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Soil Salinity Assessment
Proposed Residential Development
72-88 Water Street, Belfield, NSW

1 Introduction

At the request of JRB Terrigal (the Client), EI Australia (EI) has carried out a desktop Soil Salinity Assessment and site walk over for a proposed residential development at 72-88 Water Street, Belfield, NSW (the Site). The purpose of this soil salinity assessment was to assess the potential for saline soils to be present on site, and if potentially present, comment on the need for intrusive site investigation, soil testing, and/or the development of a Soil Salinity Management Plan for the project.

EI has already prepared the following relevant reports for this site:

- EI Australia (2025a) *Draft Preliminary Site Investigation (PSI) Report*, Reference: E26573.E01_RevA, dated 9 December 2024; and
- EI Australia (2025b) *Geotechnical Investigation (GI) Report*, Reference: E26573.G03, dated 28 August 2025.

The PSI report provided a preliminary assessment for the potential of soil and groundwater contamination to be present at the site, based on desk study review and site walkover only. The GI presents the findings of our geotechnical borehole investigation at the site.

2 Proposed Development

Based on the preliminary architectural drawings provided by the client (Architectus, Rev P00, dated 9 May 2025), we understand that the proposed development will comprise the demolition of the existing houses at the site for the construction of a multi-storey, mixed use commercial and residential building, with a 5-level basement car park. The proposed level of the lowest basement floor slab is approximately RL 0.00 m AHD. On this basis we anticipate the excavations to construct the basement will extend approximately 15 m to 20 m Below Existing Ground Level (BEGL).

3 Site Information

3.1 Site Identification and Description

The site identification and a summary description are presented in **Table 3-1** below with an aerial photograph of the site following this table as **Plate 1**.

Table 3-1 Summary of Site Information

Information	Detail
Street Address	72-88 Water Street, Belfield, NSW
Lot and Deposited Plan (DP) Identification	▪ Lot Z in DP 402256: 72 Water Street ▪ Lot A in DP 319354: 74 Water Street ▪ Lot S in DP 394194: 76 Water Street ▪ Lot C in DP 319354: 78 Water Street ▪ Lot 6 in DP 253882: 80 Water Street ▪ Lot 5 in DP 253882: 82 Water Street ▪ Lot 4 in DP 253882: 84 Water Street ▪ Lot 3 in DP 253882: 86 Water Street ▪ Lot 2 in DP 253882: 88 Water Street
Site Area	The site area is approximately 5,100 m2
Brief Site Description	At the time of our investigation the site comprised 9 separate residential properties. Each property was occupied by one or two-storey house with front and back yards. During our walkover no visual indications for the presence of saline soils or soil salting were observed at the site, or on the surrounding properties.

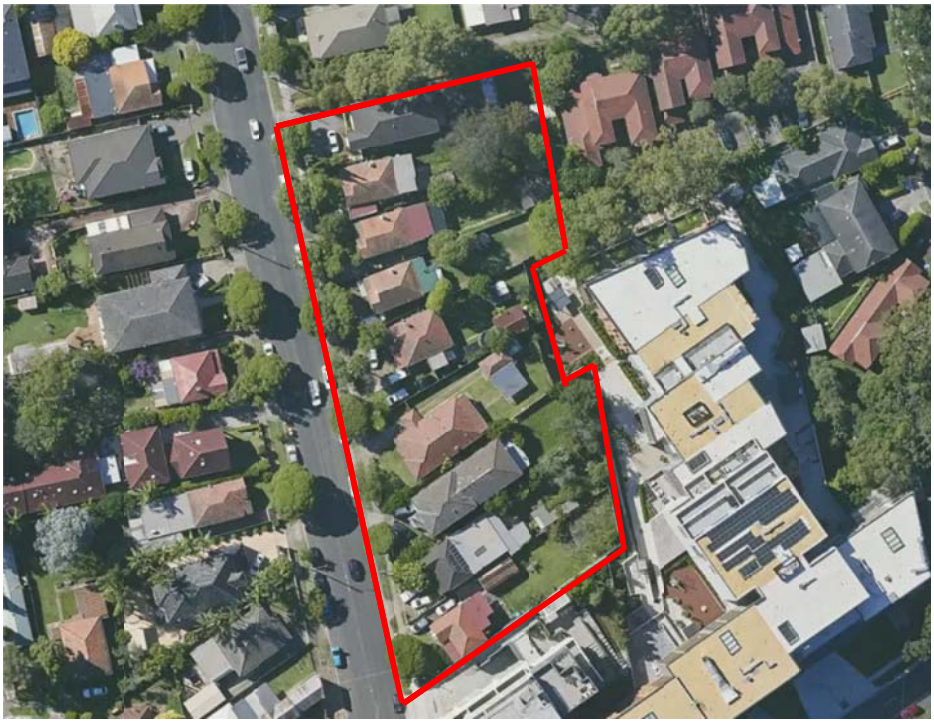

Plate 1 Aerial photograph of the site (source: MetroMap, accessed on 15 August 2025)

3.2 Local Land Use

The site is situated in an established residential area. Current uses on the surrounding land at the time of our investigation are summarised in **Table 3-2** below

Table 3-2 Summary of Local Land Use

Direction Relative to Site	Land Use Description
North	There was a grassed public walkway from Water Street to Clareville Close running along the northern site boundary, with other house blocks on the opposite side of this walkway.
East	The northern third of the eastern site boundary site adjoins No. 6 Clareville Close which was occupied by a two-storey brick unit block. The southern two thirds of the eastern site boundary adjoins No. 27-35 Punchbowl Road, which was occupied by a four to five-storey residential apartment building with a basement car park.
South	No. 90 Water Street, which is occupied by a seven to eight-storey residential apartment building with shops at ground level and a basement car park.
West	Water Street, comprising a four lane wide asphalt-paved road, i.e. two driving lanes and two parking lanes. On the opposite side of this road there are more houses.

3.3 Regional Setting

The site topography and geological information for the locality is summarised in **Table 3-3** below.

Table 3-3 Topographic, Geology, and Soils Information

Attribute	Description
Topography	The topography of the area was gently undulating with low rounded hills and slopes of up to 5°. The site is located on a north facing hillside and gently slopes down to the north at approximately 1°-2°. Ground surface levels at the site range from approximately R.L. 20 m AHD at the southern end of site, down to R.L. 15.0 m AHD at the northern end of site.
Site Drainage	Likely to be consistent with the general slope of the site, with surface water runoff down to the north away from the site.
Nearest Surface Water Feature	The Cooks River is located approximately 350 m to the north east of the site. This part of the river is a concrete lined channel, which flows to the south east draining into Botany Bay.
Regional Geology *(Source: MinView)*	**Plate 2** overleaf presents an extract of the NSW Government MinView Seamless Geology Map, Version 2.5 showing the site location in red within the local geology. This geological map indicates the site to be underlain by Ashfield Shale (Green shading) which typically consists of black to dark grey shale, siltstone and laminite. Approximately 100 m to the north of the site there is the Cooks River alluvial channel (Yellow shading) comprising Quaternary Alluvial soil deposits.
Soil Landscape *(Source SEED Map & eSPADE v2.2)*	The Soil Landscapes of Sydney data set indicates that the site is in an area of Blacktown (bt) residual soil landscape. This landscape type is described as having local relief up to 30 m and slopes usually <5%, but occasionally up to 10%, comprising broad rounded crests and ridges with gently inclined slopes. Soils are shallow to moderately deep (>100 cm) hard setting mottled texture contrast soils, red and brown podzolic soils on crests grading to yellow podzolic soils on lower slopes and in drainage lines.

Attribute	Description
Soil Salinity *(Source: SEED Map & eSPADE v2.2)*	Reference to the 'Salinity Potential of Western Sydney' map from the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW), indicates the site lies just outside the extent of the map. EI note the eastern most extent of the map, approximately 1.7 km west of the site, comprises soils with a 'low to moderate' salinity potential. The soils in that area are within the Blacktown (bt) soil landscape group, as discussed above, which are located at the site. Reference to registered soil profiles in the region through via the eSPADE portal indicated an area approximately 600 m northwest of the site was logged as having *'no salting evident'.*

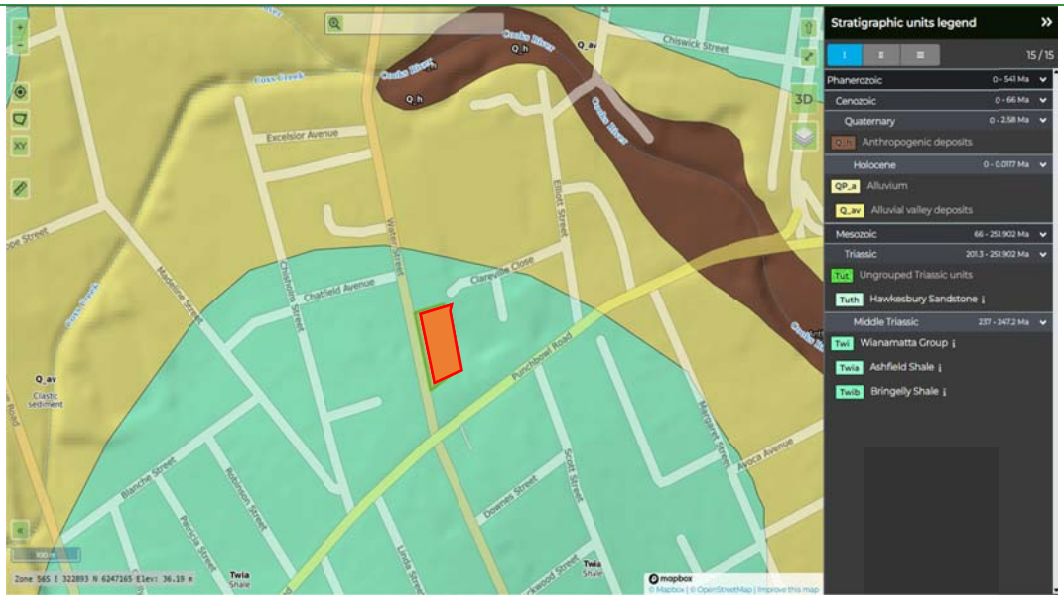

Plate 1 Regional Geological Setting (Source: MinView)

3.4 Site Ground Conditions

At the time of writing this report, EI had carried out geotechnical investigation at the site, that included the auger/core drilling of five boreholes to depths of between 20 m to 30 m BEGL. For specific details on the encountered ground conditions reference should be made to the EI Geotechnical Investigation Report, reference 26573.G03, dated 28 August 2025.

In summary, the observed ground conditions comprised shallow Fill (0.4 m to 0.6 m deep) over Residual Silty Clays, with then Siltstone bedrock at depths of approximately 5 m to 7 m BEL. Groundwater seepage was observed in one borehole when auger drilling at a depth of 6 m. Subsequent groundwater levels observed in standpipes installed into the Siltstone bedrock ranged between 3 m to 10 m BEL.

As part of the geotechnical investigation some soil aggressivity laboratory testing (Chloride, Sulfate, pH, Electrical Conductivity (EC)) was carried out on select soil samples. A summary of the aggressivity test results is presented in **Table 3-4** below.

Table 3-4 Summary of Soil Laboratory Testing – Soil Aggressivity Chemistry

Sample ID	BH1M_0.5-0.95	BH2M_1.5-1.95	BH3_3.0-3.45	BH4_4.5-4.95	BH5M_0.6-0.95
Borehole ID	BH1M	BH2M	BH3	BH4	BH5M
Sample Depth (mBEGL)	0.5-0.95	1.5-1.95	3.0-3.45	4.5-4.95	0.6-0.95
Geological Unit	Residual Soil	Residual Soil	Residual Soil	Residual Soil	Residual Soil
USCS Description	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY	Silty CLAY
Chloride Cl (ppm)	3.9	0.94	17	8.0	36
Sulfate SO4 (ppm)	130	58	93	110	120
pH	5.0	4.7	5.0	5.1	4.8
Electrical Conductivity (µS/cm)	97	39	70	74	110
Moisture Content (%)	24.8	14.7	12.6	11.1	19.3

A review of the above soil test results with reference to with the DLWC (2002) *Site Investigations for Urban Salinity* and Hazelton and Murphy (2007) *Interpreting Soil Test Results - What Do All the Numbers Mean?*, indicates that the tested soils are 'Non-Saline'.

4 Conclusion

Based on our review of the available site information, the potential for saline soils to be present on site, and the potential for soil salting processes from the proposed development is considered to be negligible to very low.

On this basis EI considers that further investigation for potential site soil salinity, and/or the development of a Soil Salinity Management Plan for the proposed development is not necessary.

5 Limitations

This report has been prepared for the exclusive use of JRB Terrigal who is the only intended beneficiary of EI's work. The scope of the assessment carried out for the purpose of this report is limited to those agreed with JRB Terrigal.

No other party should rely on the document without the prior written consent of EI, and EI undertakes no duty, or accepts any responsibility or liability, to any third party who purports to rely upon this document without EI's approval.

EI has used a degree of care and skill ordinarily exercised in similar tasks by reputable members of the geotechnical industry in Australia as at the date of this document. No other warranty, expressed or implied, is made or intended. Each section of this report must be read in conjunction with the whole of this report, including any appendices and attachments.

EI's professional opinions are reasonable and based on its professional judgment, experience, training and results from analytical data. EI may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified by EI.

EI's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or validation testing and analysis during construction or remedial activities. In some cases, further testing and analysis may be required, which may result in a further report with different conclusions.

6 Closure

Please do not hesitate to contact the undersigned should you have any questions.

For and on behalf of
EI Australia

Author	Technical Reviewer
	
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