

Drainage Services Department

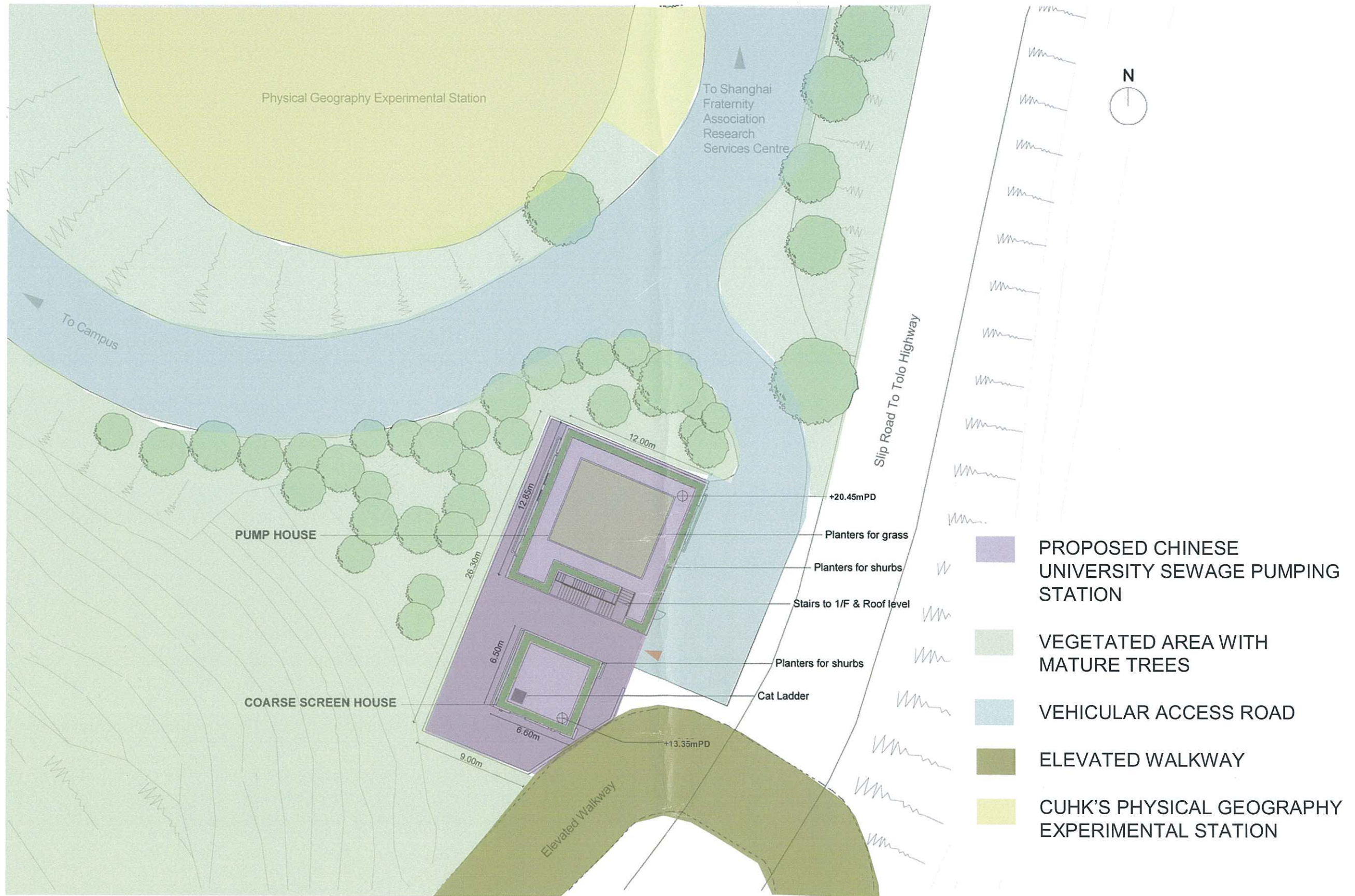
Agreement No. CE 1/2006 (DS)
Upgrading of North District and Tolo Harbour Regional Sewerage – Investigation, Design and Construction

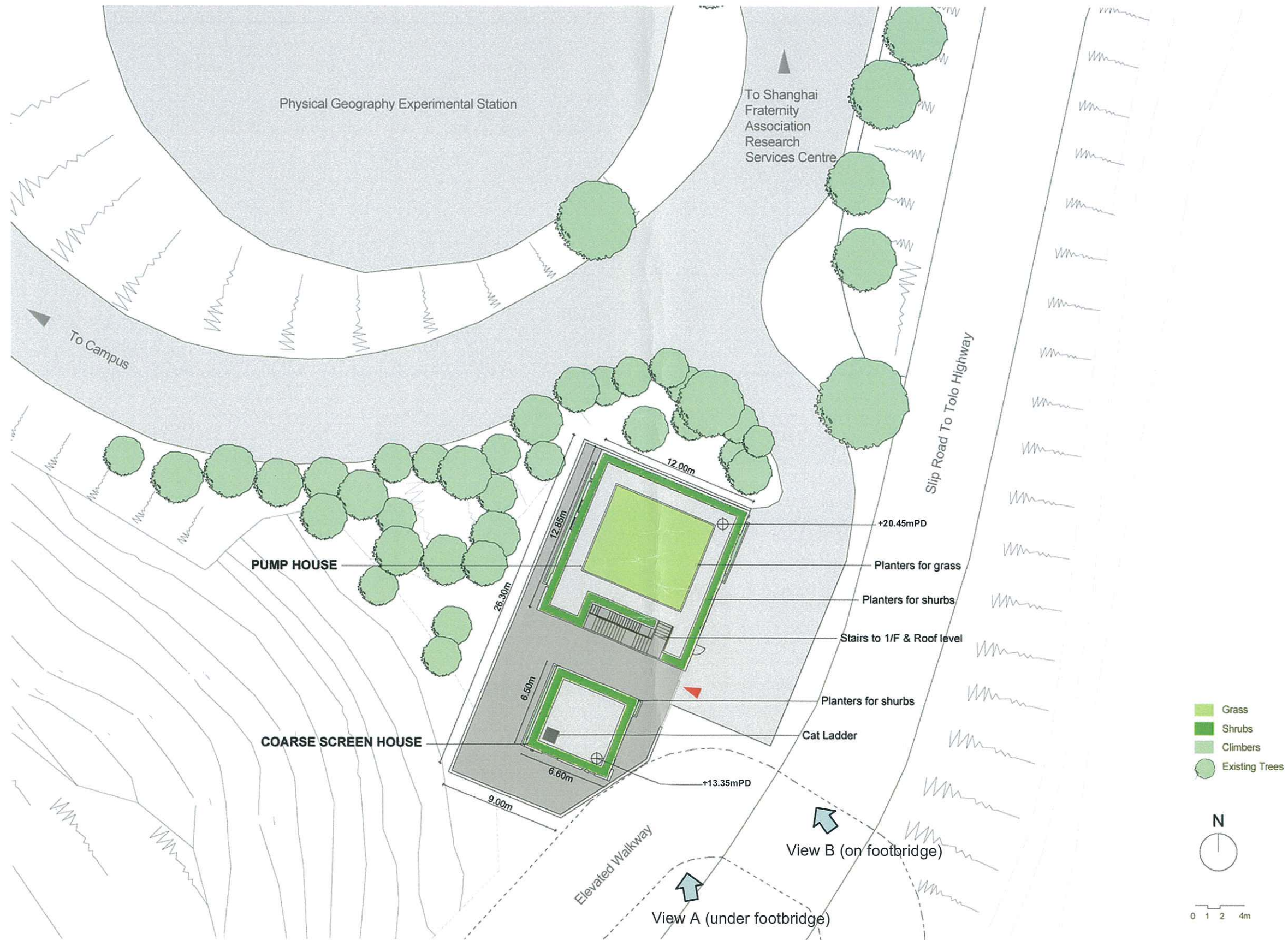
Landscape and Visual Plan

for the Proposed Chinese University Sewage Pumping Station

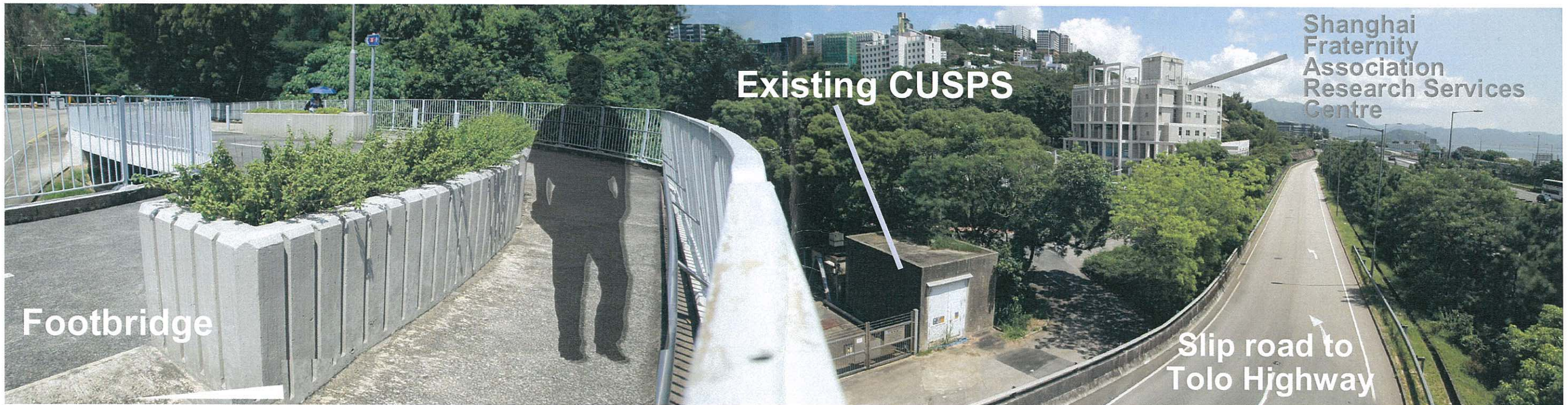
June 2009

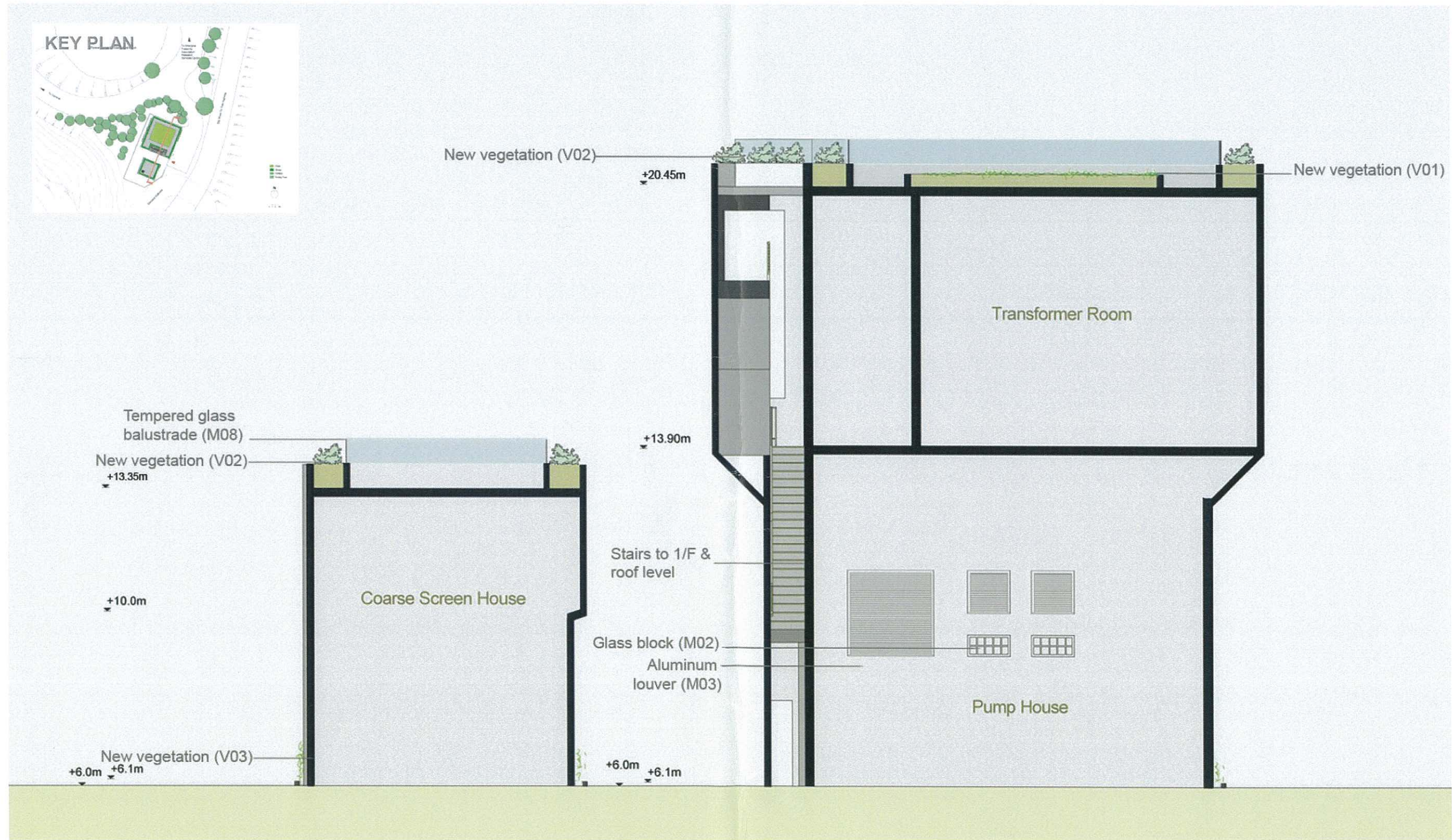
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EP-355/2009

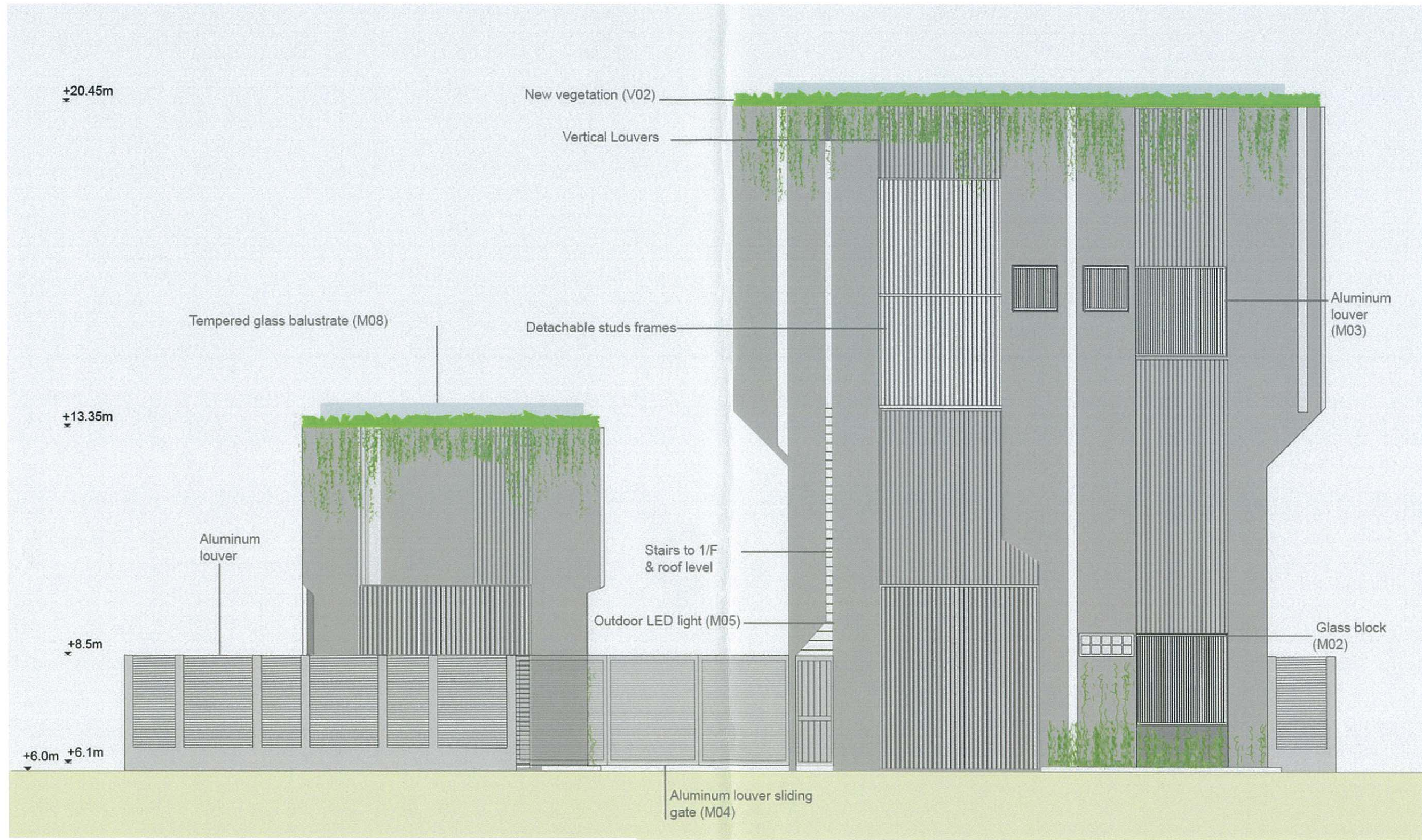




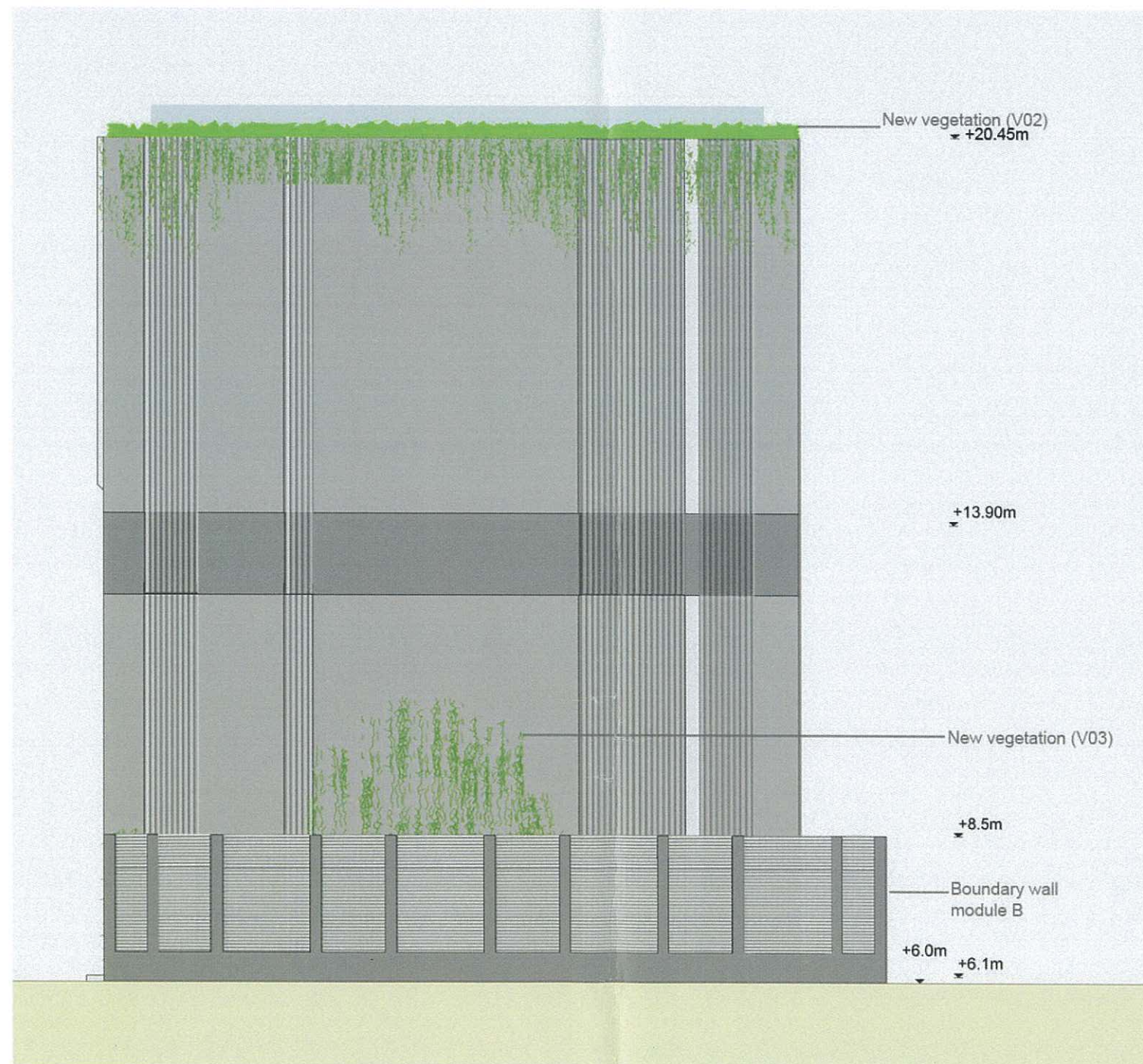






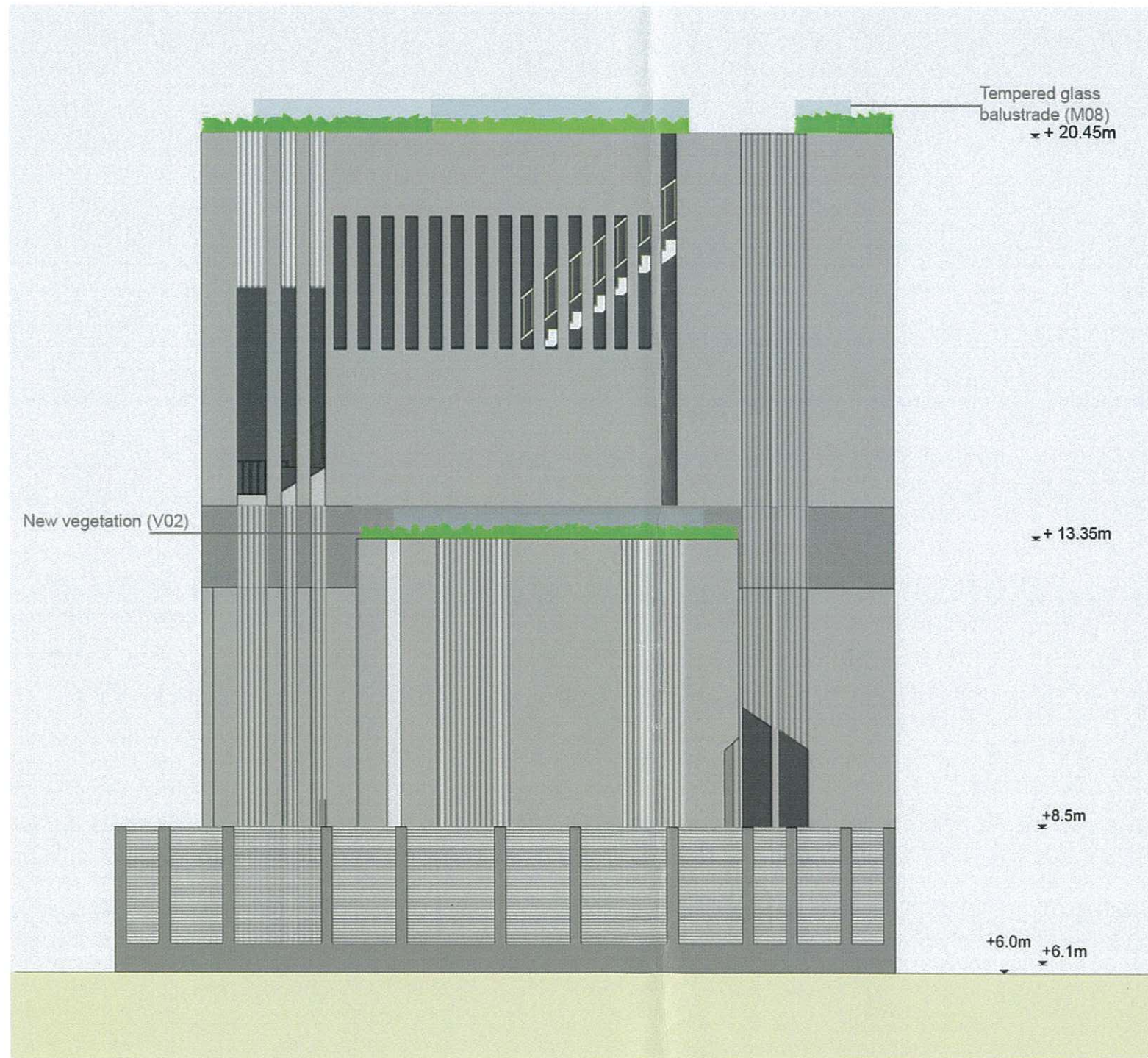


EAST ELEVATION



NORTH ELEVATION





SOUTH ELEVATION



WATER TOWER
(CUHK'S LANDMARK SCULPTURE)



EXISTING VIEW A



KEY PLAN



Major Material Elements



Materials

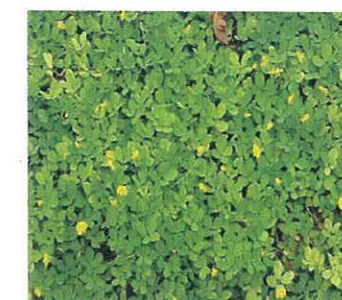
- M01 Fair face concrete
- M02 Glass block
- M03 Aluminum louvers
- M04 Aluminum louvers gate
- M05 Recessed LED lighting
- M06 LED tube lighting
- M07 Paint finishes
- M08 Tempered glass balustrade

New vegetation

- V01 Common Bermuda Grass
- V02 Arachis pintoi cv. Amarillo
- V03 Lonicera Japonica (Japanese Honeysuckle)



V01



V02



V03

SPECIFICATION OF BUILDING MATERIAL

Code	Material	Colour	Description	Application Location	Supplier info for reference only
M01	Fair face concrete	/	F4 Class, Formed finish, Sealed plywood form work, with uniform, dense and smooth surface. No grout runs, No grain pattern, No crazing and No major blemishes. (Reference to ArchSD •General Specification for Building Volume 2: Section 14.1. 2006 ed)	Exterior walls of pumping station building	/
M02	Glass block	Clear	A glass block with smooth parallel ribbed transparent finished in 19cm x 19cm x 8cm	Exterior walls of pumping station building	Buona Idea Building Materials (INT L) Limited T:2543 4243 Reference to "Vetroarredo" Clear Glass Block
M03	Aluminum louvers	Metallic gray/PANTONE 8430C	Aluminum alloy 3005 to BS 1470, single bank louver having louver blades at 50mm pitch, front louver blades clipped to structural supporting mullion to allow expansion and contraction. Mullions shall be concealed at 1250mm maximum centres and their points of support along their length shall be in accordance with prevailing site wind pressures in accordance with BS 6399 part 2. manufactured from 2mm sheet so that associated support steelwork is reduced to minimum. cill and frames shall contain all peripheral fixings and be manufactured from 1.6mm sheet. Aerodynamic coefficient to EN 13030:2001, Air inlet:0.308, Air extract: 0.250. weathering classified EN13030:2001 Class A2, louver system shall be drained internally through hollow section vertical mullions which shall discharge water onto cill.	Ventilation opening, facade and boundary wall	Colt Int l Ltd. W:www.coltgroup.com Reference to ,Colt :Double Bank Universal Louver
M04	Aluminum louvers	Metallic gray/PANTONE 8430C	Aluminum alloy 3005 to BS 1470, single bank louver having louver blades at 50mm pitch, front louver blades clipped to structural supporting mullion to allow expansion and contraction. Mullions shall be concealed at 1250mm maximum centres and their points of support along their length shall be in accordance with prevailing site wind pressures in accordance with BS 6399 part 2. manufactured from 2mm sheet so that associated support steelwork is reduced to minimum. Cill and frames shall contain all peripheral fixings and be manufactured from 1.6mm sheet. Aerodynamic coefficient to EN 13030:2001, Air inlet:0.43, Air extract: 0.38. weathering classified EN13030:2001 Class D1, louver system shall be drained internally through hollow section vertical mullions which shall discharge water onto cill.	Louvers mounted on front sliding gate	Colt Int l Ltd. W:www.coltgroup.com Reference to ,Colt :Double Bank Universal Louver
M05	Recessed LED lighting	Grey cover	Incl 1 X POWER LED White 1W/5500K excelled power supply 350mA-DC,current controlled 0.4KG IP20,CUT OUT:45 X 175 millimeter min depth for recessing:45 mm max thickness of mounting surface:max. 12mm, waterproof and dust resistant	Mount on the wall along the staircase	"Delta Lighting" W: http://www.deltalight.com Reference to "LED technic"
M06	LED Tube Lighting	White	Connected load: 220-240V; 50/60Hz Fitted with: 2 x LED lamp 4W daylight white Work equipment: Electronic transformer. Mains lead: direct power supply. Luminaire body material: Acrylic. Weight (net) approx. 0.9kg. Fastening:lamp bracket (accessory) Light distribution: Direct. Total length: 1000mm. Light output: 940mm. Outside diameter: 73mm D with screwed cable gland. System of protection IP 67 - suitable for indoor and outdoor installation. TEMPERATIVE: -20 DEGREE +45 DEGREE HUMIDITY: 0-95% PROTECTION: IP65 CONTROLLINNG MODE Plug directly with high voltage Input connector: Male Output connector: Female BS EN 60825-1:1994	Mount on exterior wall	Neo-Neon Holdings Ltd. W: www.neo-neon.com
M07	Paint finishes	Metallic gray/PANTONE 8430C	Sheen, emulsion-2Based paint, anti-algae, anti fungus, 2 coats.	Boundary wall	Nippon Paint (HK) Co. Ltd. "Nippon Weatherbond" T:852 2699 9333
M08	Tempered glass balustrade	/	19mm thick tempered glass. Shoe moulding should be embedded in concrete. The shoe is to integrity of glass railing system. Shoe moulding- Aluminum, 6063-T52 Alloy. Cladding-Aluminum Satin Anodized	Parapet	http://www.wagnercompanies.com Reference to Glass Wedge System

SPECIFICATION OF VEGETATION

Code	Name	Species	Description	Application Location
V01	Common Bermuda Grass	Grass	Perennial with strong creeping stolons and rhizomes; leaf grayish to dark green, folded in bed; leaf blade flat, smooth, lanceolate to linear apex pointed, up to 8 cm long. 5mm wide, with short hair along the margins and at the base; inflorescence of 3 to 6 spikes, digitally arranged at the top; anthers yellowish and styles light purplish.	Roof garden
V02	Arachis pintoi cv. Amarillo (Amarillo peanut)	Shrubs	Stoloniferous, perennial herb developing a strong taproot on the older crowns and forming a dense mat of stolons and rhizomes up to 20 cm deep. Stems initially prostrate, becoming ascendant to 20 cm in height. Leaves tetrafoliolate, margins entire, ciliate; distal leaflets obovate and proximal leaflets oblong-obovate, obtuse at the apex and slightly cordate at the base; leaflets up to 4.5 cm x 3.5 cm; the upper surface of leaflets glabrous and darker green than the pubescent lower surface. Individual flowers on short axillary racemes, standard 12-17 mm, yellow. The terminal pod on the peg usually contains 1 seed, sometimes 2, while pods formed along the peg contain only 1. Pod moderately reticulated, 10-14 mm x 6-8 mm. Seed light-brown, 8-11 mm x 4-6 mm, weighing 0.11-0.20 g.	Roof planters
V03	Lonicera Japonica (Japanese Honeysuckle)	Climbers	Lonicera Japonica is a twining vine able to climb up to 10 m high or more in trees, with opposite, simple oval leaves 3-8 cm long and 2-3 cm broad. The flowers are double-tongued, opening white and fading to yellow, and sweetly scented. The fruit is a globose dark blue berry 5-8 mm diameter containing numerous seeds. Leaf: Opposite, simple, ovate to oval, entire margin, sometimes lobed, semi-evergreen, light green and somewhat pubescent. Flower: Fragrant, 1/2 to 1 inch long, white or yellowish-white long petals, appearing in late spring. Fruit: Small (1/4 inch diameter), black berry, often in pairs, ripen in fall and persist into early winter. Twig: Slender, initially pubescent, light brown in color developing scaly, thin bark, hollow pith; buds small. Bark: Long, shreddy peeling strips, light red-brown to straw-colored. Form: A scrambling, twisting vine with no tendrils or aerial roots, forms dense thickets in bushes and trees and and sprawls along the ground.	Climbing for exterior wall and ground planters

Items	Details
(i) Development details of the proposed CUSPS	<ul style="list-style-type: none"> Development Site Area: approx. 400m² Dimensions of the proposed CUSPS: The proposed pumping station, of which the external dimensions are 26m by 13m will consist of 2 superstructures, namely: <ol style="list-style-type: none"> Coarse Screen House Footprint: approx. 6.6 m(L) x 6.5m(W) Height (incl. parapet): approx. 8m (H) Pump House Footprint: approx. 13m (L) x 12m (W) Height (incl. parapet): approx. 15m (H)
(ii) Justification of not constructing the proposed CUSPS as a single-storey building	<p>The upper floor of the proposed CUSPS will accommodate power transformers and associated equipments provided by CLP, which are essential for the operation of the proposed pumping station. According to the requirements specified by CLP in their Code of Practice, the transformer room, which houses the said equipments, should be located immediately adjacent to, above or below the proposed pumping station.</p> <p>If the proposed pumping station is constructed as a single-storey building, an additional piece of land with area of around 13m by 10m would be required to accommodate the proposed transformer room. The identified land constraints of the proposed site, which are illustrated on Figure 1 are highlighted as follows:</p> <p><i>North to south-west of the proposed pumping station:</i> There are heavy vegetations including mature trees, which do provide a screening effect such that the proposed structures will not be seen very clearly from the campus of Chinese University. Removing these trees for accommodating the proposed transformer room is highly undesirable.</p> <p><i>East of the proposed pumping station:</i> A vehicular access, which will serve as the only ingress and egress of the proposed site, is vitally important for the operation and maintenance of the proposed pumping station. In addition, there are numerous underground utilities, including electricity cables and telephone cables, running along this access road. Diversion of these utilities would require additional land, which would be not available at this already congested site.</p> <p><i>South of the proposed pumping station:</i> The land is sterilized by the existing elevated walkway and therefore not suitable for accommodating any new superstructures.</p> <p>With due consideration of the above land constraints of the proposed site, constructing a single-storey building with larger footprint requirement for the proposed pumping station is considered not technically viable.</p> <p>In summary, the building bulk and height of the proposed pumping station are based on the minimum design and operational requirements. Thus, it is considered not feasible to further reduce the footprint and the building height of the proposed pump house and transformer room.</p>

Items	Details
(iii) Improvements to the possible architectural and landscape design of the proposed CUSPS	<ol style="list-style-type: none"> <i>Planters at mid-level of south façade of Pump House</i> Planters are added at the inner side of the southern wall of the Pump House and with slots of openings made to the wall next to the additional planters. The green plants are allowed to grow out through the wall slots from the inner planters, thus forming green features on the facade and visually reducing the mass of the building. Since the proposed Pump House will be screened by the existing mature trees as viewed from north, it is considered not necessary to add the abovementioned green features at the north façade of the Pump House. <i>Vegetation on the eastern side of Screen House</i> Due to limited space available in the site and existence of underground pipelines and sewerage manholes, planting of trees at the eastern side of the Screen House as visual screen is found not feasible. Nevertheless, climbing plants, which require much less space, will be provided at both the ground floor and roof of the Screen House, providing more green features to soften the eastern façade and the building edges of the Screen House. The possible architectural and landscape design of the proposed CUSPS, which has been incorporated the above improvements, is illustrated in Figures 2 to 10.
(iv) Visual Impact to the sensitive receivers	<p>The pedestrians of the elevated walkway would be the major visual sensitive receivers of the proposed Chinese University Sewage Pumping Station. Majority of these receivers would be the visitors travelling to and from the University Station and the ferry piers at Pak Shek Kok during weekends and holidays. The frequency and duration of the view at the proposed pumping station by these receivers, which are transient in nature, should be rated as occasional and short, respectively. Their sensitivity to the change of the view is considered low.</p> <p>With the implementation of the proposed mitigation measures with respect to landscape and visual aspects, the residual visual impact arising from the proposed pumping station is considered insubstantial.</p>