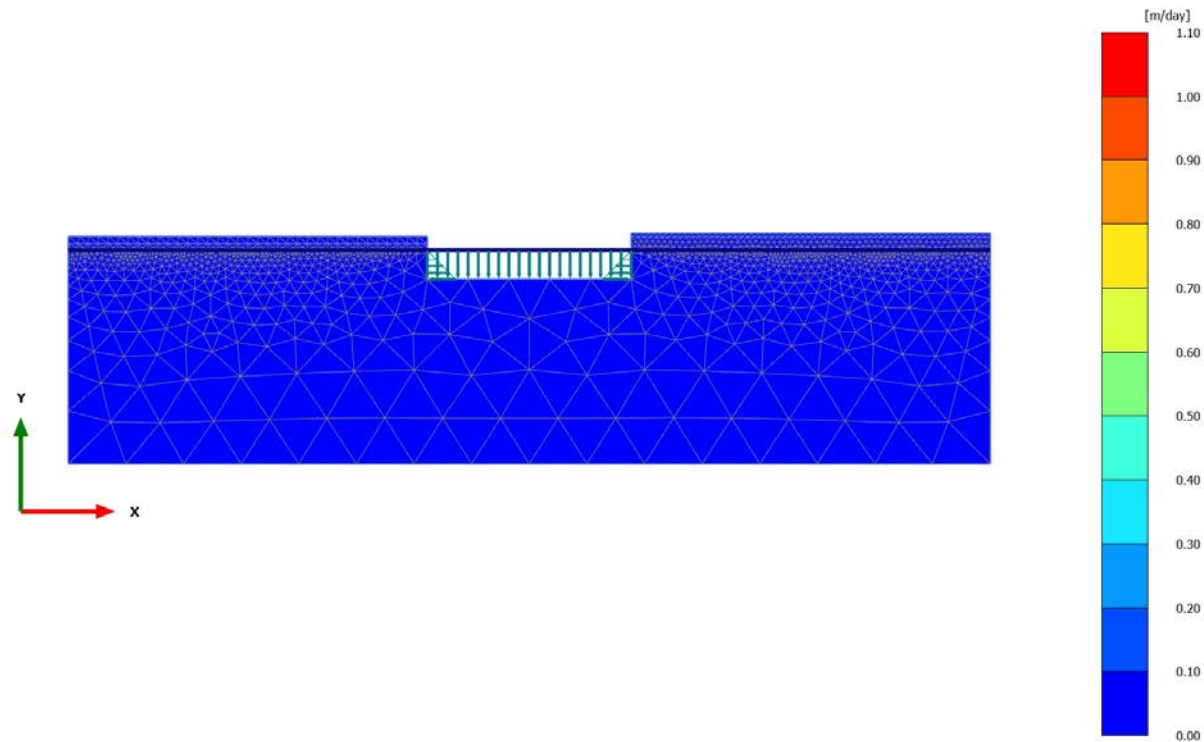


Groundwater flow $|q|$ (scaled up 1.00×10^9 times) (Time 0.000 day)

Maximum value = 0.01706×10^{-12} m/day (Element 1592 at Node 27975)

Minimum value = 0.000 m/day (Element 1998 at Node 21956)

4.1.2 Calculation results, Phase_1 [Phase_1] (1 / 1), Groundwater flow |q|

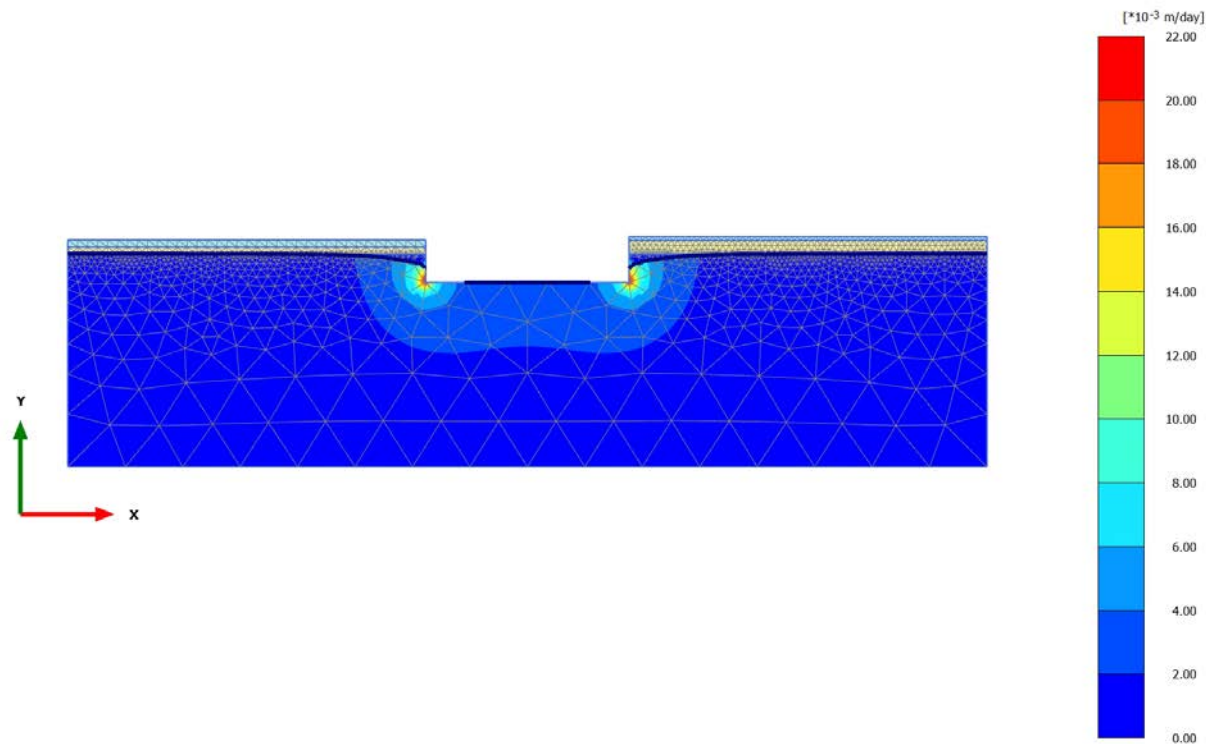


Groundwater flow |q| (scaled up 1.00×10^9 times) (Time 0.000 day)

Maximum value = 0.02167×10^{-12} m/day (Element 1079 at Node 19101)

Minimum value = 0.000 m/day (Element 2005 at Node 14792)

4.1.3 Calculation results, Short Term [Phase_2] (2/14), Groundwater flow $|q|$

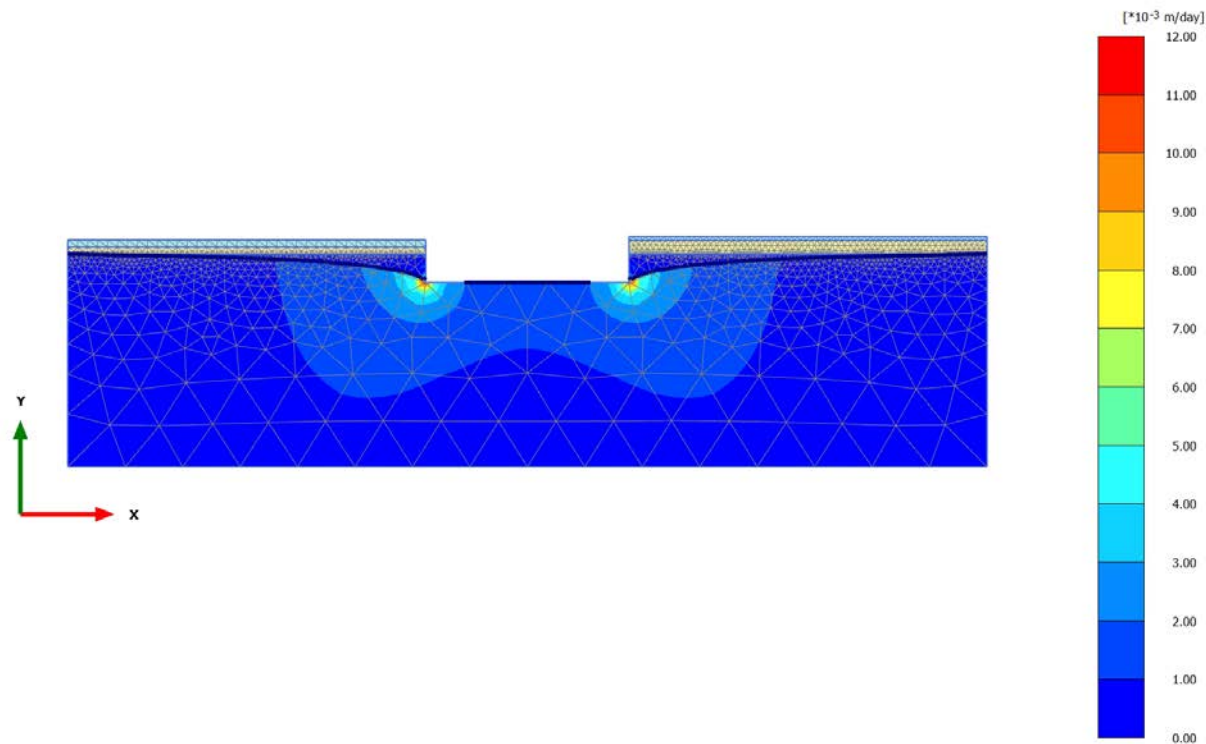


Groundwater flow $|q|$ (scaled up 500 times) (Time 1.000 day)

Maximum value = 0.02087 m/day (Element 2083 at Node 21695)

Minimum value = 0.1086×10^{-6} m/day (Element 1585 at Node 17908)

4.1.4 Calculation results, Long Term [Phase_3] (3/46), Groundwater flow $|q|$



Groundwater flow $|q|$ (scaled up 500 times) (Time 101.0 day)

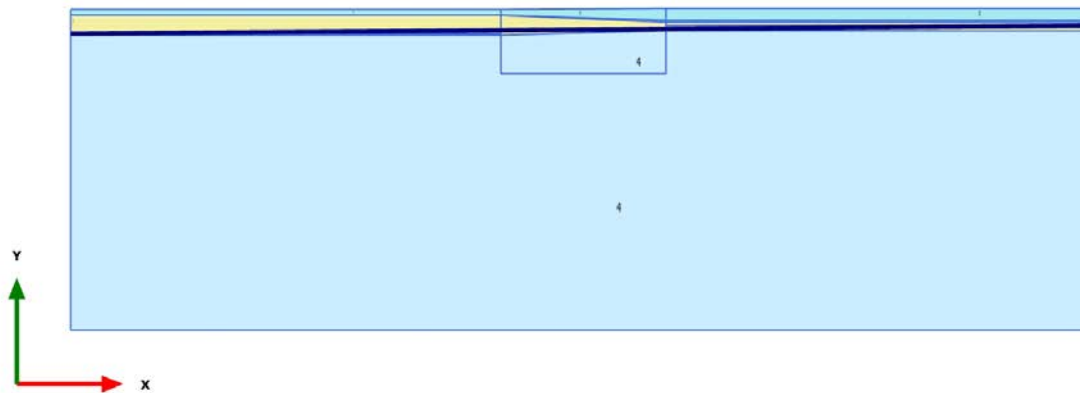
Maximum value = 0.01130 m/day (Element 2083 at Node 21695)

Minimum value = 0.01452×10^{-6} m/day (Element 1613 at Node 13375)

PLAXIS Report

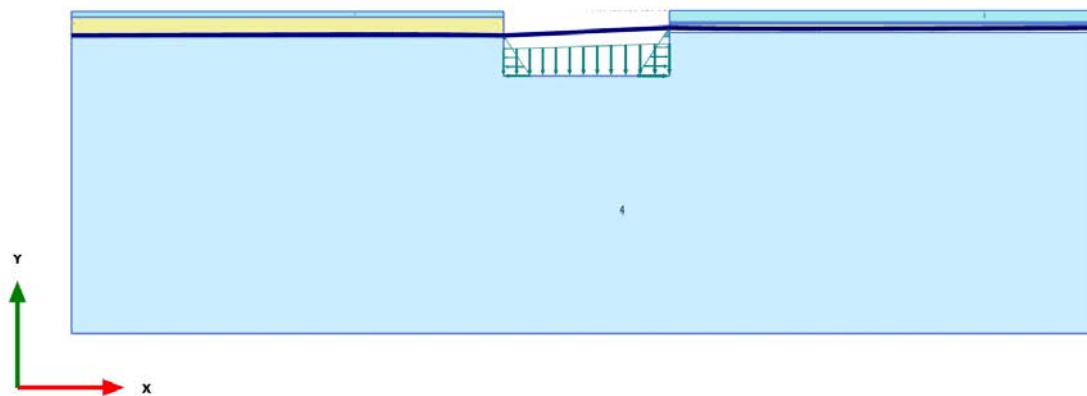
Filename	P3569_Paddington_Section2(GW).p2dx
Directory	C:\Users\Plaxis\Morrow Geotechnics\MG - Documents\1. Projects\P3500-P3599\P3569_Paddington, 142-160 Oxford, 13 Gipps, & 6 Shadeforth St\08_Groundwater\
Title	P3569_Paddington_Section2(GW)
Model	Plane strain
Elements	15-Noded
PLAXIS Version	Version 2024.2.0.1144

1.1.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Materials plot



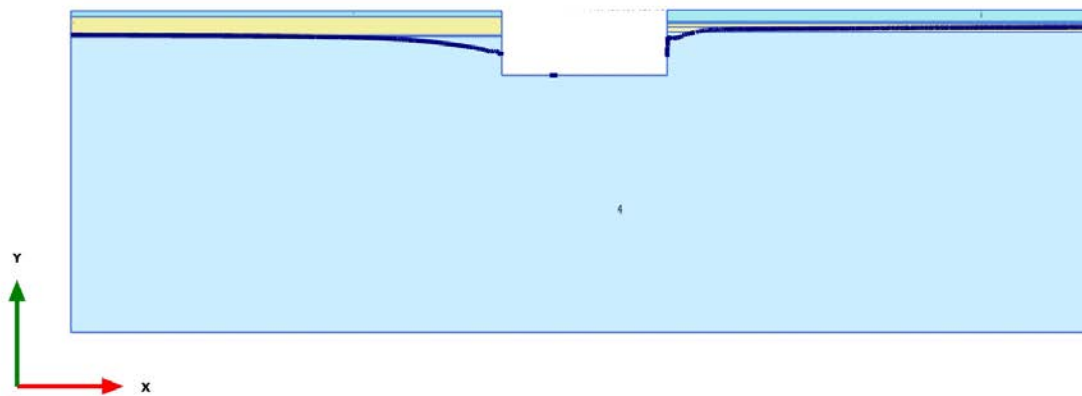
Materials plot

1.1.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Materials plot



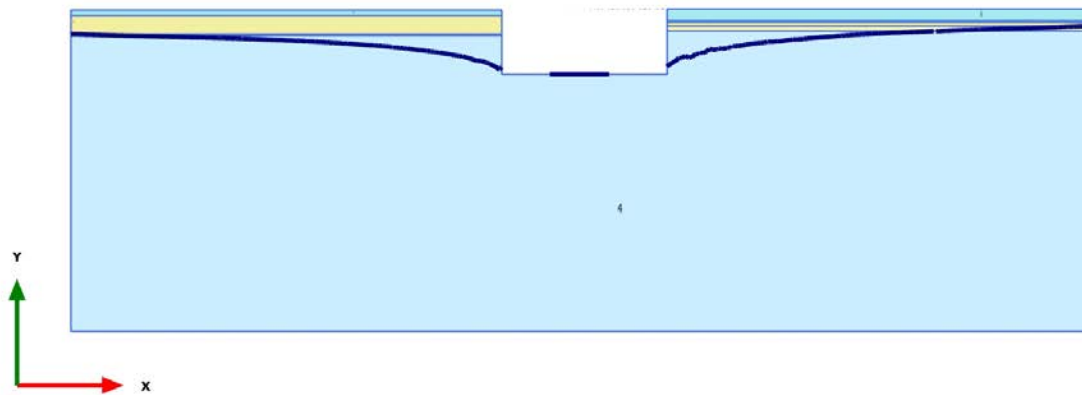
Materials plot

1.1.1.3 Calculation results, Short Term [Phase_2] (2/39), Materials plot



Materials plot

1.1.1.4 Calculation results, Long Term [Phase_3] (3/65), Materials plot



Materials plot

1.1.2.1.1 Materials - Soil and interfaces - Mohr-Coulomb

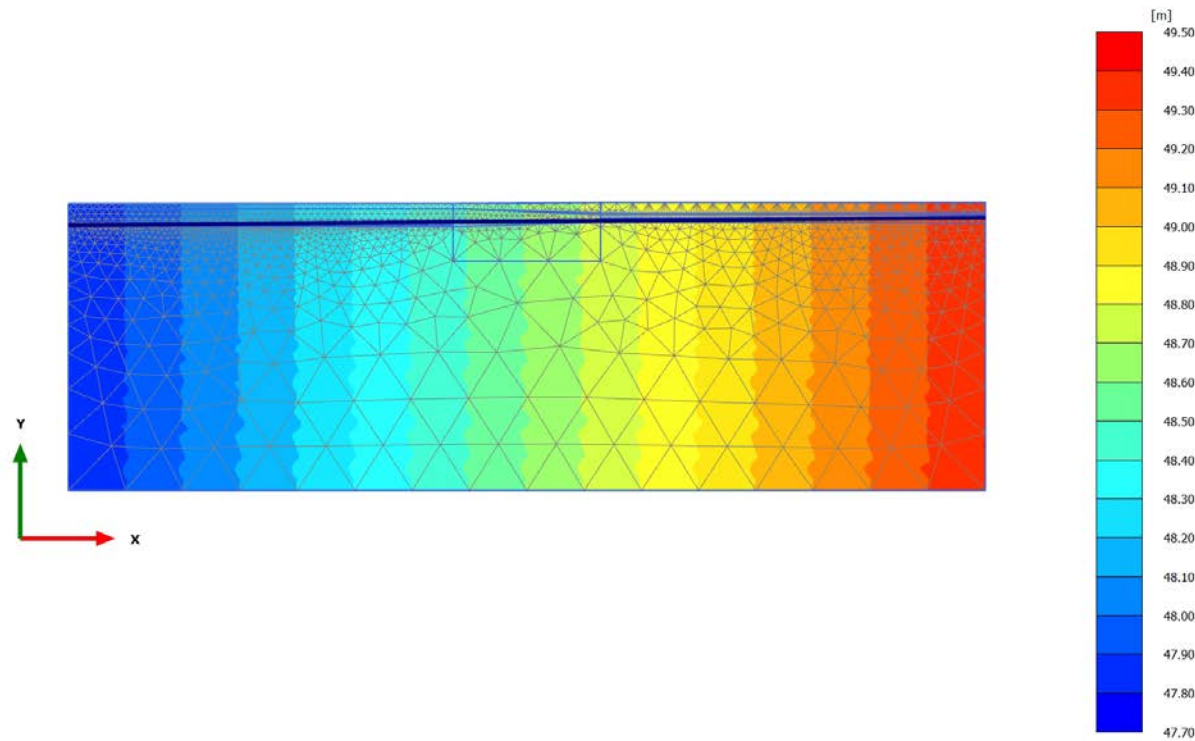
Identification number		1	2	3	4
Identification		Soil	Class V	Class IV	Class III/II
Soil model		Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb	Mohr-Coulomb
Drainage type		Drained	Drained	Drained	Drained
Colour					
Comments					
y _{unsat}	kN/m ³	18.00	24.00	24.00	24.00
y _{sat}	kN/m ³	19.00	24.00	24.00	24.00
e _{init}		0.5000	0.5000	0.5000	0.5000
n _{init}		0.3333	0.3333	0.3333	0.3333
Input method		SDOF equivalent	SDOF equivalent	SDOF equivalent	SDOF equivalent
Rayleigh α		0.000	0.000	0.000	0.000
Rayleigh β		0.000	0.000	0.000	0.000
ξ_1	%	0.000	0.000	0.000	0.000
ξ_2	%	0.000	0.000	0.000	0.000
f ₁	Hz	0.1000	0.1000	0.1000	0.1000
f ₂	Hz	1.000	1.000	1.000	1.000
E' _{ref}	kN/m ²	20.00E3	200.0E3	200.0E3	200.0E3

Identification number		1	2	3	4
v (nu)		0.3000	0.3000	0.3000	0.3000
G_ref	kN/m ²	7692	76.92E3	76.92E3	76.92E3
E_oed	kN/m ²	26.92E3	269.2E3	269.2E3	269.2E3
E'_inc	kN/m ² /m	0.000	0.000	0.000	0.000
y_ref	m	0.000	0.000	0.000	0.000
V_s	m/s	64.75	177.3	177.3	177.3
V_p	m/s	121.1	331.7	331.7	331.7
c'_ref	kN/m ²	100.0	100.0	100.0	100.0
φ' (phi)	°	45.00	45.00	45.00	45.00
ψ (psi)	°	0.000	0.000	0.000	0.000
c'_inc	kN/m ² /m	0.000	0.000	0.000	0.000
y_ref	m	0.000	0.000	0.000	0.000
Tension cut-off		True	True	True	True
Tensile strength	kN/m ²	0.000	0.000	0.000	0.000
Determination		v-undrained definition	v-undrained definition	v-undrained definition	v-undrained definition
v_u definition method		Direct	Direct	Direct	Direct
v_u,equivalent (nu)		0.4950	0.4950	0.4950	0.4950
Skempton B		0.9783	0.9783	0.9783	0.9783
K_w,ref/n	kN/m ²	750.0E3	7.500E6	7.500E6	7.500E6
Classification type		Standard	Standard	Standard	Standard
Soil class (Standard)		Coarse	Coarse	Coarse	Coarse

Identification number		1	2	3	4
< 2 µm	%	10.00	10.00	10.00	10.00
2 µm - 50 µm	%	13.00	13.00	13.00	13.00
50 µm - 2 mm	%	77.00	77.00	77.00	77.00
Use defaults		False	False	False	False
k_x	m/day	0.01537	0.01537	0.01537	0.01537
k_y	m/day	0.01537	0.01537	0.01537	0.01537
Void ratio dependency		False	False	False	False
c_k		1000E12	1000E12	1000E12	1000E12
n_init		0.3333	0.3333	0.3333	0.3333
-ψ_unsat	m	10.00E3	10.00E3	10.00E3	10.00E3
c_s	kJ/t/K	0.000	0.000	0.000	0.000
λ_s	kW/m/K	0.000	0.000	0.000	0.000
ρ_s	t/m ³	2.600	2.600	2.600	2.600
Thermal expansion type		Isotropic	Isotropic	Isotropic	Isotropic
α_sv	1/K	0.000	0.000	0.000	0.000
Phase change		False	False	False	False
D_v	m ² /day	0.000	0.000	0.000	0.000
f_Tv		0.000	0.000	0.000	0.000
Stiffness determination		Derived	Derived	Derived	Derived
Strength determination		Rigid	Rigid	Rigid	Rigid
R_inter		1.000	1.000	1.000	1.000

Identification number		1	2	3	4
Consider gap closure		True	True	True	True
Cross permeability		Impermeable	Impermeable	Impermeable	Impermeable
Drainage conductivity, dk	m ³ /day/m	0.000	0.000	0.000	0.000
R_thermal	m ² K/kW	0.000	0.000	0.000	0.000
K_0 determination		Automatic	Automatic	Automatic	Automatic
K_0,x		0.2929	0.2929	0.2929	0.2929
K_0,z		0.2929	0.2929	0.2929	0.2929

2.1.1.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater head

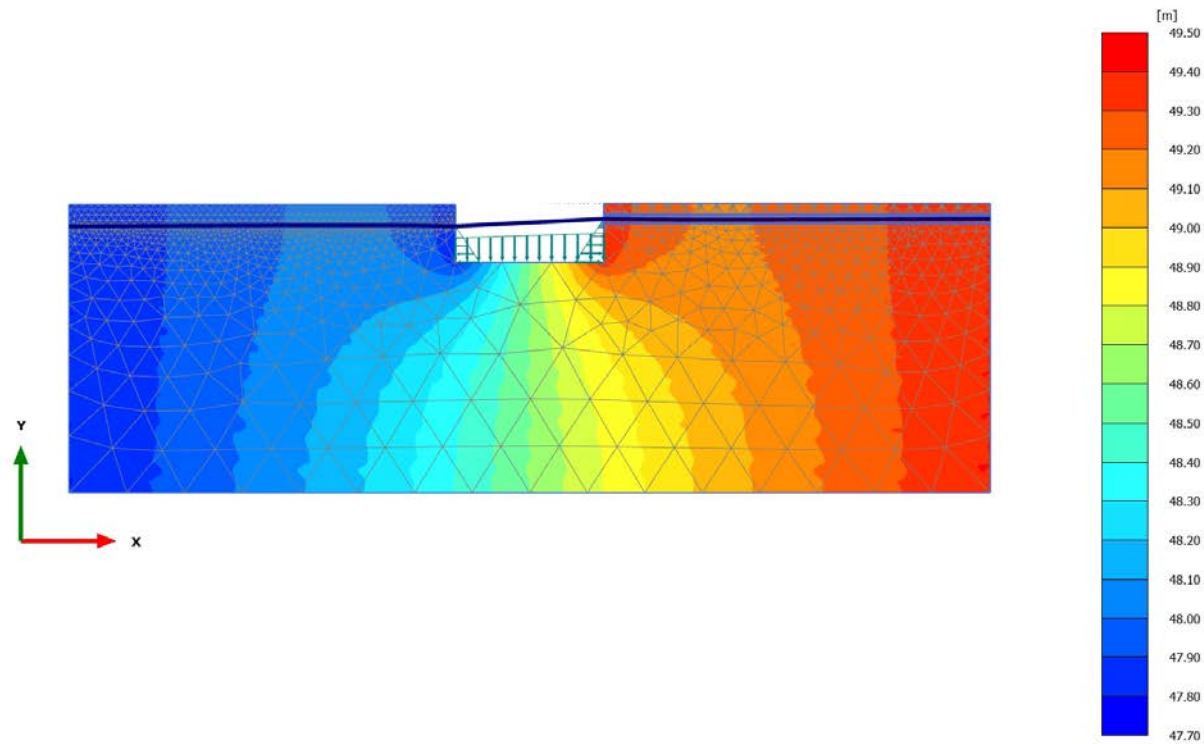


Groundwater head (scaled up 0.100 times) (Time 0.000 day)

Maximum value = 49.40 m (Element 2197 at Node 24867)

Minimum value = 47.80 m (Element 2198 at Node 13405)

2.1.1.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Groundwater head

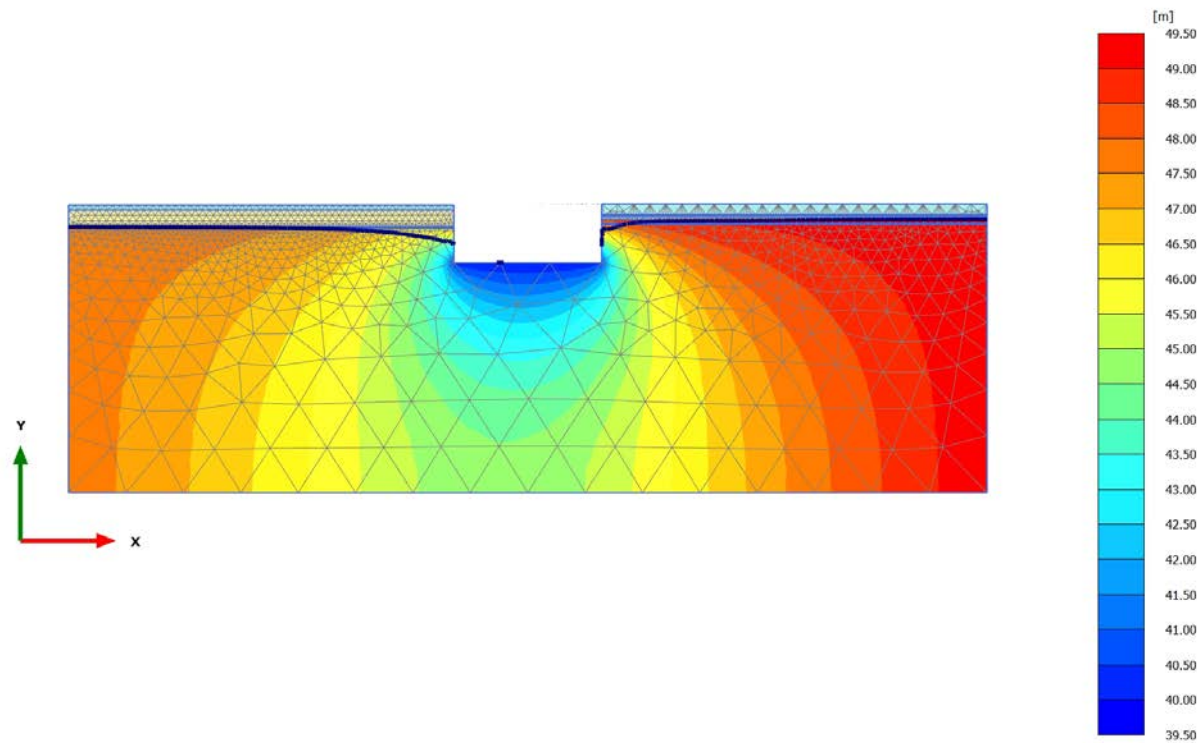


Groundwater head (scaled up 0.100 times) (Time 0.000 day)

Maximum value = 49.40 m (Element 2197 at Node 24868)

Minimum value = 47.80 m (Element 2198 at Node 13405)

2.1.1.1.3 Calculation results, Short Term [Phase_2] (2/39), Groundwater head

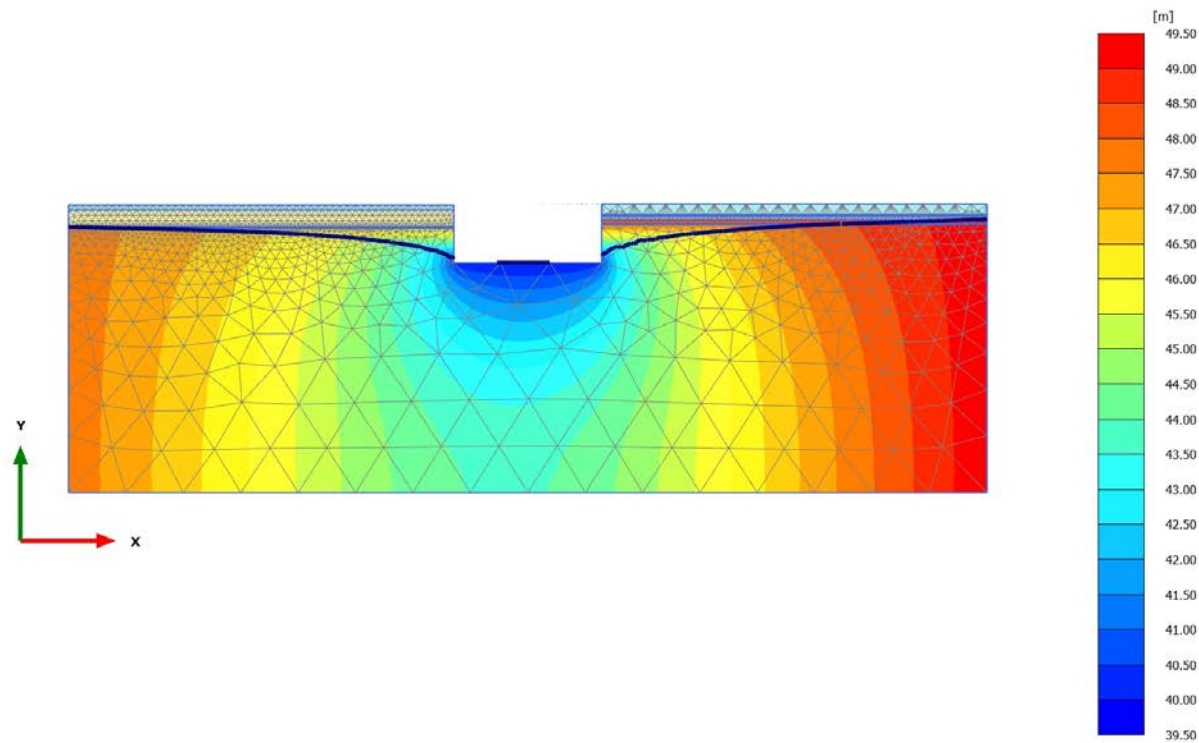


Groundwater head (scaled up 0.100 times) (Time 1.000 day)

Maximum value = 49.40 m (Element 2197 at Node 24867)

Minimum value = 40.00 m (Element 2225 at Node 21161)

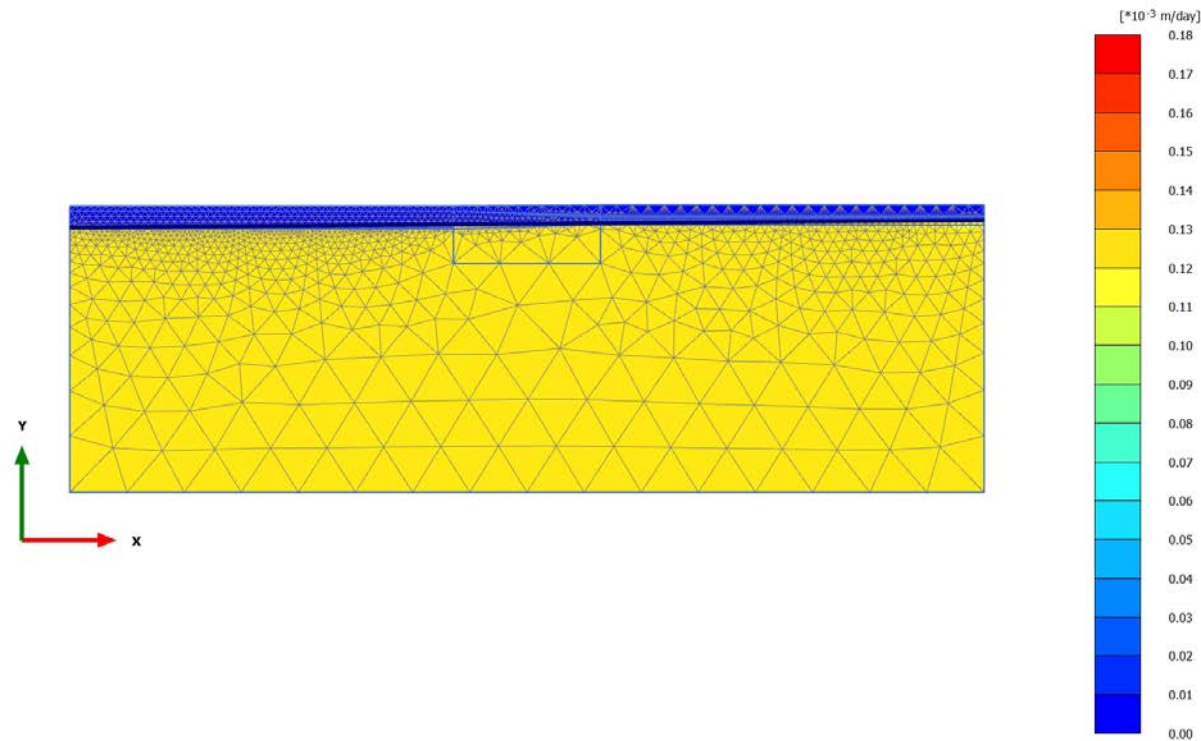
2.1.1.1.4 Calculation results, Long Term [Phase_3] (3/65), Groundwater head



Groundwater head (scaled up 0.100 times) (Time 101.0 day)

Maximum value = 49.40 m (Element 2197 at Node 24867)

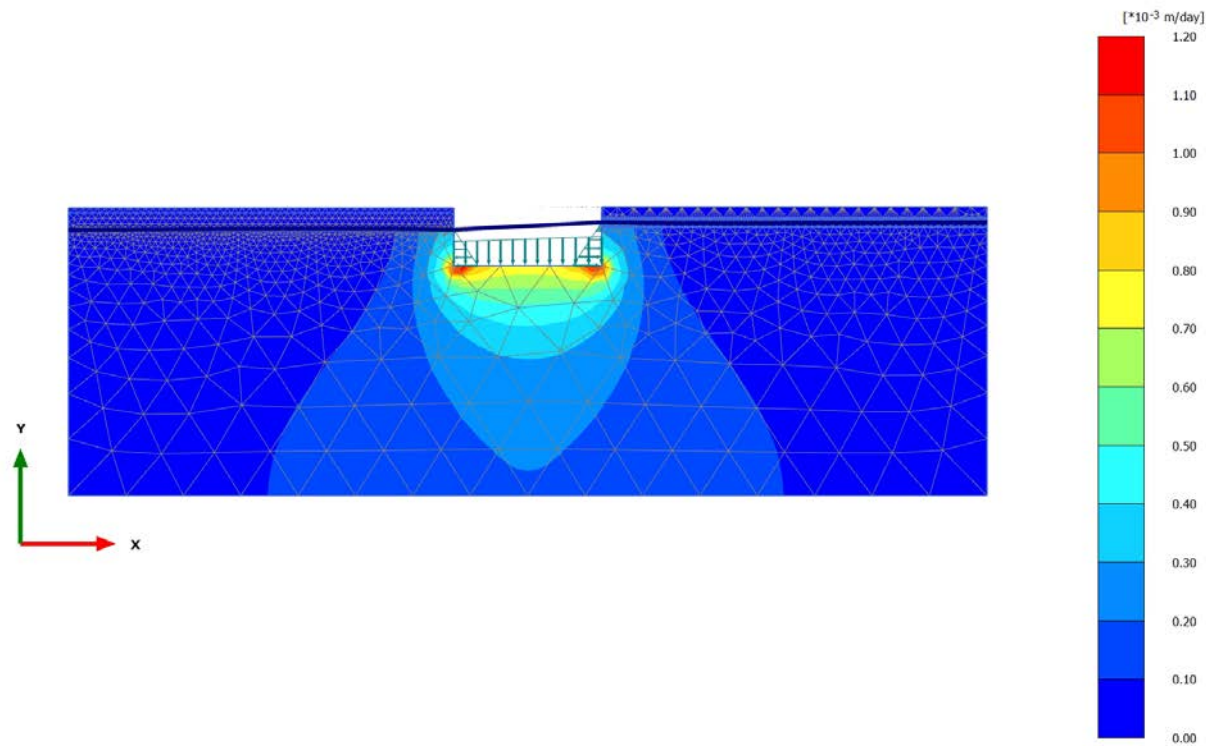
Minimum value = 40.00 m (Element 2225 at Node 21161)

2.1.2.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 50.0×10^3 times) (Time 0.000 day)

Maximum value = 0.1734×10^{-3} m/day (Element 1532 at Node 20053)

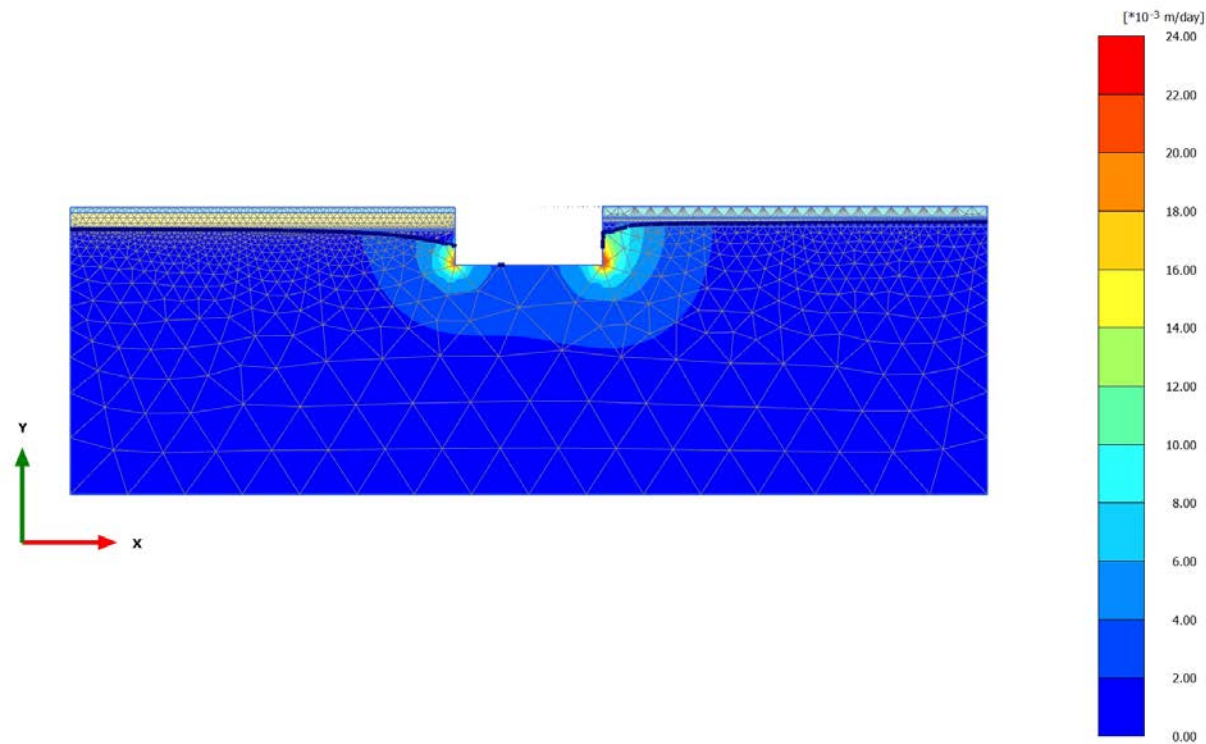
Minimum value = 3.507×10^{-12} m/day (Element 105 at Node 192)

2.1.2.1.2 Calculation results, Phase_1 [Phase_1] (1/1), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 5.00×10^3 times) (Time 0.000 day)

Maximum value = 1.156×10^{-3} m/day (Element 2251 at Node 20618)

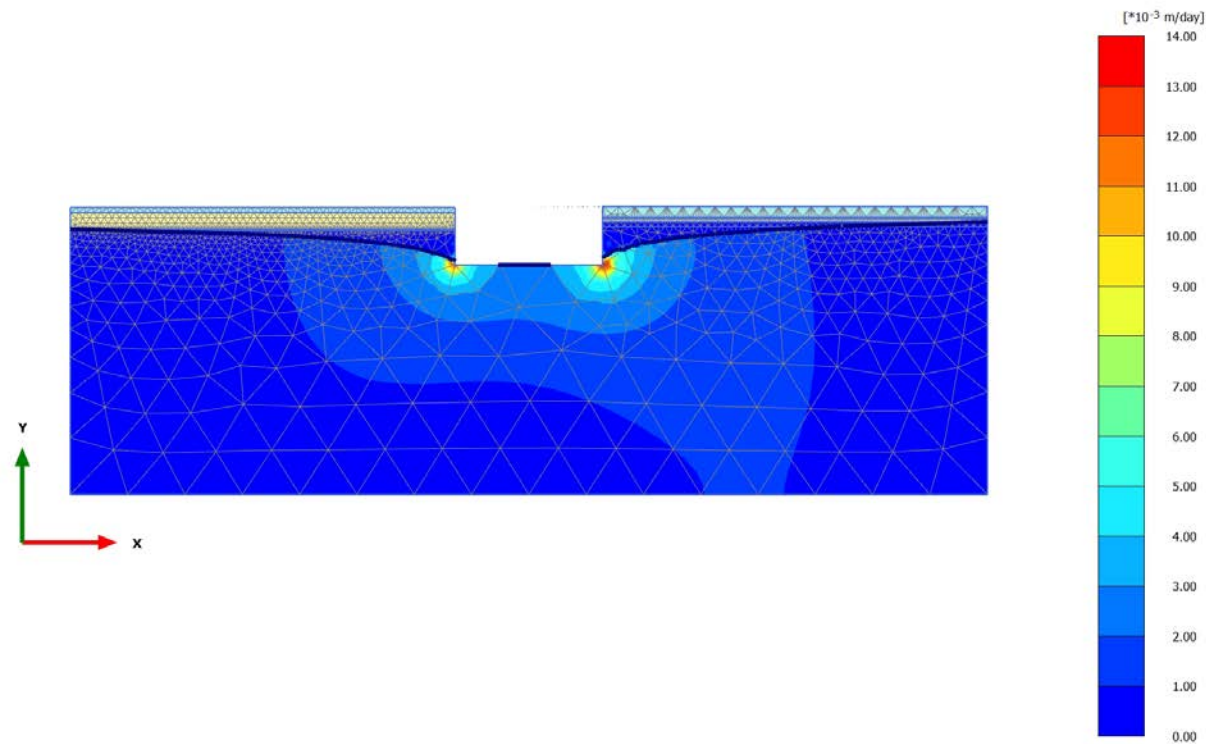
Minimum value = 2.033×10^{-12} m/day (Element 105 at Node 192)

2.1.2.1.3 Calculation results, Short Term [Phase_2] (2/39), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 200 times) (Time 1.000 day)

Maximum value = 0.02217 m/day (Element 2232 at Node 21555)

Minimum value = 0.01785×10^{-6} m/day (Element 3270 at Node 16018)

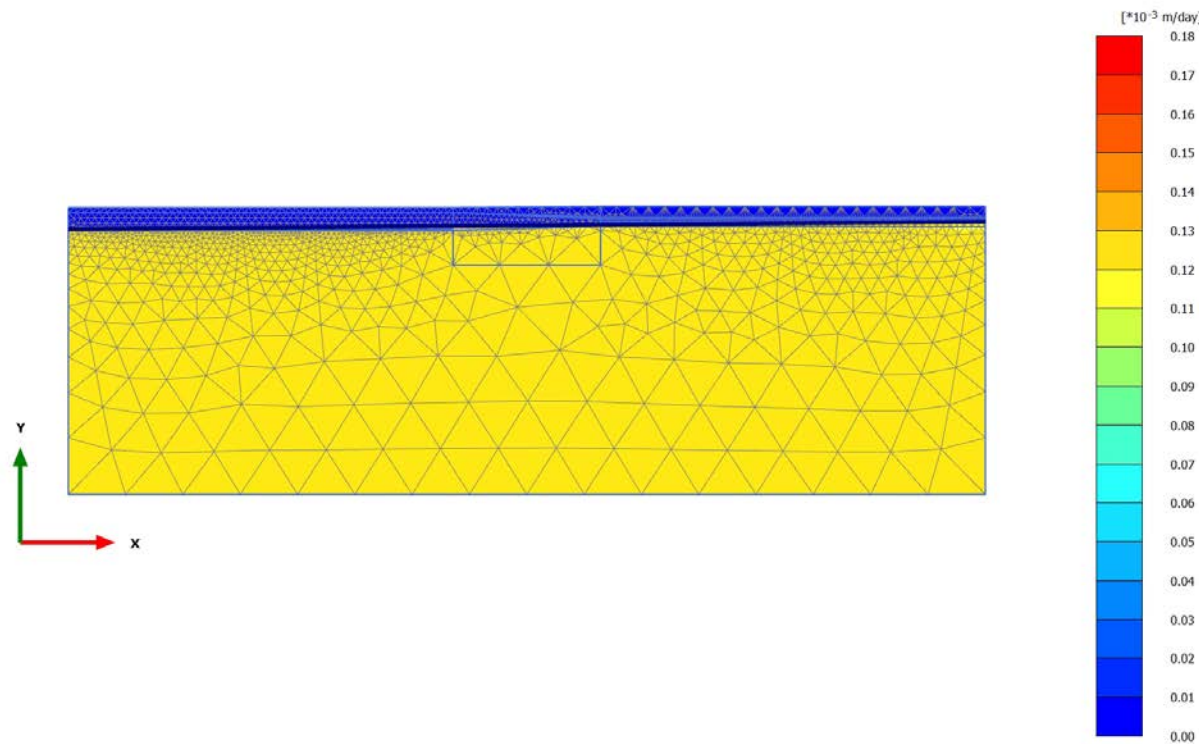
2.1.2.1.4 Calculation results, Long Term [Phase_3] (3/65), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 500 times) (Time 101.0 day)

Maximum value = 0.01390 m/day (Element 2232 at Node 21555)

Minimum value = 8.450×10^{-9} m/day (Element 2093 at Node 15082)

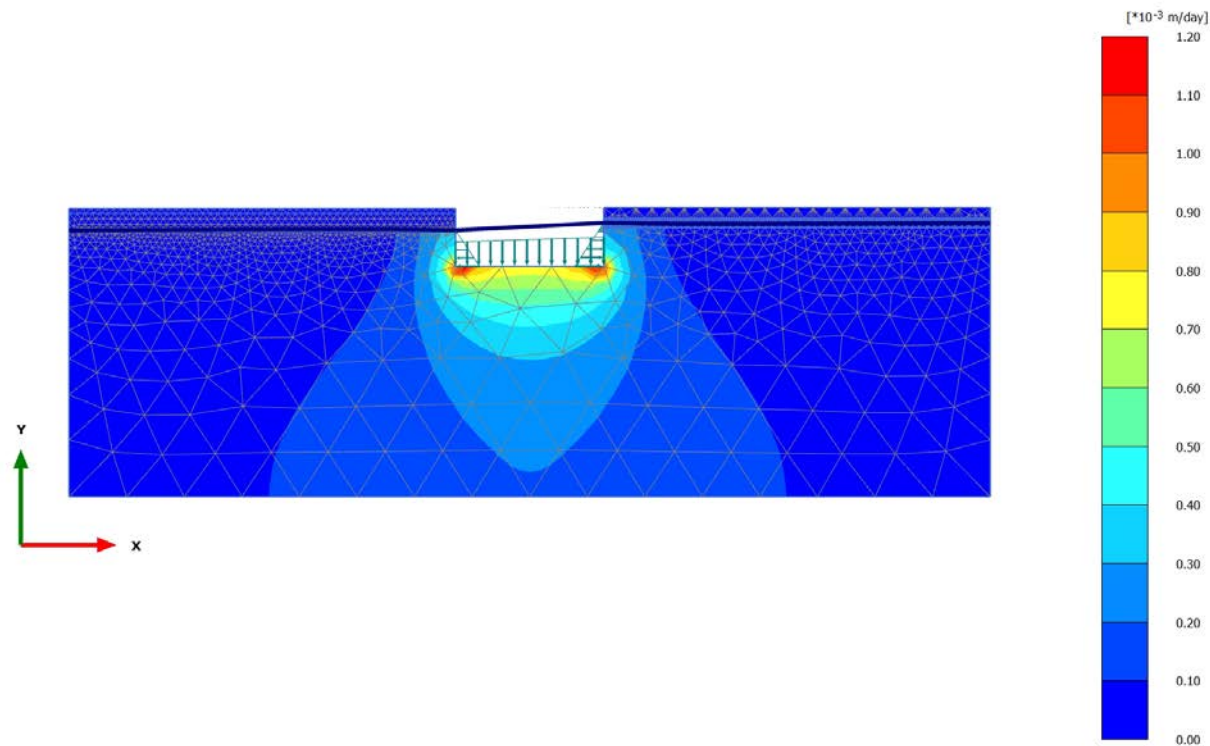
4.1.1 Calculation results, Initial phase [InitialPhase] (0/0), Groundwater flow $|q|$



Groundwater flow $|q|$ (scaled up $50.0*10^3$ times) (Time 0.000 day)

Maximum value = $0.1734*10^{-3} \text{ m/day}$ (Element 1532 at Node 20053)

Minimum value = $3.507*10^{-12} \text{ m/day}$ (Element 105 at Node 192)

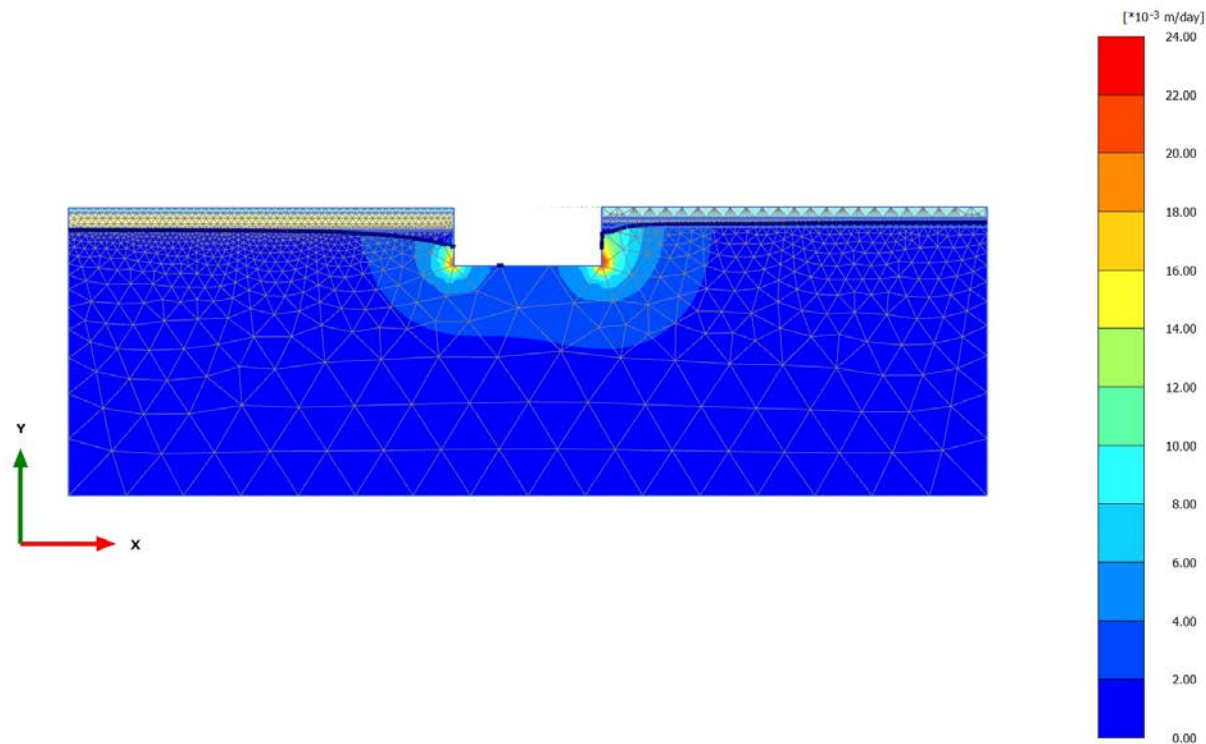
4.1.2 Calculation results, Phase_1 [Phase_1] (1 / 1), Groundwater flow $|q|$ 

Groundwater flow $|q|$ (scaled up 5.00×10^3 times) (Time 0.000 day)

Maximum value = 1.156×10^{-3} m/day (Element 2251 at Node 20618)

Minimum value = 2.033×10^{-12} m/day (Element 105 at Node 192)

4.1.3 Calculation results, Short Term [Phase_2] (2/39), Groundwater flow |q|

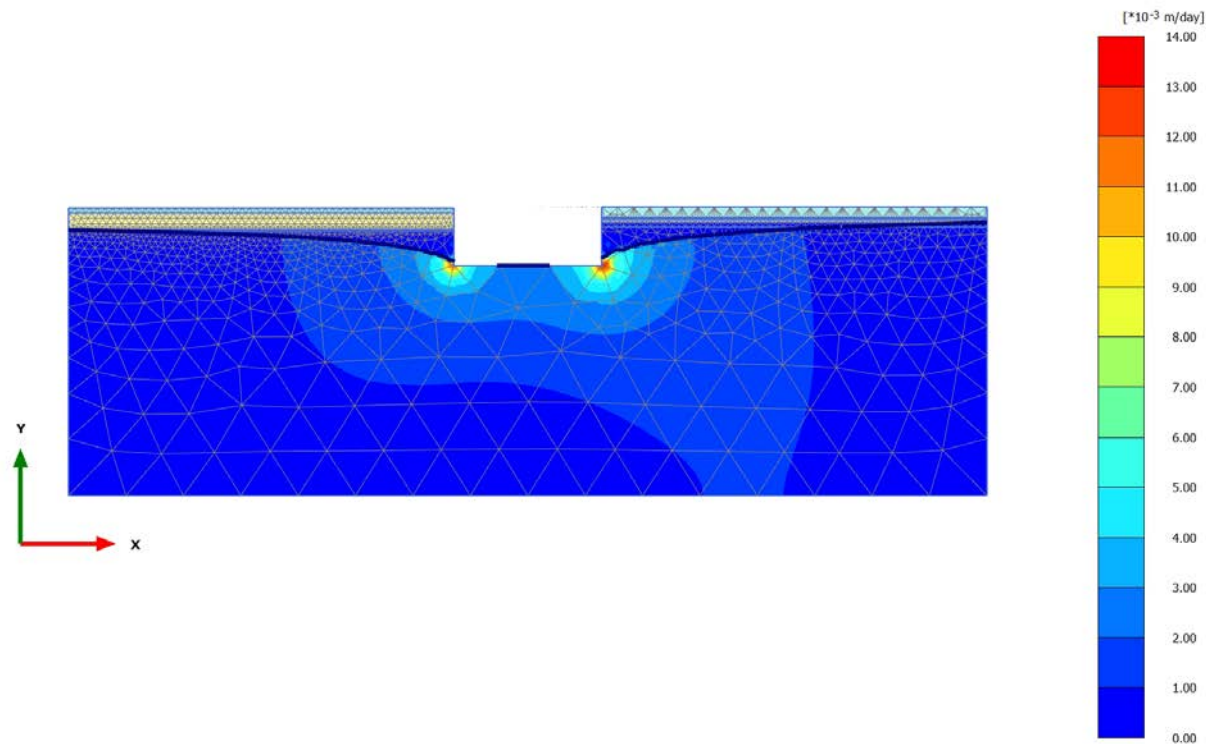


Groundwater flow |q| (scaled up 200 times) (Time 1.000 day)

Maximum value = 0.02217 m/day (Element 2232 at Node 21555)

Minimum value = 0.01785×10^{-6} m/day (Element 3270 at Node 16018)

4.1.4 Calculation results, Long Term [Phase_3] (3/65), Groundwater flow $|q|$



Groundwater flow $|q|$ (scaled up 500 times) (Time 101.0 day)

Maximum value = 0.01390 m/day (Element 2232 at Node 21555)

Minimum value = 8.450×10^{-9} m/day (Element 2093 at Node 15082)

APPENDIX C

RECORD OF GROUNDWATER TAKE UNDER EXEMPTION

Annual record of groundwater take

Reporting form for aquifer interference activities under a water access licence exemption.

When to use this form

Use this form to record and report groundwater taken through aquifer interference activities when claiming either of the following **water access licence exemptions**:

- aquifer interference activities taking up to 3 ML per water year per groundwater source
- excavation dewatering within the Botany Sands Groundwater Source taking over 3 ML per water year.

These exemptions are established under Clauses 7 and 17A of Schedule 4, and 21(6), 230(5) and 231(6) of the Water Management (General) Regulation 2018.

To claim either of the exemptions, you must meet the record-keeping and reporting requirements set out in the Water Management (General) Regulation 2018 and in this form. You must also have all other required approvals and authorisations in place and be compliant with them. This record is in addition to any record-making and reporting requirements of any other approvals or authorisations you may hold for your project.

You will need to complete and submit a separate form for each authorised project and each groundwater source you take water from every year until your project ends.

If you have taken more than 3 ML of groundwater during an aquifer interference activity in any water source other than the Botany Sands Groundwater Source, you are not eligible for a water access licence exemption. Please contact WaterNSW for assistance.

Information needed to complete this form

- details of your activity and project, and the locations where groundwater is taken
- related approvals (e.g. work or development approvals, exploration licences)
- details of the meter used to record take **or** the method used to estimate take
- records of groundwater volumes taken throughout the water year.

Returning completed forms

Completed forms can be submitted as soon as an activity ends, but you must submit your form within 28 days of the end of each water year (that is by 29 July).

Please return your completed form/s to:

- **WaterNSW customers**
Customer.Helpdesk@waternsw.com.au / PO Box 398 Parramatta NSW 2124
- **Department customers**
nrar.enquiries@nrar.nsw.gov.au / Locked Bag 5022, Parramatta NSW 2124

Where to get help

Further information is available at:

- **WaterNSW** / 1300 662 077 / Customer.Helpdesk@waternsw.com.au
www.waternsw.com.au/customer-service/water-licensing/dewatering
- **Department** / 1800 633 362 / nrar.enquiries@nrar.nsw.gov.au
water.dpie.nsw.gov.au/licensing-and-trade

How to complete and submit this form

Information about how to complete and submit this form is on the first and last two form pages.

Section A – Exemption claimed

- Exemption claimed**
- ☐ Aquifer interference activity taking up to 3 ML per water year per groundwater source
- ☐ Excavation dewatering within the Botany Sands Groundwater Source taking over 3 ML per water year

Total annual volume of groundwater taken under the exemption

Record the water year that applies to this annual record and the total volume of groundwater that was taken for the authorised project under the applying exemption in that water year.

Water year
(1 July –
30 June 20xx)

Total recorded volumeⁱ taken
within the water year (in
megalitres **or** litres)

	ML
	L

Section B – Proponent details

The proponentⁱⁱ is the person claiming the exemption and submitting the record.

Title	Surname		
Given name/s			
Company name		ABN ⁱⁱⁱ	
Address			
Town		State	Postcode
Phone		Mobile phone	
Email			
Reference number ^{iv}			

Office use only	Agency (circle one)	WaterNSW	NRAR	Date received
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Section C – Activity details

Activity description

Description of authorised project ^v			
Description of activity ^{vi}			
Groundwater extraction method ^{vii}			
Activity start date		Activity end date ^{viii}	

Activity location

Address ^{ix}		
Town	NSW	Postcode
Lot/ Deposited Plan/ Section		
GPS coordinates ^x		
Groundwater source ^{xi}		

Landowner contact details

Required if different from proponent

Title	Surname	
Given name/s		
Company name	ABN ^{xii}	
Address		
Town	State	Postcode
Phone	Mobile phone	
Email		

Section D – Existing project authorisations

You must provide details of existing approvals, permits, or authorisations where held.

If your project does not require any approvals or authorisations, please tick the box.

☐ No approvals or authorisations required

Authorisation type ^{xiii}	Issuer	Number	Annual bore extraction limit ^{xiv}

Section E – Declaration

I declare all information contained in this form is accurate, true and complete.

Signature

Date

Name	
Address	Phone
Email	
<i>It is an offence under section 91J of the Water Management Act 2000 for a person to make a statement or furnish information in connection with a metering record the person knows to be false or misleading.</i>	

Privacy statement

The information you provide on this form is subject to the *Privacy and Personal Information Protection Act 1998*. It is being collected and used for purposes relating to the water access licence exemptions described in this form. Your personal information will not be disclosed to anybody else unless authorised by law. You have the right to request access to, and correct details of, any personal information held. Further information regarding privacy can be obtained from the DPIE website www.industry.nsw.gov.au/privacy.

Section F – Record of metered volumes

Complete this section to record **metered** extraction volumes under either exemption. If the groundwater take was estimated, do not complete this section, **go to Section G**.

For excavation dewatering taking over 3 ML per water year within the Botany Sands Groundwater Source **complete this record within 24 hours of the end of take and for each week take occurs^{xv}**. Note, the water access licence exemption for excavation dewatering within the Botany Sands Groundwater Source requires the use of metering equipment^{xvi} to record the groundwater taken.

If a meter has been used to record the groundwater taken for aquifer interference activities taking up to 3 ML per water year per groundwater source, complete this record **for each period of take (rather than weekly) within 24 hours of the end of take^{xvii}**.

Meter brand and type

Meter serial number

No.	Week ending (only complete column for Botany excavation exemption)	Start date and time	Start meter reading	End date and time	End meter reading	Volume taken	Units (L, ML)	Date and time record made
1								
2								
3								
4								
5								
6								
7								
8								

Record of metered volumes – continued

This page provides additional space if needed.

Meter brand and type		Meter serial number	
----------------------	--	---------------------	--

No.	Week ending (only complete column for Botany excavation exemption)	Start date and time	Start meter reading	End date and time	End meter reading	Volume taken	Units (L, ML)	Date and time record made

Section G – Record of estimated volume

Complete this section to record estimated extraction volumes under the exemption for aquifer interference activities taking up to 3 ML per water year **only**. Complete this record **for each period of take within 24 hours of the end of take**^{xviii}.

Method used to
estimate the volume
of groundwater taken^{xix}

No.	Period of take	Estimated volume	Units (L, ML)	Date record made
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

This page provides additional space if needed.

[illegible]

Notes

ⁱ Record the **total volume of groundwater taken** in the water year for the groundwater source in either megalitres (ML) or litres (L).

ⁱⁱ The **proponent** may be any person who has the care, control or management of the land.

ⁱⁱⁱ Record your Australian Business Number

^{iv} As these exemptions commenced in December 2019, no **reference number** is available for the 2019/20 water year. In following years, please provide the reference number that will be issued to you by WaterNSW or NRAR after submitting an annual record for a previous water year for the exemption being claimed.

^v An **authorised project** means an activity:

- a) that is the subject of a consent, approval or other lawful authority conferred by or under an Act, or
- b) to which Division 5.1 of the *Environmental Planning and Assessment Act 1979* applies, or
- c) that is exempt development under that Act.

Example authorised projects include (but are not limited to):

- constructing or maintaining a building or other infrastructure
- creating an artificial lake that fills from groundwater
- installing and operating a ground source heating or cooling system
- exploring for minerals (including coal or petroleum)
- investigating groundwater resources or geotechnical conditions
- investigating a contaminated site
- laying cables or pipelines.

^{vi} An **activity** describes how groundwater is taken, and the number of works involved.

Example activities include (but are not limited to):

- a battery of 15 spear points to dewater a building construction site
- drilling 25 reverse circulation mineral exploration drill holes
- extracting groundwater from a permanent sump in a building basement
- pump-and-treat of contaminated groundwater using four extraction bores
- evaporation of water from an artificial lake
- extracting groundwater from a temporary trench
- groundwater seepage from a cutting
- water quality sampling from eight monitoring bores using a bailer
- conducting a pumping test
- dewatering from two coal seam gas pilot production bores.

^{vii} Examples of **groundwater extraction methods** include pump, airlift, bailer, removed with ground materials, free draining, evaporation from lake etc. Where several extraction points are involved, please detail the **number and type**.

^{viii} Specify **best estimate of activity end date** if uncertain.

^{ix} For **multiple locations**, please attach a separate list of activity locations and landowner contact details containing information for all fields in Section C of the form.

^x GPS coordinates, please use **Datum GDA94**.

^{xi} If you are unsure which **groundwater source** you are taking water from, please contact WaterNSW or NRAR for assistance.

^{xii} Record your Australian Business Number

^{xiii} **Example authorisations** include (but are not limited to):

- water supply work approvals issued under the *Water Management Act 2000*
- water licences issued under the *Water Act 1912*
- exploration licences issued under the *Mining Act 1992*
- development approvals issued under the *Environmental Planning and Assessment Act 1979*
- environment protection licences issued under the *Protection of the Environment Operations Act 1997*.

^{xiv} Supply the **annual bore extraction limit** if listed on your water supply work approval or other authorisation. Note, it is a requirement of the water access licence exemption for excavation dewatering in the Botany Sands Groundwater Source that the water supply work approval be subject to an annual extraction limit.

^{xv} For excavation dewatering within the Botany Sands Groundwater Source taking over 3 ML per water year, for the duration of your activity, you must **make a record within 24 hours of ceasing to take groundwater**. For take occurring over a longer period, you must also make a **record of the total volume of groundwater taken during each week**. Your records must be kept for the duration of your activity and retained for five years. For the purposes of the exemption you do not need to make a record for the weeks during your activity where no groundwater is taken. A new week commences each Monday at 12.01 am.

^{xvi} For the purposes of this exemption, metering equipment consists of a meter and a data logger. Telemetry is not required unless specified by a condition of the water supply work approval. In the **event metering equipment becomes faulty**, you must report within 24 hours to WaterNSW at www.waternsw.com.au/s91i. An offence applies under section 91IA of the *Water Management Act 2000* for failing to report faulty metering equipment within 24 hours.

^{xvii} For aquifer interference activities taking up to 3 ML per water year, a **record of the total volume of groundwater taken during each period of take must be made within 24 hours of the end of take**. This record must be retained for 5 years. You must make a new record for each period of take during your activity. For the purposes of the exemption you do not need to make a record for the periods during your activity where no groundwater is taken. The **period of take** is either the date groundwater was taken, or the start and end dates for a period of continuous take.

^{xviii} For aquifer interference activities taking up to 3 ML per water year, a **record of the total volume of groundwater taken during each period of take must be made within 24 hours of the end of take**. This record must be retained for 5 years. You must make a new record for each period of take during your activity. For the purposes of the exemption you do not need to make a record for the periods during your activity where no groundwater is taken. The **period of take** is either the date groundwater was taken, or the start and end dates for a period of continuous take.

^{xix} **Example methods used to estimate** the volume of water taken include (but are not limited to):

- v-notch weir or velocity times area
- borehole volumes
- sump volumes
- bailer volumes
- bucket volumes
- evaporation calculations
- seepage calculations
- other (please specify).

APPENDIX D

IMPORTANT INFORMATION

This Document has been provided by Morrow Geotechnics Pty Ltd subject to the following limitations:

This Document has been prepared for the particular purpose outlined in Morrow Geotechnics' proposal and no responsibility is accepted for the use of this Document, in whole or in part, in other contexts or for any other purpose.

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Conditions may exist which were undetectable given the limited nature of the enquiry Morrow Geotechnics was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Document. Accordingly, additional studies and actions may be required. No geotechnical investigation can provide a full understanding of all possible subsurface details and anomalies at a site.

In addition, it is recognised that the passage of time affects the information and assessment provided in this Document. Morrow Geotechnics' opinions are based upon information that existed at the time of the production of the Document. It is understood that the Services provided allowed Morrow Geotechnics to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.

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Where ground conditions encountered at the site differ significantly from those anticipated in the report, either due to natural variability of subsurface conditions or construction activities, it is a condition of the report that Morrow Geotechnics be notified of any variations and be provided with an opportunity to review the recommendations of this report.

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