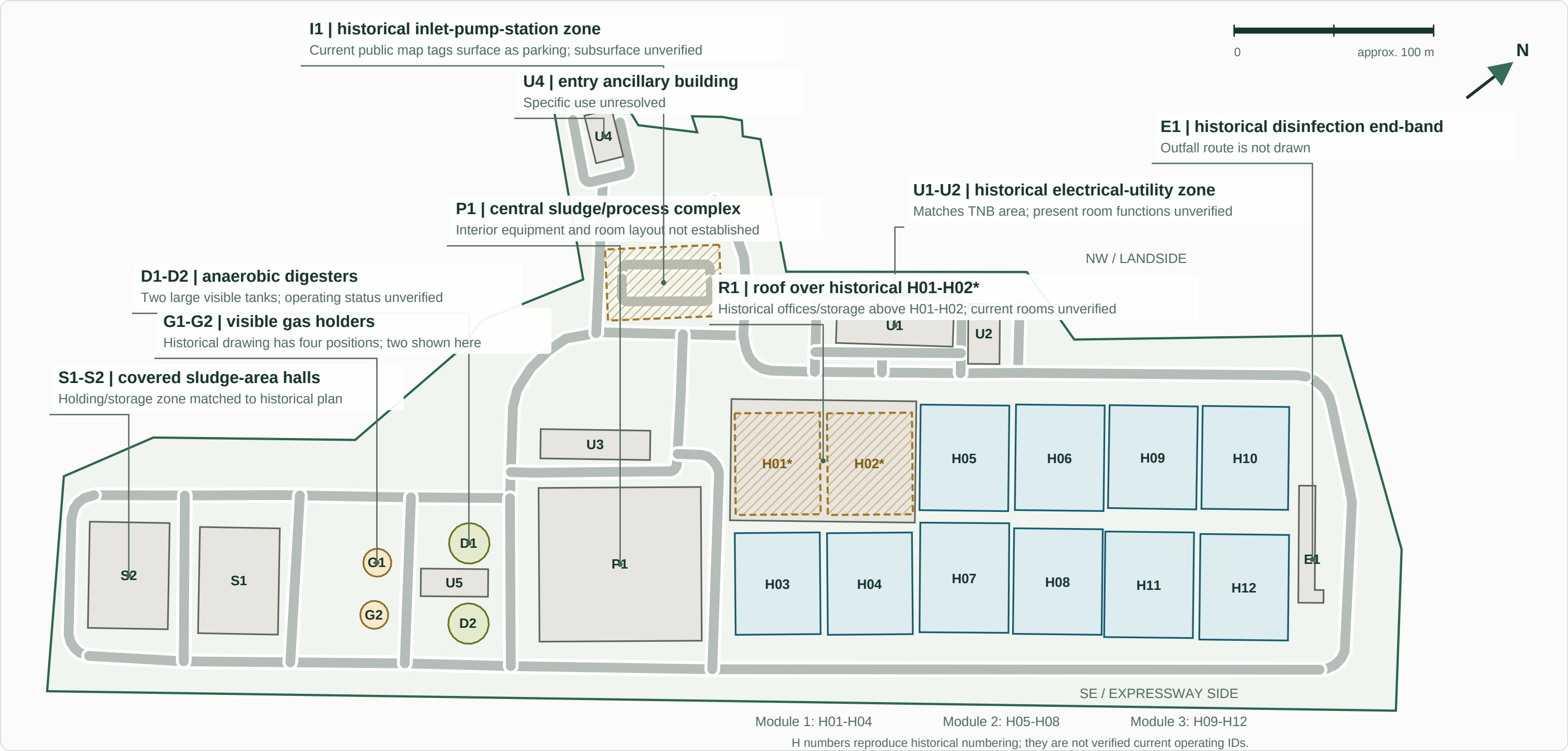


Reconstructed overall site plan

Reference layout | Public mapped geometry + historical identification + aerial crosscheck | R1.2 reference | 25 October 2026



How to read this reconstruction

Blue basins

10 mapped open-basin outlines; no operating-state claim.

S / D / G / P

Functions matched from the historical plan and independent oblique photographs.

Scope limits that remain unresolved

Mapped footprint: about 12.8 ha; Gazette 435/2007 cites 14.674 ha and PW802. Exact boundary remains unrecovered.

Esri metadata at 7 sampled points reports 13 March 2025; Earth screenshot: 6 July 2026. Map edits are not survey dates.

Road widths are diagrammatic. Current dimensions, depths, pipe routes, valves, cables and interior equipment remain unverified.

Geometry © OpenStreetMap contributors (ODbL 1.0). Reference imagery: Esri, Vantor, Earthstar Geographics, GIS User Community. Historical IDs: Keller 2009.

H01-H02*

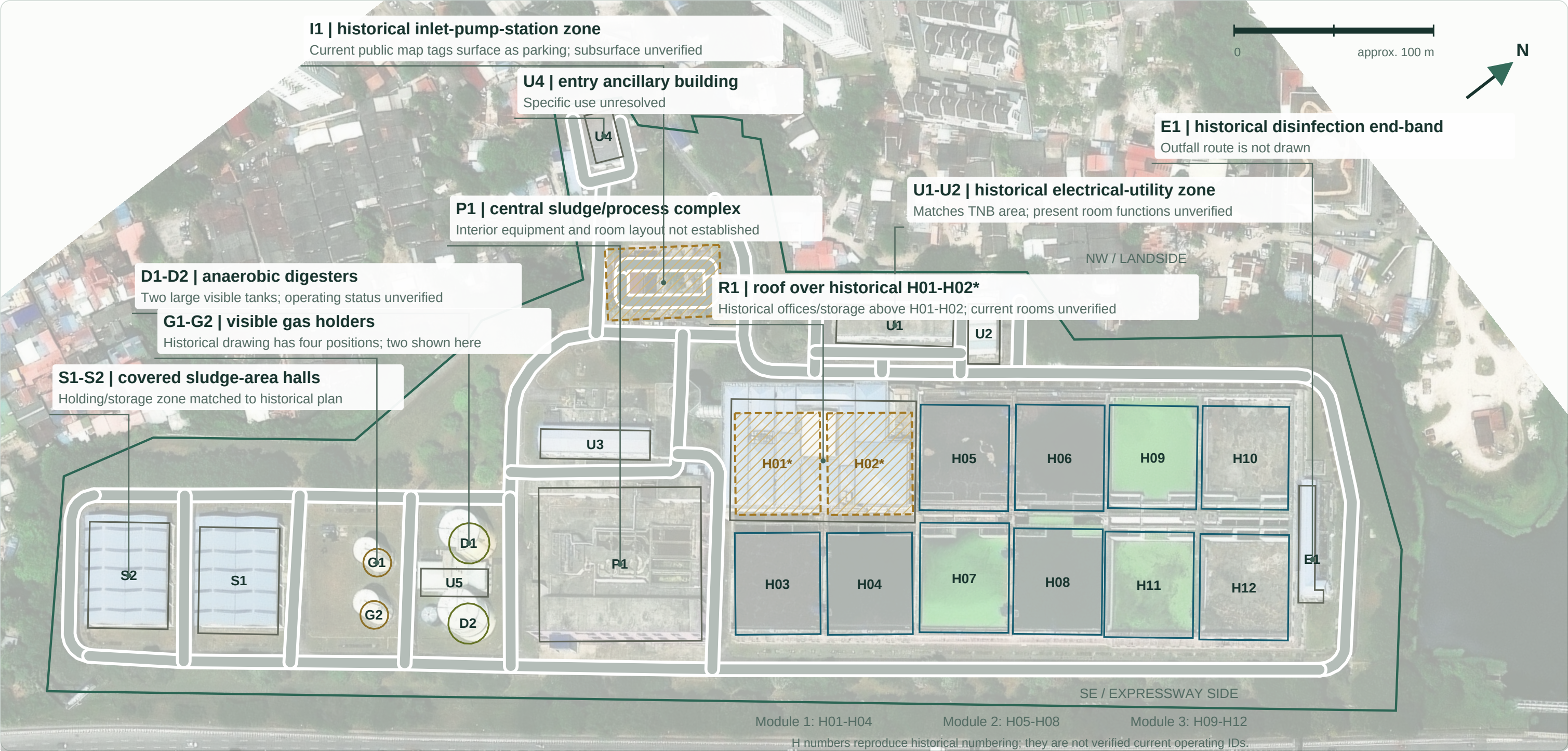
Historical slots inferred beneath a mapped roof; dashed walls are not observed.

U / R / I / E

Unresolved or historical-zone identities. No hidden rooms or buried services invented.

Reconstructed overall site plan

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H01-H02*

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U / R / I / E

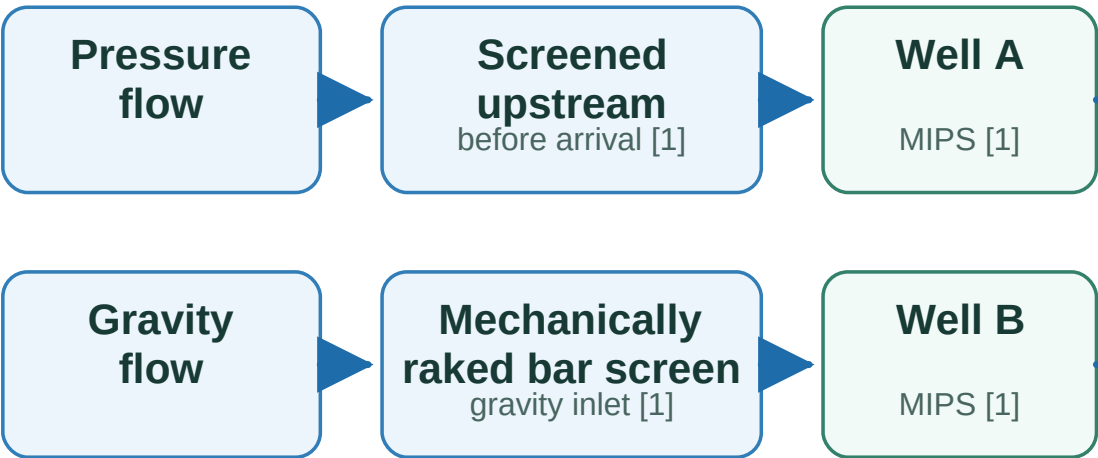
Unresolved or historical-zone identities. No hidden rooms or buried services invented.

PEG227 / Functional process schematic

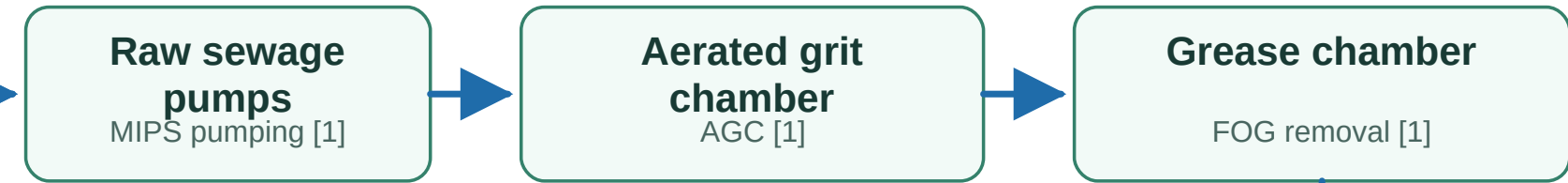
Georgetown Regional STP · Jelutong, Penang · reconstructed from published process descriptions

FUNCTIONAL SEQUENCE ONLY — arrows do not represent physical pipe routes, unit locations or dimensions.
Current field configuration and operating availability of individual basins remain unverified.

INFLUENT PATHS [1]



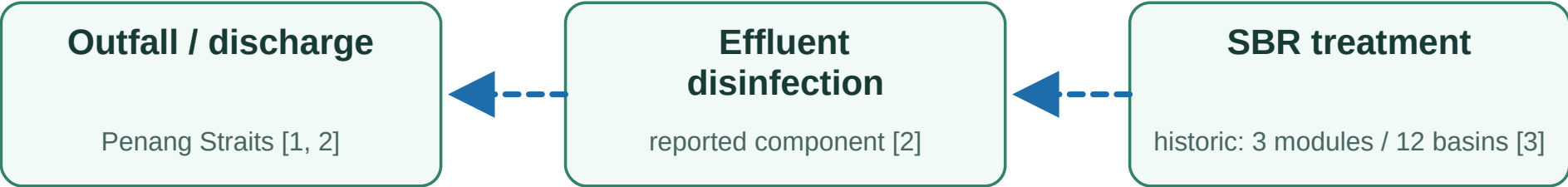
PRELIMINARY TREATMENT [1]



MIPS = Main Inlet Pumping Station. FOG = fats, oils and grease.

via distribution chamber [4]

SLUDGE TREATMENT REFERENCE
See the historical Jelutong example in [4], Figure 3, PDF page 5 (based on 2014).
Its sludge route is not redrawn here.
No current sludge piping is inferred.



Dashed arrows: simplified connection between reported downstream components.
No construction pipe routing or hydraulic profile has been verified.

SOURCES AND SCOPE

[1] IEM Penang technical-visit flyer · 8 August 2025 · inlet paths, MIPS, grit and grease sequence; discharge destination.
https://www.event.iempenang.org/components/com_rseventspro/assets/images/files/0808%20flyer%20TV%20to%20STP.pdf

[2] Sepakat Setia Perunding · Jelutong Sewage Treatment Works · project completed 2007; page publication date unverified.
<https://www.sspsb.com.my/wastewater-sewage-treatment-plant/>
Lists effluent disinfection channel and outfall. It supplies no verified current connection drawing.

[3] M. C. Goronszy · Three Years Operation of a 270 MLD C-TECH SBR · historic operations study; conference copy hosted in 2018.
<https://aquaenviro.co.uk/proceedings/three-years-operation-of-a-270-mld-c-tech-sbr-lessons-for-new-technologies/>
Three modules / twelve basins describes the historical configuration; it does not certify all twelve basins operational today.

[4] Al-Gheethi et al. · Applied Water Science 14:215 (2024) · Figures 2–3, PDF pages 4–5; examples based on Al-Gheethi (2014).
<https://link.springer.com/article/10.1007/s13201-024-02268-2>
Figure 2 supports distribution to SBR; Figure 3 is the linked historical sludge-treatment reference.

PEG227 - reconstruction asset register

R1.2 reference | 25 October 2026 | IDs are reference labels, not operator asset tags. Approximate spans are map-derived, rounded to 5 m, and are not surveyed dimensions.

ID	Feature / historical identity	Basis / confidence	Limits / notes
H01	Historical SBR position 1, roof-obscured	inferred historical location. Estimated from neighbouring basin grid; not observed walls	Dashed slot is an interpretation; no beneath-roof tank wall is claimed.
H02	Historical SBR position 2, roof-obscured	inferred historical location. Estimated from neighbouring basin grid; not observed walls	Dashed slot is an interpretation; no beneath-roof tank wall is claimed.
H03	SBR historical position 3	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 50 m.
H04	SBR historical position 4	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 50 m.
H05	SBR historical position 5	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
H06	SBR historical position 6	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
H07	SBR historical position 7	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
H08	SBR historical position 8	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
H09	SBR historical position 9	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 50 m.
H10	SBR historical position 10	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 50 m.
H11	SBR historical position 11	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
H12	SBR historical position 12	historical numbering matched; current number unverified. OSM basin polygon, aerial crosschecked	Water colour or empty appearance is not used as operating-status evidence. Approximate mapped span: 45 x 55 m.
D1	Anaerobic digester	historic-match. OSM polygon; aerial crosschecked	Two large tanks match historical digester callout and oblique photographs
D2	Anaerobic digester	historic-match. OSM polygon; aerial crosschecked	Two large tanks match historical digester callout and oblique photographs
E1	NE-end / historical disinfection band	historic-match. OSM polygon; aerial crosschecked	Historical effluent-disinfection end of basin block; roof function not verified
G1	Gas holder	historic-match. OSM polygon; aerial crosschecked	Two small visible tanks match historical gas-storage zone; historical four positions are not reproduced as four current tanks
G2	Gas holder	historic-match. OSM polygon; aerial crosschecked	Two small visible tanks match historical gas-storage zone; current equipment status unknown
I1	Historical inlet-pump-station zone	unresolved. OSM polygon; aerial crosschecked	OSM presently tags this surface as parking; buried station arrangement/current function unverified

ID	Feature / historical identity	Basis / confidence	Limits / notes
P1	Central sludge / process complex	historic-match. OSM polygon; aerial crosschecked	Historic central holding/process zone; rooms not mapped
R1	Large roofed structure over historical H01-H02 positions	historical text association; current use unverified. OSM polygon; aerial crosschecked	2009 Keller paper section3 (public text reproduction) describes two administration/equipment-storage floors above SBR1&2. Present roof association is inferred; current rooms and tank divisions unverified.
S1	Covered sludge holding / storage hall	historic-match. OSM polygon; aerial crosschecked	Matched historical sludge-area hall
S2	Covered sludge holding / storage hall	historic-match. OSM polygon; aerial crosschecked	Matched historical sludge-area hall
U1	Historical TNB electrical-utility zone	historic-match. OSM polygon; aerial crosschecked	Matches historical TNB position; exact present use unverified
U2	Electrical-zone annex	unresolved. OSM polygon; aerial crosschecked	Ancillary building beside TNB zone; room/equipment use unverified
U3	NW process ancillary building	unresolved. OSM polygon; aerial crosschecked	Visible roof; specific function unresolved
U4	NW entry ancillary building	unresolved. OSM polygon; aerial crosschecked	Visible roof; specific function unresolved
U5	Inter-tank equipment building	unresolved. OSM polygon; aerial crosschecked	Visible building between digesters; exact equipment use unresolved

Evidence, coordinates and remaining gaps

Method

Public OSM footprints and service centre-lines were compared with the dated 6 July 2026 Google Earth screenshot, an Esri reference image whose service metadata reports source date 13 March 2025 at seven sampled points, and the Keller 2009 historical layout. Ten mapped open-basin centres were cross-matched to the historical grid. The fit is an association aid, not survey control.

Coordinate frame

DXF coordinates are approximate ground metres in a local rotated frame. Origin: 100.32143 E, 5.3947 N (WGS84). Axis +u follows the plant towards NE; +v points NW. Web Mercator differences were corrected by cos(latitude) then rotated. Use GeoJSON for geographic interchange. Do not use the DXF for engineering set-out.

Boundary mismatch

The OSM polygon measures approximately 12.8 ha. Gazette notice 435/2007 reserves a 14.674 ha sewage-treatment parcel at Petak A, Seksyen 1 Jelutong, referencing certified plan PW802. This is a strong cadastral lead, not a recovered boundary drawing. The geometry difference is not reconciled.

Historical identification

H01-H12 reproduce historical basin numbering. Ten open-basin polygons are mapped; H01-H02 are estimated slots under a visible roof. Their dashed walls are not directly observed. The 2009 paper text describes administration/equipment-storage floors above SBR 1&2; association with R1 is inferred, and present room/tank divisions remain unverified. Historical four gas-holder positions are not reproduced as four current tanks; two small holders are visible.

Unplaced items

The sources mention functions which cannot be located confidently: MIPS Wet Well A / pressure inflow; MIPS Wet Well B / bar screen / gravity inflow; Raw-sewage pumps; Aerated grit chamber / grease chamber; Reclaimed-effluent pump station; Current administration/control rooms (historic office floors described above H01-H02); Guardhouse; Vehicle depot / maintenance workshop; Common utilities trench; Refuse chamber; Outfall route / depth / connection point; Current valve, pipe, cable and equipment positions; Historical odour-control bed (2010 visit; exact location unresolved); Historical lime plant (GUH 2007; exact location/current status unresolved); Historical carbon plant (GUH 2007; exact location/current status unresolved).

Dimensions and dates

Historical reactor dimension accounts conflict. Current tank depths, exact dimensions, room use, equipment status and all buried services remain unverified. OSM editing dates are not imagery capture or survey dates. Source publication dates do not establish current operating condition.

File contents

The reference pack includes the clean site plan, image comparison, logical process diagram, this register and source notes. Editable DXF, GeoJSON and CSV are embedded attachments and are also supplied separately. Original PDFs and full-size previews are linked from PEG227-one-page.html.

Primary references

Historical labelled site drawing - Keller 2009, reproduced in Ground Improvement (2013), printed p49 Fig 2.21 - [source](#)

OpenStreetMap plant way 984242350 and constituent mapped features - geometry under ODbL 1.0 - [source](#)

Esri World Imagery - service-reported source date 13 March 2025; 0.5 m resolution; reported positional accuracy 8.47 m - [source](#)

SSP - Jelutong Sewage Treatment Works original consultant inventory, completed 2007 - [source](#)

SFC Umwelttechnik - Jelutong plant, published 2024; historical 12 basins since 2007 - [source](#)

IEM Penang technical visit flyer, 8 August 2025 - indexed content; original URL currently 404 - [source](#)

CWM original process / M&E project record, completion November 2007 - [source](#)

Published Jelutong wastewater/sludge process figures, 2024 paper; historical underlying references - [source](#)

Penang Gazette 11 October 2007, notice 435, pp1-2: sewage parcel, 14.674 ha, certified plan PW802 (drawing not included) - [source](#)

Keller 2009 paper section 3 - public text reproduction; historical offices/storage above twin SBR 1&2 - [source](#)

ODbL attribution and licence - [source](#)