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Lett 001 - Erf 564 Knysna - Technical Motivation for Amednment of Floor Level Restriction

15 October 2026

Knysna Local Municipality
PO Box 21
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To whom it may concern

PROPOSED DEVELOPMENT ON ERF 564, KNYSNA:
TECHNICAL ASSESSMENT AND MOTIVATION FOR AMENDMENT OF MINIMUM FLOOR LEVEL RESTRICTION

1. Introduction

Reference is made to the Site Development Plan approval letter, reference 3053062, dated 11 September 2026, issued by Knysna Local Municipality, regarding the proposed development on Erf 564 Knysna. Clause 3(iii) refers to the condition imposed under the notice of decision dated 7 December 2009, requiring a minimum finished floor level (FFL) of 3.0 m above mean sea level (MSL).

The restriction was reportedly introduced to mitigate potential flooding associated with high tides and extreme rainfall events in the lower CBD. Engineering Advice and Services (EAS) has undertaken a desktop assessment to determine whether the available information and applicable design principles provide sufficient technical justification for reducing the minimum floor level restriction from 3.0 m MSL to 2.70 m MSL.

2. Tidal Levels

The 2025 South African Tide Tables, published by the South African National Hydrographer, provide the following predicted tidal levels for Knysna:

- Mean High Water Springs (MHWS) – 1.122 m
- Highest Astronomical Tide (HAT) – 1.422 m

Table 1 contains the full tidal details for Knysna and other coastal towns and cities.

Table 1 – Tidal Levels (Chart Datum)

PLACE	LAT	MLWS	MLWN	ML	MHWN	MHWS	HAT
Walvis Bay	0	0.27	0.67	0.98	1.29	1.69	1.97
Lüderitz	0	0.23	0.65	0.94	1.22	1.65	1.99
Port Nolloth	0	0.28	0.78	1.09	1.40	1.91	2.25
Saldanha	0	0.24	0.70	0.99	1.27	1.75	2.03
Cape Town	0	0.25	0.70	0.98	1.26	1.74	2.02
Simon's Town	0	0.24	0.73	1.00	1.29	1.79	2.09
Hermanus	0	0.27	0.75	1.02	1.29	1.78	2.07
Mossel Bay	0	0.26	0.88	1.17	1.46	2.10	2.44
Knysna	0	0.22	0.82	1.06	1.32	1.91	2.21
Gqeberha (Port Elizabeth)	0	0.21	0.79	1.04	1.29	1.86	2.14
East London	0	0.23	0.78	1.02	1.25	1.82	2.08
Durban	0	0.21	0.87	1.11	1.36	2.01	2.30
Richards Bay	0	0.27	0.97	1.20	1.48	2.11	2.47

The published tidal elevations were converted from Chart Datum using the published Knysna datum offset of −0.788m. The proposed FFL of 2.70 m MSL is approximately 1.58 m above MHWS and 1.28 m above HAT. The proposed floor level is therefore substantially above predicted astronomical tidal levels.

The *Klein Brak River Estuary and Groot Brak River Estuary Floodline Assessment* (Western Cape Government, draft report, March 2021), in Appendix AA, documents an exceptional high-water event in the Knysna Estuary on 28 October 2019. The report records an estimated water level of approximately 2.16 m during high tide, attributed to a combination of elevated astronomical tides, low atmospheric pressure, wind setup and river inflows following rainfall. Subject to confirmation of a consistent vertical datum, the proposed FFL of 2.70 m MSL would be approximately 540 mm above this reported level. This provides a useful historical reference in support of the proposed FFL, although the reported event level does not constitute a site-specific design flood level for Erf 564.

The available information indicates that predicted astronomical tide levels are substantially below the proposed floor level. However, extreme estuarine water levels associated with storm events cannot be excluded solely on the basis of predicted tidal levels.

3. Stormwater Management and Site Topography

The Guidelines for Human Settlement Planning and Design (CSIR, 2000, reprinted 2005), Chapter 6, distinguishes between minor and major stormwater systems and recognises that roads and open spaces form an integral part of the major system, providing overland conveyance routes during severe storm events. Table 6.1 specifies a design flood recurrence interval of 1:50 to 1:100 years for high-value central business districts. The guidelines further recognise the importance of maintaining appropriate road access during major storm events, recommending that runoff encroachment onto primary roads should not exceed 150 mm at the road crown to facilitate emergency-vehicle access. These principles support the consideration of the surrounding road network and lower-lying open space as potential overland drainage routes when assessing the proposed development's relative exposure to rainfall-related flooding.

Erf 564 is situated at the corner of Hedge Street and Trotter Street. Available survey information indicates road-edge levels of approximately 2.00 m MSL at the Hedge Street access and 1.83 m MSL at the Trotter Street access. These levels are approximately 700 mm and 870 mm below the proposed FFL of 2.70 m MSL, respectively. The proposed FFL is therefore elevated relative to the adjacent road edges, providing vertical separation between the building floor and the surrounding road-level drainage environment. In accordance with the major-system drainage principles described in the Red Book, the surrounding road network may accommodate and convey runoff during major storm events, although the extent of runoff encroachment and the effectiveness of the potential overland escape route have not been hydraulically verified.

Google Earth elevation-profile information, as illustrated in Figure 1, indicates that the open space opposite the property is lower than the site. In conjunction with the southward fall of Hedge Street, this lower-lying area suggests the potential for surface runoff to be conveyed away from the property through the surrounding road network and open space during major storm events. This is consistent with the major-system drainage principles described in the Red Book.



Figure 1 – Site Levels Relevant to the Road and Open Space



Figure 2 – Open Space Elevation Relative to the Road

Figure 1 and 2 above, illustrate that the open space opposite the site, is generally lower than Hedge Street. The blue arrows in Figure 2 illustrate the anticipated runoff direction, with a depression evident as circled in red.

The available information therefore provides a reasonable technical basis for supporting the proposed FFL of 2.70 m MSL from a rainfall-related flood-risk perspective. No detailed hydrological or hydraulic assessment has been undertaken to determine major-event flood levels or assess compliance with the Red Book's road-encroachment criterion.

4. Historical Inundation

A review of the available Cape Farm Mapper surface-flow-accumulation information does not indicate that Erf 564 is situated within a prominent surface-flow accumulation area, as illustrated in Figure 2. No records of inundation on the property itself were identified during this desktop assessment. The mapping does, however, identify surface-flow accumulation at the intersection of Hedge Street and Waterfront Drive, approximately 225 m south of the property.

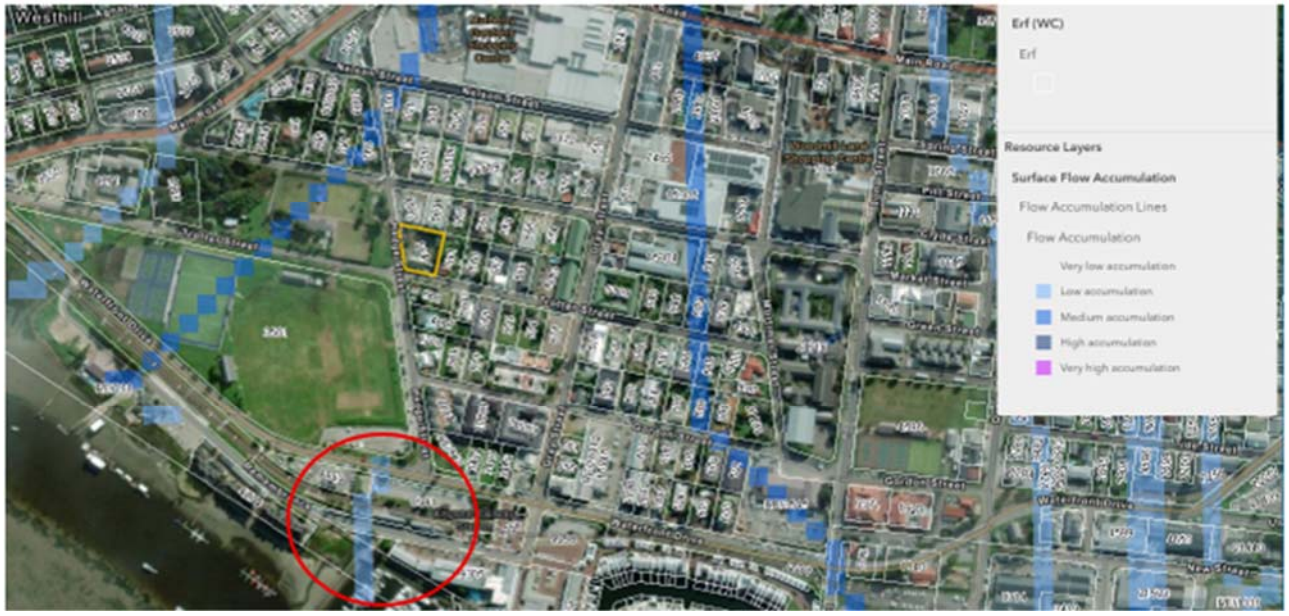


Figure 3 – Flow Accumulation within Lower Knysna CBD (Cape Farm Mapper)

This finding is supported by photographic evidence of localised flooding reported at the intersection on 20 February 2023. The correspondence between the mapped accumulation area and the documented flooding provides a degree of corroboration for the surface-flow mapping. The road falls towards the south, and the identified flooding occurs at a lower location along the road network than the subject property.



Figure 4 – Localised Flooding at the Intersection of Hedge Street and Waterfront Drive (https://www.knysnaplettherald.com/News/Article/Local-News/heavy-rains-leave-knysna-flooded-202302200621)

Although the mapping and historical evidence do not constitute a flood line determination, they provide useful context for assessing the relative surface-water flood risk at the site. Neither the available mapping nor the historical information reviewed identified evidence of inundation on Erf 564 itself.

5. Conclusion

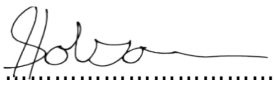
The available tidal information indicates that the proposed FFL of 2.70 m MSL is substantially above predicted astronomical tidal levels. Historical reporting of the exceptional high-water event of 28 October 2019 provides additional local context, with the proposed FFL nominally above the reported event level, subject to confirmation of a consistent vertical datum.

In respect of rainfall-related flooding, the available survey information indicates that the proposed FFL is elevated relative to the adjacent road edges. The lower-lying open space and surrounding road network also suggest the potential for overland runoff to be conveyed away from the property. Furthermore, the Cape Farm Mapper surface-flow-accumulation layer does not identify Erf 564 as a prominent accumulation area, while documented flooding at the lower-lying intersection of Hedge Street and Waterfront Drive is consistent with the mapped drainage pattern.

Based on the available information, there is a reasonable technical basis to support the proposed amendment of the minimum FFL restriction from 3.0 m MSL to 2.70 m MSL. This conclusion is based on a desktop assessment and does not constitute a detailed flood line determination or hydrological or hydraulic study. Accordingly, the assessment does not establish the design flood level at Erf 564 or exclude the possibility of inundation under extreme tidal, storm-surge or rainfall conditions.

Please do not hesitate to contact the undersigned should you require any clarification.

Yours faithfully,



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Stevon Hobson Pr. Eng
For Engineering Advice & Services (Pty) Ltd