

PVD Simulate Report

Forward consolidation forecast at $r_e = 677$ mm · probabilistic analysis

DECISION

At the chosen spacing of 1,200 mm (square), $U_s = 90$ % at 408 days on the P10 curve. Surcharge may be removed after day **409**.

Settlement by day 409: ● P10 1,143 mm · ● P50 1,236 mm · ● P90 1,330 mm
At the end of the programme (day 1825): ● P10 1,299 mm · ● P50 1,378 mm · ● P90 1,482 mm

Threshold	U_s (settlement-based) = 90 %; U_p reaches 90 % at day 425 (P10)	Treated depth	10.00 m, drains fully penetrating
Pattern	square	Identity	r_e 677 mm · r_w 33.1 mm · n 20.5 · 6,944 drains/ha
Vacuum	off	Creep	on (C_α/C_c : L1 0.040, L2 0.040)
Smear	$k_H/k_S = 2.00$, $r_s/r_w = 2.27$	Well resistance	q_w not entered; $D \geq 5$ needs $q_w \geq 24$ m ³ /year
Samples	100 of 100 accepted · seed 20260929	Drainage	radial only (vertical flow off)

The removal day is read off the P10 U_s curve, the slowest tenth of the sampled grounds: for a duration the conservative percentile is the late one.

Project	Riverside Embankment — Stage 2	Job no.	EX-2026-004
Client	Example Infrastructure Authority	Document no.	EX-GEO-CAL-012
Site	Example site, VIC	Revision	A
Analysis	Simulate — probabilistic	Date of issue	2026-09-30
Purpose of issue	Example report — for illustration	Status	EXAMPLE
Prepared by	A. Engineer	Checked by	B. Checker
Approved by	C. Approver	Signature / date	
PROVENANCE PVDCal — PVD Design Tool, a GeotechLogic product · build 2026-10-01 07:35:33 · solver solveAxisym2D (radial) · Latin-hypercube seed 20260929 · samples 100 requested, 100 accepted · units m, kPa, days; mm for drain geometry, spacing and settlement			

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1. Introduction and scope

This report presents a probabilistic performance simulation of ground improved with prefabricated vertical drains (PVDs) over a treated depth of 10.00 m comprising 2 soil layers. The objective is to forecast the degree of consolidation and settlement against time for the specified drain geometry and loading schedule.

The analysis is **probabilistic**: the input parameters carrying a declared range were sampled by stratified Latin Hypercube over **100** accepted samples (of 100 requested), and the results are reported as P10 / P50 / P90 percentiles. The sampling plan was drawn from the recorded seed **20260929**, which travels with the project file: re-running this project reproduces the numbers in this report exactly. A different seed is a different draw of the same distributions, and the sampling interval quoted with each percentile in Section 4 is how far it would be expected to move. For a forward forecast the **P10** curve is the slow (conservative) tail of the consolidation response.

This report was generated automatically from the analysis inputs and results. The numerical outputs are reproducible from the tabulated inputs: Section 2 gives the adopted value of every parameter and, for a probabilistic run, the range and distribution of every parameter that was sampled; Section 4 shows what each declared range, alone, did to the answer. Engineering judgement on the specific site, soil profile and construction sequence always supersedes the automated narrative in Section 6.

2. Basis of analysis

2.1 Soil profile: state and compression

Table 1 — Compression magnitudes and stress state as analysed. “Drains” records whether the drains reach that layer; a layer marked “no” consolidates vertically only.

Layer	H (m)	γ_{sat} (kN/m ³)	e_0	C_c	C_r	σ'_p (kPa)	State	Drains
L1	4.00	16.0	1.60	0.500	0.050	45	OC	yes
L2	6.00	15.5	1.90	0.700	0.070	70	OC	yes

2.2 Soil profile: flow and stiffness

Table 2 — Hydraulic and stiffness properties. k_0 is the initial horizontal hydraulic conductivity, C_k the permeability-change index (change in void ratio per log cycle of k), β the sharpness of the transition of the compression index across σ'_p , and E_u the undrained modulus used for immediate settlement.

Layer	k_0 (m/s)	C_k	β	c_v (m ² /d)	E_u (kPa)
L1	1.50e-9	0.800	5.0	disabled	3,000
L2	8.03e-10	0.950	5.0	disabled	5,000

c_v is shown as *disabled* because no layer carries a vertical coefficient: the run used the radial-only kernel and vertical flow contributed nothing. The consequence for this deliverable is stated in Section 5.

2.3 In-situ effective stress and over-consolidation

Table 3 — Effective stress at each layer mid-depth, interpolated from the solver's own profile. $\sigma'_0(z) = \Sigma(\gamma - \gamma_w) \cdot \Delta z$ below the water table, using the unit weights in Table 1 and the groundwater level in Section 2.6, so every value here can be rebuilt by hand. The fifth column is the σ'_p of the **representative sampled profile** this report's curves come from — σ'_p carries a range (Table 5), so it is a draw from that range and will differ from the typed value without any clamping having occurred.

Layer	z_{mid} (m)	σ'_0 (kPa)	σ'_p typed (kPa)	σ'_p this profile (kPa)	OCR	Interpretation
L1	2.00	12.4	45.0	38.8	3.14	drawn from the sampled range
L2	7.00	41.8	70.0	61.2	1.46	drawn from the sampled range

2.4 Drain and smear geometry

Drain product	band drain, 100 × 4.0 mm; equivalent $r_w = (w + t)/\pi$		
Equivalent drain radius r_w	33.1 mm	Radius of influence r_e	677 mm
Spacing ratio $n = r_e/r_w$	20.5	Smear	$k_h/k_s = 2.00$, $r_s/r_w = 2.27$
Smear radius r_s	75 mm	Transition radius r_t	150 mm
Treated depth	10.00 m	Drain installation depth	10.00 m (fully penetrating)
Discharge capacity q_w (product)	— not entered —	Peak flow demand per drain	3.8 m ³ /year (first order)
Well resistance, $D = q_w/(k_h l_m^2)$	q_w was not entered , so D cannot be computed. With $k_h = 1.50\text{e-}9$ m/s (the fastest drained layer) and $l_m = 10.0$ m (one-way discharge), $D \geq 5$ requires $q_w \geq 24$ m³/year at the confining stress in the ground. Check the product against that figure.		

r_w above is the geometric equivalent radius of the drain cross-section; it has **not** been reduced to represent finite discharge capacity. Well resistance is therefore not included in this analysis. The demand figure is first order: the unit-cell area πr_e^2 times the peak rate of *primary* settlement, which is the water volume the drain must carry at its busiest. Immediate settlement is excluded because it is at constant volume. Compare it with the manufacturer's q_w at the confining stress and gradient expected in the ground, not at the catalogue value. See Section 5.

2.5 Loading schedule

Table 4 — Surcharge loading applied, stage by stage. Start is measured from the beginning of the analysis; “derivation” records how Δp was obtained.

Stage	Start (d)	Ramp (d)	Δp (kPa)	Derivation
1	0.0	30.0	100.0	entered directly as Δp

Cumulative final surcharge $\Sigma \Delta p = 100.0$ kPa applied over an analysis window of $t_{\max} = 1825$ days. Vacuum preloading is **off**.

2.6 Hydrology and boundary conditions

Groundwater table z_{GWT}	0.00 m	Unit weight of water γ_w	9.81 kN/m ³
Top boundary	drainage	Base boundary	impermeable

2.7 Numerical discretisation

Solver kernel	solveAxisym2D — radial-only layered kernel, cell-centred finite volume with Crank–Nicolson time stepping
Vertical slices	20 slices at a target $\Delta z = 0.50$ m
Radial mesh	Zone-aware non-uniform finite volume; cell faces placed exactly at r_s and r_t ; distance-weighted harmonic-mean face conductivities

2.8 Parameters sampled, and over what range

Table 5 — Every input that carried a declared spread, with the range and distribution the Latin Hypercube drew from. Parameters not listed here were held at the single value tabulated above and contribute no width to any reported band.

Layer	Parameter	Range sampled	Distribution	Drawn
L1	k_0 (m/s)	8.00e-10 – 2.80e-9	uniform over [min, max]	per layer
L1	C_k	0.720 – 0.880	uniform over [min, max]	per layer
L1	β	4.00 – 6.00	uniform over [min, max]	per layer
L1	C_c	0.440 – 0.560	uniform over [min, max]	per layer
L1	C_r	0.0440 – 0.0560	uniform over [min, max]	per layer

Table 5 (continued)

Layer	Parameter	Range sampled	Distribution	Drawn
L1	σ'_p (kPa)	38.0 – 52.0	uniform over [min, max]	per layer
L1	e_0	1.50 – 1.70	uniform over [min, max]	per layer
L1	E_u (kPa)	2600 – 3400	uniform over [min, max]	per layer
L2	k_0 (m/s)	4.30e-10 – 1.50e-9	uniform over [min, max]	per layer
L2	C_k	0.860 – 1.04	uniform over [min, max]	per layer
L2	β	4.00 – 6.00	uniform over [min, max]	per layer
L2	C_c	0.620 – 0.780	uniform over [min, max]	per layer
L2	C_r	0.0620 – 0.0780	uniform over [min, max]	per layer
L2	σ'_p (kPa)	60.0 – 80.0	uniform over [min, max]	per layer
L2	e_0	1.78 – 2.02	uniform over [min, max]	per layer
L2	E_u (kPa)	4300 – 5700	uniform over [min, max]	per layer

Smear (η , r_s , r_t) was held **deterministic** at the values in Section 2: one rig installs every drain, so these are drawn once per sample when ranged, and not at all here.

Admissibility. A drawn parameter set is clamped, not discarded, when it falls outside the physical caps: C_c/C_r held within the configured window, β within its sampling bounds, and σ'_p never below the in-situ σ'_0 at that depth. Of 200 draws, 0 were clamped on C_c/C_r , 0 on σ'_p and 0 on β . Every accepted sample is solved once at the fixed geometry in Section 2, so a sample fails only if the solver itself fails.

3. Analysis method

Governing model. Radial (and, where $c_v > 0$, coupled radial–vertical) consolidation is solved on a cell-centred finite-volume grid. Face conductivities are distance-weighted harmonic means, so flux is conserved across sharp permeability contrasts at the smear and transition boundaries and at layer interfaces. Time integration is Crank–Nicolson for the radial kernel and Peaceman–Rachford ADI for the coupled problem.

Stress-dependent properties. Compression follows a smooth transition of the compression index across σ'_p , at a sharpness set by β : the operative index follows the recompression slope C_r while $\sigma' < \sigma'_p$ and the virgin slope C_c once $\sigma' > \sigma'_p$. β is a shape parameter of that transition, not a hydraulic quantity. Hydraulic conductivity starts at k_0 and decreases with void ratio through C_k , so the operative $c_h(\sigma') = k_h(\sigma') / (m_v(\sigma') \cdot \gamma_w)$ is re-evaluated at every step rather than held constant.

Forward simulation. The solver is run once at the specified geometry and loading, producing the degree-of-consolidation and settlement histories reported in Section 4.

Uncertainty propagation. Inputs carrying a declared range were sampled by stratified Latin Hypercube. Every sample is solved independently, and the reported P10 / P50 / P90 values are percentiles of the resulting distribution. Smear parameters (η , r_s , r_t) are sampled globally rather than per layer, because one installation rig installs every drain on the site.

Degree of consolidation. U_s is the settlement-based degree of *primary* consolidation and cannot exceed 100 %: creep (where enabled), immediate undrained settlement and any other add-on are carried in the reported settlement but are deliberately excluded from the U numerator. U_p is the pore-pressure-based degree of consolidation.

4. Results

4.1 Time to the reporting threshold

Table 6 — Time to reach $U_s = 90\%$ and $U_p = 90\%$ at the specified geometry, and the settlement reached by that date on the same percentile curve. Percentiles are of the sampled profiles. The **sampling interval** is what re-running this analysis with a fresh sample set of the same size would be expected to give, 9 times in 10: each percentile is an order statistic of **100** samples and moves even when the model and the inputs do not. It is the uncertainty of the SAMPLING, not of the ground, which the P10–P90 spread covers; both are real and they are not the same thing. Computed without assuming a distribution and without crediting the Latin-Hypercube stratification, so it errs wide.

Percentile	Time to $U_s = 90\%$	Sampling interval on that date	Time to $U_p = 90\%$	Total settlement by that date
P10 — slow tail	408.3 d	368–495 d	425.0 d	1,143 mm
P50 — median	287.7 d	266–306 d	298.0 d	1,166 mm
P90 — fast tail	193.2 d	184–212 d	204.5 d	1,157 mm

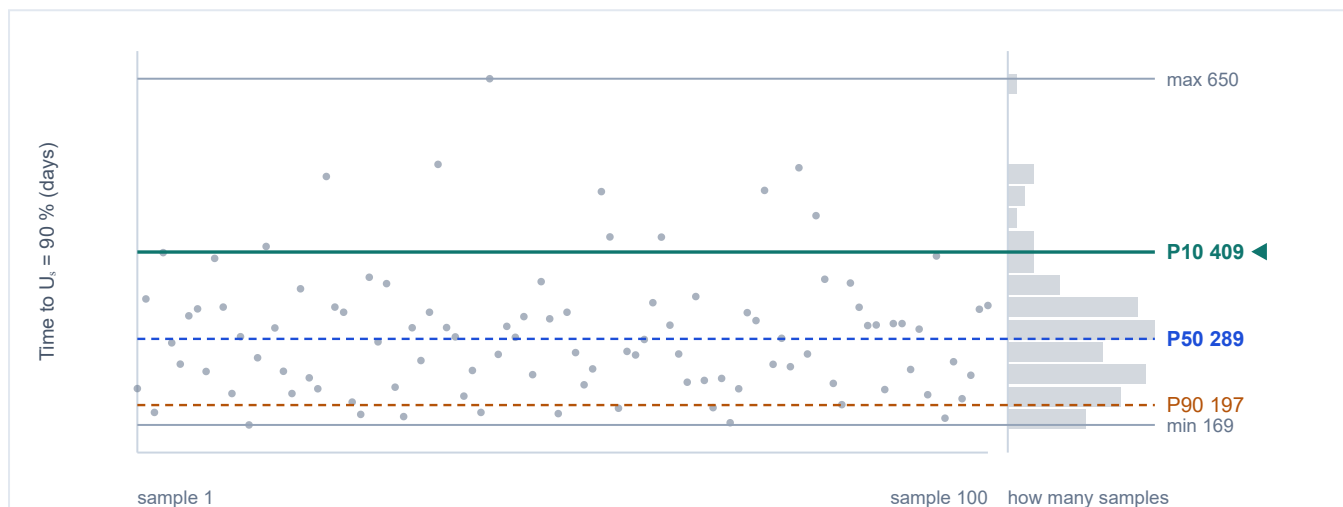
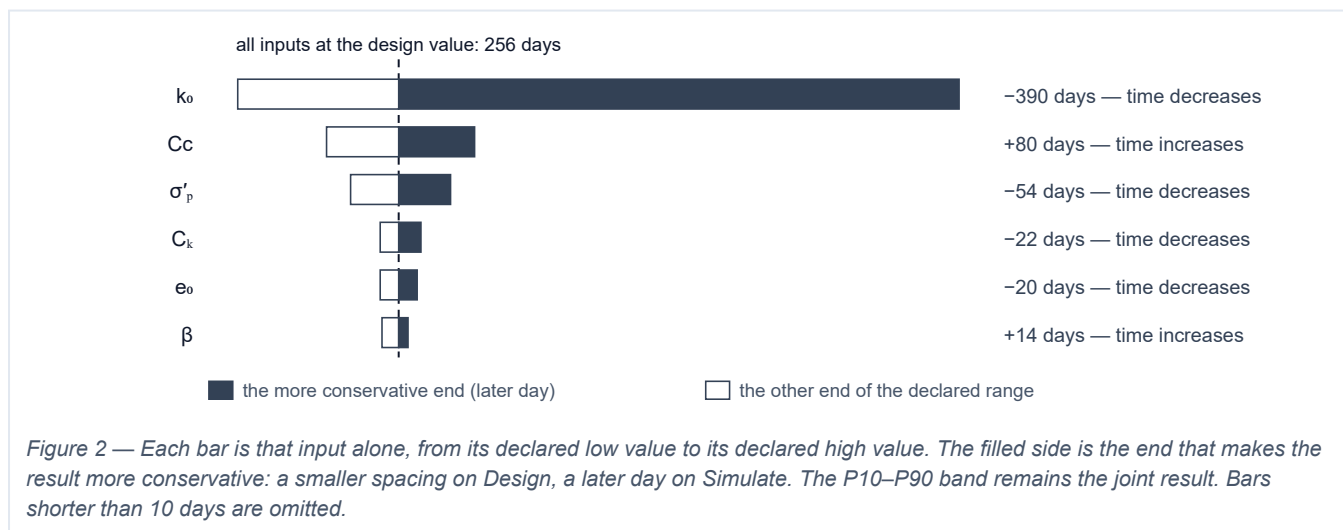


Figure 1 — Every accepted sample's time to $U_s = 90\%$, in the order the run produced them, with the distribution of the same numbers down the right-hand side. This is the picture behind the three dates in the table above. **P10 is the slowest tenth of the sampled grounds** and therefore the **LONGEST** time here — the same label sits on the smallest number in a Design report, where the slow ground needs the tightest spacing. The line marked with an arrow on the figure is the conservative end in both, so P10 is the date to allow in a programme. The plotted values are in Table A2 of the appendix.

4.2 What moved the time to $U_s = 90\%$



Other ranged inputs moved the time to $U_s = 90\%$ by less than 3 days.

Table 7 — The bars of Figure 2, in the same order: the time to $U_s = 90\%$ with that input alone at its declared low and at its declared high value. The design answer is the P10 spacing of Section 4.1, not any of these.

#	Input	At low (days)	At high (days)	Swing (days)	Direction
1	k_0	559	169	-390	time decreases
2	C_c	217	297	+80	time increases
3	σ'_p	284	230	-54	time decreases
4	C_k	268	246	-22	time decreases
5	e_0	266	246	-20	time decreases
6	β	247	261	+14	time increases

4.3 Adverse corner

Time to $U_s = 90\%$ at the corner **837 days**

P10 (slow tail) 408 days — the corner is 105 % later

Worst sampled profile (of 100) 650 days

Table 8 — The corner itself: every input with a declared range, pinned at the end its own bar in Figure 2 found worse (the end that gives the later date). Inputs with no range are not listed; they stay at the design value.

Layer	Input	Pinned at	Value
L1	k_0	declared low value	8.00e-10
L2	k_0	declared low value	4.30e-10
L1	C_c	declared high value	0.560
L2	C_c	declared high value	0.780
L1	σ'_p	declared low value	38
L2	σ'_p	declared low value	60
L1	C_k	declared low value	0.720
L2	C_k	declared low value	0.860
L1	e_0	declared low value	1.500
L2	e_0	declared low value	1.780
L1	β	declared high value	6.000
L2	β	declared high value	6.000
L1	C_r	declared high value	0.056
L2	C_r	declared high value	0.078
L1	E_u	declared low value	2600.000
L2	E_u	declared low value	4300.000

A check, not a second recommended spacing. Pinning every adverse end at once is conservative: those extremes are unlikely to occur together. The P10–P90 band remains the design result. The corner shows how far the declared ranges could push the answer if every one of them went the wrong way at the same time, and it moves with the ranges: widen one and this number moves with it.

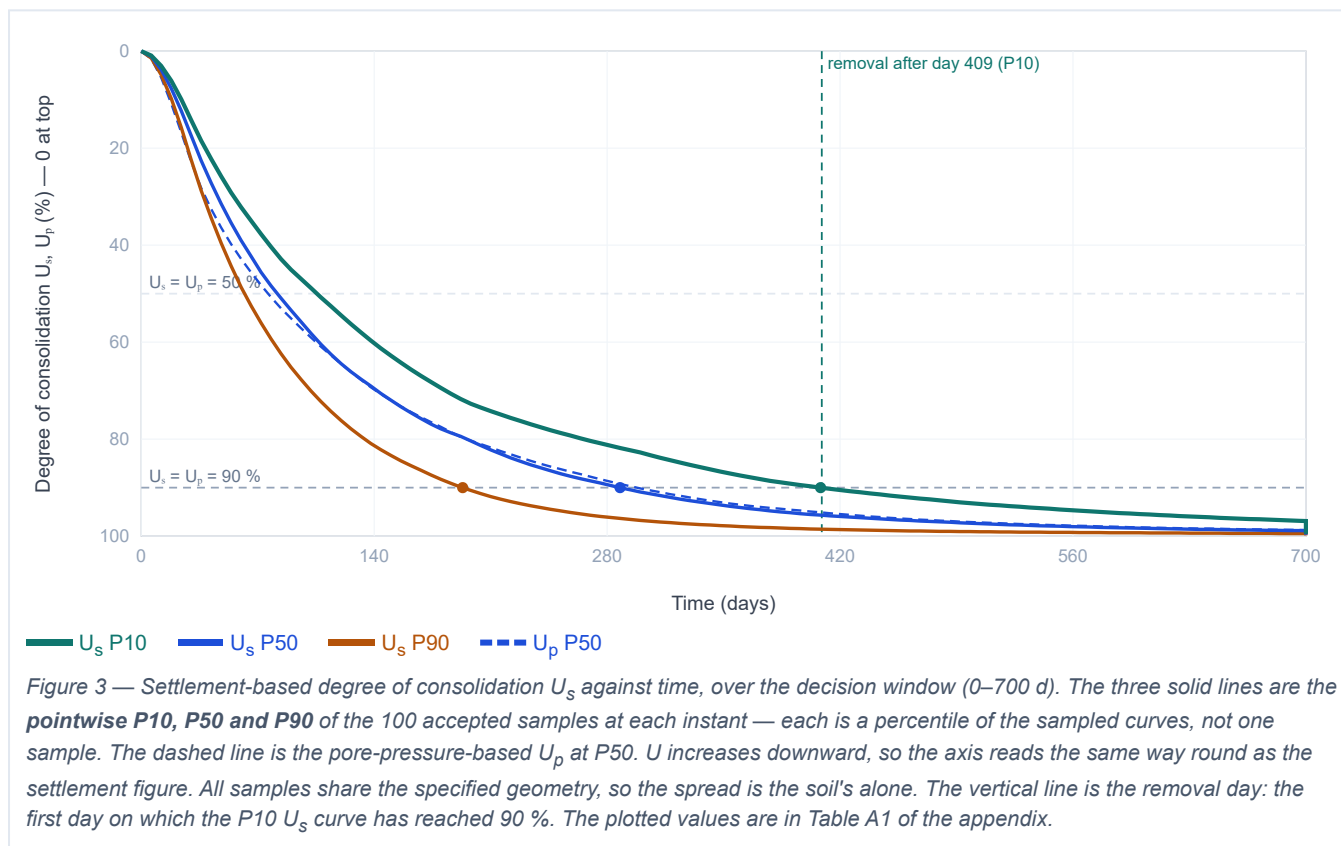
P10 is the slow tail. For a duration the conservative percentile is the late one: P10 is the date reached by the slowest 10 % of sampled profiles, P90 by the fastest 10 %. The times therefore run from late to early down the table, the opposite of a spacing. Each row reads its own percentile: the settlement is the P10 / P50 / P90 curve at that row's own date, so the slow tail is paired with the slow settlement, not with the median.

4.4 Settlement magnitude

Radius of influence r_e	677 mm	Spacing ratio $n = r_e/r_w$	20.5
Ultimate primary settlement S_∞ (primary consolidation only)	827 mm (P10–P90: 758–913 mm)		
Total settlement at $t = 365$ d (primary + creep + immediate)	1,215 mm (P10–P90: 1,114–1,309 mm)		
Total settlement at $t_{\max} = 1825$ d (primary + creep + immediate)	1,378 mm (P10–P90: 1,299–1,482 mm)		
Immediate (undrained) settlement	included in the settlement above; E_u is set in 2 of 2 layers (see Section 2). First-order magnitude $\Sigma \Delta p \cdot H/E_u = 253$ mm, for scale only — the solver applies $\Delta \sigma_z(z)/E_u$ cell by cell.		
U_s at $t_{\max}$	99.7 % (P10–P90: 99.5–99.8 %)	U_p at $t_{\max}$	99.7 %

Why the total exceeds S_∞ . S_∞ is the ultimate PRIMARY consolidation settlement. The total settlement rows add secondary compression and immediate undrained settlement where those are enabled, so a total at any date can legitimately exceed S_∞ . The band on $U_s(t_{\max})$ is narrow because by $t_{\max}$ every sampled profile has essentially finished consolidating; it is not a measure of how certain the forecast is. The uncertainty that matters is in the DATE, in Table 6.

4.5 Consolidation against time



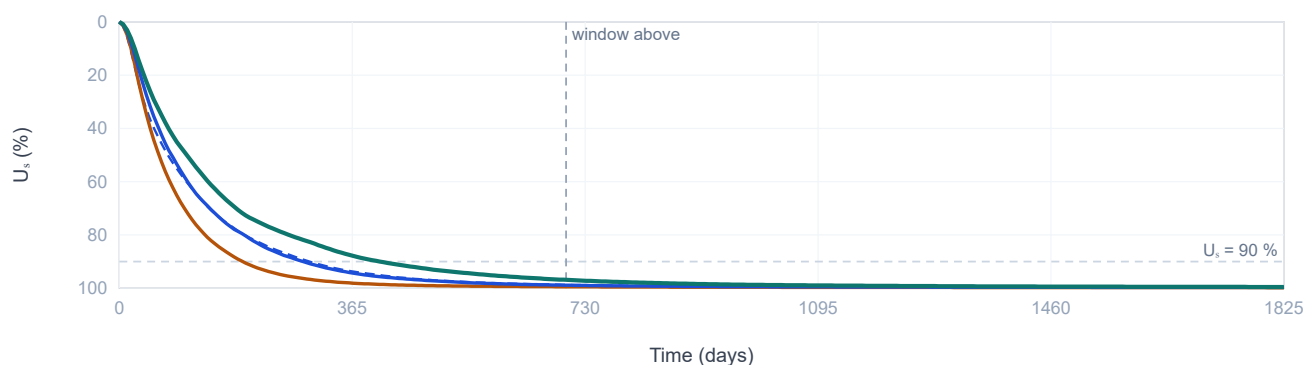


Figure 4 — The same U_s and U_p lines over the full analysis window (0–1825 d), for residual movement after the date above; same colours as the figure above.

4.6 Settlement against time

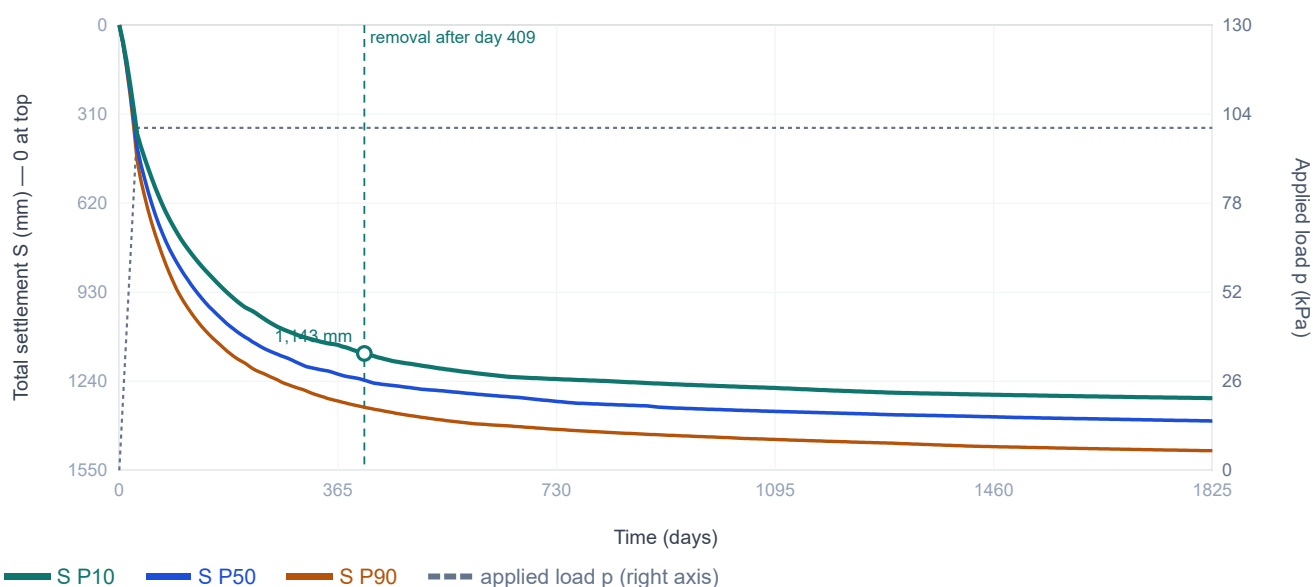
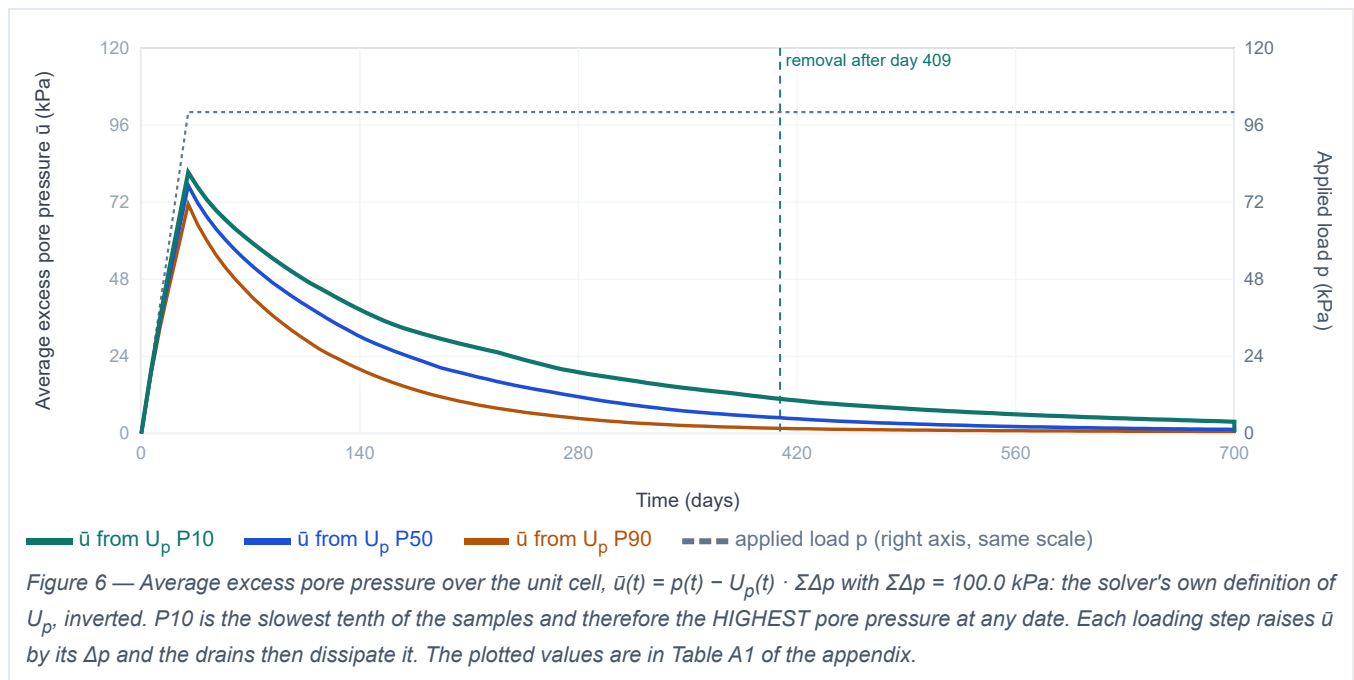


Figure 5 — Cumulative surface settlement against time: the pointwise P10, P50 and P90 of the sampled settlement curves (each a percentile at each instant, not one sample), with the applied surcharge $p(t)$ of the loading schedule on the right-hand axis. Settlement is plotted downward and includes creep and immediate settlement where those are enabled. The marker is the settlement reached by the removal day on the P10 curve. The plotted values are in Table A1 of the appendix.

4.7 Excess pore pressure against time



5. Assumptions and limitations

- The soil profile, compression parameters and hydraulic conductivities tabulated in Section 2 are taken as given; this analysis does not validate the site investigation from which they derive.
- Drains are assumed fully penetrating over the treated depth and uniformly installed on a regular pattern, with the unit cell idealised as axisymmetric about a single drain.
- Well resistance is not modelled.** r_w is the geometric equivalent radius of the drain cross-section and has not been reduced to represent finite discharge capacity. q_w must be checked separately against the peak flow demand implied by the early-time consolidation rate, particularly for long drains; the D line in Section 2.4 states the check for this run.
- Vertical drainage is disabled** (radial-only kernel): only radial flow contributes. For a fixed spacing, switching vertical flow off **overstates the time** to reach U_s relative to a coupled run. That is conservative on programme; confirm the conservatism is intended.
- The reported percentiles propagate only the input ranges that were declared. Parameters left deterministic contribute no uncertainty to the band, so the true spread is wider than reported wherever a significant parameter was fixed.
- Secondary compression (creep) is reported within the settlement where enabled but is excluded from the degree of consolidation by definition.
- Construction effects not modelled here — mandrel disturbance beyond the declared smear zone, drain crimping or necking, installation out of tolerance, and staged fill placement differing from the loading schedule in Section 2 — will alter the achieved performance.

6. Conclusions and recommendations

At the specified geometry ($r_e = 677$ mm) the analysis indicates a median time to $U_s = 90\%$ of **288 days** (P10 — the slow tail — **408 days**; P90 **193 days**). Ultimate primary settlement is $S_\infty = 827$ mm (P10–P90: 758–913 mm), and at $t_{\max} = 1825$ days the median U_s is 99.7 %, on the basis of the inputs tabulated in Section 2.

- Vertical drainage is disabled, so the time to reach U_s is overstated relative to a coupled run. For thick layers ($H > 4\text{--}5$ m) with appreciable c_v , enable it to capture the one-dimensional contribution.

2. The profile contains over-consolidated layers, so σ'_p tracking is active. Check the OCR column of the effective-stress table in Section 2 against the site investigation: any layer flagged as clamped was entered with σ'_p below the in-situ σ'_0 and should be corrected at source.

7. References

1. Barron, R.A. (1948). Consolidation of fine-grained soils by drain wells. Transactions ASCE, 113, 718–754. — radial consolidation about a single drain, the ideal-drain limit of this unit cell
2. Hansbo, S. (1981). Consolidation of fine-grained soils by prefabricated drains. 10th ICSMFE, Stockholm, vol. 3, pp. 677–682. — radial consolidation with smear and well resistance; the closed form the radial kernel is validated against
3. Indraratna, B., Redana, I.W. (1998). Laboratory determination of smear zone due to vertical drain installation. Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 124(2), 180–184. — laboratory determination of the smear zone, the basis for the adopted r_s and η
4. Sharma, J.S., Xiao, D. (2000). Characterization of a smear zone around vertical drains by large-scale laboratory tests. Canadian Geotechnical Journal, 37, 1265–1271. — large-scale laboratory characterisation of the smear zone around a vertical drain
5. Walker, R. and Indraratna, B. (2006). Vertical drain consolidation with parabolic distribution of permeability in smear zone. Journal of Geotechnical and Geoenvironmental Engineering, ASCE, 132(7), 937–941. — permeability varying through the smear annulus, the behaviour represented here by the transition zone $r_s \rightarrow r_t$
6. Indraratna, B., Rujikiatkamjorn, C. and Sathananthan, I. (2005). Radial consolidation of clay using compressibility indices and varying horizontal permeability. Canadian Geotechnical Journal, 42(5), 1330–1341. — radial consolidation formulated on compressibility indices and varying horizontal permeability — the C_c/C_k formulation this solver uses
7. Abuel-Naga, H.M., Pender, M.J. (2012). Modified Terzaghi consolidation curves with effective stress dependent coefficient of consolidation. Géotechnique Letters, 2, 43–48. — effective-stress-dependent coefficient of consolidation, the basis for re-evaluating $c_h(\sigma')$ at every step

The list above is assembled from the physics this run used: smear and transition references are included because $\eta > 1$. Vacuum references are omitted because no vacuum is applied.

8. Software provenance and validation

Produced by **PVDCal — PVD Design Tool**, a GeotechLogic product, build **2026-10-01 07:35:33**. This file was computed with the **radial-only kernel (solveAxisym2D)**.

Table 9 — The closed-form benchmark suite that ships inside the application, reproducible from its Validation page. Errors are in percentage points of the degree of consolidation. Rows marked • are the checks that govern the kernel used for this file.

Benchmark	What it tests	Mean abs. error (pp)	Max error (pp)
Olson–Barron •	ramp loading, ideal drain	0.398	0.742
Hansbo •	radial consolidation with smear	0.299	1.030
Hansbo, layered solver •	layered stack, ideal drain	0.530	2.179
Hansbo with smear, layered solver •	layered stack, with smear	0.254	0.963
Terzaghi	pure vertical drainage	0.116	1.119
Carrillo	radial and vertical combined	0.000	0.001
Vacuum-assisted	suction boundary condition	0.530	2.178
Partial penetration	limits: full $\equiv$ Hansbo, none $\equiv$ Terzaghi	0.016	0.290

Spatial convergence is second order in both directions: 0.021 percentage points of U at 80 radial cells against a 640-cell reference, and 0.120 percentage points RMS at the default $\Delta z = 0.5$ m against the exact Terzaghi series. The discretisation, its measured convergence behaviour and the full benchmark set are documented in the accompanying *Numerical Method Guide*, and every benchmark above can be re-run from inside the application rather than taken from this page.

Responsibility. These results depend on the input parameters tabulated in Section 2 and on the assumptions and limitations in Section 5. The narrative in Section 6 is generated automatically from the headline statistics and the configuration of this run: it is a checklist prompt, not a signed opinion. The software is a calculation aid; responsibility for the design rests with the signing engineer.

Appendix A. Values behind the figures

Every curve in Section 4 is read from these tables at the dates listed; between them the figures interpolate linearly on the solver's own time steps. p is the applied surcharge from the loading schedule in Section 2.5. Each P10 / P50 / P90 column is the pointwise percentile of the 100 accepted samples at that date.

Table A1 — Degree of consolidation, settlement, excess pore pressure and applied load at selected dates.

t (d)	p (kPa)	U_s P10 (%)	U_s P50 (%)	U_s P90 (%)	U_p P50 (%)	S P10 (mm)	S P50 (mm)	S P90 (mm)	$\bar{u}$ P50 (kPa)
0	0.0	0.0	0.0	0.0	0.0	0	0	0	0.0
7	23.3	1.2	1.6	2.0	2.2	68	74	80	21.1
14	46.7	4.1	5.1	6.5	7.3	150	166	179	39.4
30	100.0	14.2	17.4	22.4	22.8	380	427	472	77.2
60	100.0	32.2	39.0	48.6	42.8	566	659	729	57.2
90	100.0	45.1	53.4	65.2	55.1	700	804	893	44.9
120	100.0	54.5	64.4	76.1	64.5	795	904	1,002	35.5
150	100.0	62.8	72.0	83.4	72.0	868	981	1,077	28.0
180	100.0	69.4	77.9	88.3	77.5	931	1,040	1,135	22.5
240	100.0	77.5	85.9	94.1	85.1	1,020	1,124	1,212	14.9
300	100.0	82.8	90.9	96.8	90.1	1,081	1,178	1,265	9.9
365	100.0	87.8	94.3	98.1	93.7	1,114	1,215	1,309	6.3
409	100.0	90.0	95.7	98.6	95.1	1,143	1,236	1,330	4.9
450	100.0	91.6	96.6	98.9	96.2	1,166	1,253	1,347	3.8
540	100.0	94.2	97.8	99.2	97.6	1,197	1,273	1,375	2.4
730	100.0	97.2	99.0	99.5	98.9	1,232	1,310	1,407	1.1
1095	100.0	99.0	99.5	99.7	99.4	1,263	1,345	1,443	0.6
1460	100.0	99.4	99.6	99.8	99.6	1,287	1,364	1,468	0.4
1825	100.0	99.5	99.7	99.8	99.7	1,299	1,378	1,482	0.3

Table A2 — Every accepted sample's time to $U_s = 90\%$ (days), in the order the run produced them: the values behind the sample-cloud figure in Section 4. Sorting them and reading the 10th, 50th and 90th percentile reproduces the P10, P50 and P90 of Section 4.

Samples	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9
1–10	219	344	186	408	283	253	321	330	243	400
11–20	333	213	292	169	262	417	304	243	213	358
21–30	234	219	514	333	326	201	184	374	284	365
31–40	221	181	304	259	326	531	304	291	209	245
41–50	186	650	267	306	291	319	239	368	316	185
51–60	326	269	225	247	493	430	192	271	266	288
61–70	339	430	308	268	228	347	231	193	234	172
71–80	219	325	314	495	253	289	250	526	268	460
81–90	371	227	197	366	333	307	308	218	310	310
91–100	246	302	211	404	178	257	206	238	330	335