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ACE-EIA Paper 6/2017
For advice on 16 October 2017

Environmental Impact Assessment Ordinance (Cap. 499)
Environmental Impact Assessment Report

Housing Sites in Yuen Long South

PURPOSE

This paper presents the key findings and recommendations of the Environmental Impact Assessment (EIA) report for the planning and engineering feasibility study of Housing Sites in Yuen Long South (YLS) ("the Project") submitted under Section 6(2) of the Environmental Impact Assessment Ordinance (EIAO) (Application No. EIA-254/2017). The Civil Engineering and Development Department (CEDD) ("the Applicant") and its consultants would present the EIA report at the meeting of EIA Subcommittee.

ADVICE SOUGHT

2. Members' views are sought on the findings and recommendations of the EIA report. The Environmental Protection Department (EPD) would take into account comments from the public and the Advisory Council on the Environment (ACE) in deciding whether or not to approve the EIA report under Section 8(3) of the EIAO.

BACKGROUND

3. In order to address the demand for land for housing, the Policy Addresses from Year 2012 to 2015 announced the review of agricultural land in the North District and Yuen Long, which is currently used mainly for industrial purposes or temporary storage, as one of the potential land supply measures. The Policy Addresses in Year 2016 and 2017 further highlighted the YLS development (Figure 1) as a medium and long-term land supply measures.

4. Back in 2012, the Applicant commissioned a Planning and Engineering Feasibility Study for Housing Sites in YLS to examine the future land use; to optimize the development potential; and to ascertain the feasibility for public and private housing development in YLS Potential Development Area (PDA). The engineering feasibility study has drawn up a Recommended Outline Development Plan (RODP) for detailed EIA study. Public views, including ACE, green groups, district councils and other stakeholders, were solicited through three rounds of formal community engagement in 2013, 2014 and 2016 in preparing the development plan. The EIA for the Project is based on the RODP which covers about 223.5 hectares (ha) with an intended total population of about 88,000.

5. Key environmental issues raised during the three community engagement exercises include impact on watercourses of higher ecological value, impact on landscape resources, impact on egretry near Pak Sha Tsuen, conservation of agricultural land and woodland habitats, provision of drainage facilities; provision of sewage treatment facilities, and revitalization of the Yuen Long Nullah.

6. In the course of the EIA study, the RODP was further refined to avoid, reduce and minimize environmental impacts. The finalized RODP of YLS development is at Figure 2.

7. The EPD, in consultation with all relevant authorities, considers that the EIA report has met the requirements of the EIA Study Brief and the Technical Memorandum on EIA Process (TM), for the purpose of exhibiting the report for public inspection, under Section 7(4) of the EIAO.

NEED FOR THE PROJECT

8. The YLS PDA is currently rural in character with a mixture of land uses. The predominant uses are brownfield operations including open storage yards, warehouses, industrial workshops, etc. These brownfield operations are intermingled with rural settlements and residential developments, agricultural land, livestock farms and vacant land. The YLS PDA would create land for approximately 28,500 new flats and industrial and commercial buildings to provide about 10,500 new employment opportunities in the region. The first population intake is scheduled for 2027 with full population intake in 2038.

9. The YLS development also provides the opportunity to transform the degraded brownfield sites to more optimal uses and better land utilization for future development of the community and promote urban-rural symbiosis.

ENVIRONMENTAL BENEFITS

10. The key environmental benefits of the YLS PDA stated in the EIA report include :

(i) Relocation of Brownfield Operation and Minimization of Industrial/Residential (I/R) Interface Problems : Currently, approximately 100 ha of originally agricultural land within the PDA has already been disturbed by brownfield operations. These brownfield operations would be converted to open space, residential, government, institution or community facilities, etc. in accordance with the RODP. The proposed multi-storey buildings in the Employment Belt near Yuen Long Highway would accommodate the brownfield operations. Through the consolidation of brownfield operations in the Employment Belt, it would help alleviate existing I/R interface problems associated with the existing brownfield operations.

(ii) Revitalization of Nullahs : Rehabilitation works without decking are proposed for about 0.7km of the Yuen Long Nullah at its southern section. The revitalized nullah would be promoted as a place for leisure for both existing and future residents.

(iii) Enhancement of Landscape and Visual Impacts : YLS would integrate with its surrounding settings by positioning high density developments in the north near Yuen Long New Town and transitioning to medium and low density developments to the south. A comprehensive open space and green network is also planned for the PDA.

(iv) Removal of Existing Odour Sources : Currently, there are six livestock farms in the YLS PDA, including three pig farms and three chicken farms. Only one chicken farm located at the most southern fringe of the PDA would be retained. The areas in the vicinity are proposed to be rezoned as "G" for government depot and would serve as part of buffer between the retained chicken farm and sensitive land uses.

(v) Adoption of Green Initiatives : A number of green initiatives have been proposed. These include green mobility through comprehensive and convenience cycle track and pedestrian walkway networks; promotion of using environmental friendly vehicles; reuse of treated sewage effluent as reclaimed water for toilet flushing; collection of rainwater for non-potable purposes for buildings, etc.

DESCRIPTION OF THE PROJECT

11. The Project is an engineering feasibility study covering 223.5 ha. It is a designated project (DP) under Item 1[1], Schedule 3 of the EIAO. The development of the YLS PDA also covers 10 other DPs under Schedule 2 of the EIAO (Figure 3), viz :

(i) Item A.1[2]: Construction of a Trunk Road (Tin Shui Wai (TSW) West Interchange);

(ii) Item A.1[2]: Construction of new Primary Distributor Roads (Tong Yan San Tsuen (TYST) Interchange);

(iii) Item A.1[2]: Construction of two new Distributor Roads (Roads D1 and D2);

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1 Item 1 of Schedule 3 – "Engineering feasibility study of urban development projects with a study area covering more than 20 ha or involving a total population of more than 100,000".

2 Item A.1 of Part I, Schedule 2 – "A road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing roads".

(iv) Item A.3[3]: Construction of Environmentally-Friendly Transport Services (EFTS);

(v) Item A.8[4]: Construction of slip roads at the TYST Interchange;

(vi) Item A.9[5]: Construction of partly depressed road / underpass located at TSW West Interchange and full enclosures at TYST Interchange;

(vii) Item F.2[6]: Construction of new YLS Sewage Treatment Works (STW);

(viii) Item F.3(b)[7]: Construction of two new Sewage Pumping Stations;

(ix) Item F.4 [8]: Construction of Reclaimed Water Service Reservoirs for reuse of reclaimed water; and

(x) Item I.1(b)(vii)[9]: Yuen Long Nullah revitalization/ decking along Kung Um Road and Kiu Hing Road.

CONSIDERATION OF ALTERNATIVES

12. The EIA report has considered various development options under the Preliminary Outline Development Plan, draft RODP, as well as the RODP formulated after three community engagement exercises with relevant stakeholders. Alternatives were considered in the EIA report to avoid, reduce and minimise environmental impacts, e.g. rezoning some of the residential sites to enhance protection of flight paths of the egretry near Pak Sha Tsuen; avoiding I/R interface problems by grouping industrial uses in multi-storey buildings in the Employment Belt; zoning land corridors adjoining watercourses of higher ecological value to "GB(1)" to preserve integrity of the watercourses; preserving existing agricultural lands by "AGR" zone, etc.

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3 Item A.3 of Part I, Schedule 2 – "A tramway and its associated stations".
4 Item A.8 of Part I, Schedule 2 – "A road or railway bridge more than 100m in length between abutments".
5 Item A.9 of Part I, Schedule 2 – "A road fully enclosed by decking above and by structure on the sides for more than 100m".
6 Item F.2 of Part I, Schedule 2 – "Sewage treatment works with an installed capacity of more than 5,000m^3 per day and located at less than 200m from existing / planned receivers".
7 Item F.3(b) of Part I, Schedule 2 – "A sewage pumping station with an installed capacity of more than 2,000m^3 per day and located at less than 150m from existing / planned receivers".
8 Item F.4 of Part I, Schedule 2 – "An activity for the reuse of treated sewage effluent from a treatment plant".
9 Item I.1(b)(vii) of Part I, Schedule 2 – "A drainage channel or river training and diversion works less than 300m from the nearest boundary of an existing conservation area".

13. The environmental benefits and dis-benefits of the options have been evaluated. The recommended land use options have taken into account environmental considerations, site constraints and comments received during the community engagement exercises. The key approaches adopted by the Applicant to avoid or minimise environmental impacts are summarised below :

Avoidance of Impacts

(i) To avoid disturbance to sites of conservation importance, the PDA does not encroach into the Tai Lam Country Park and Conservation Areas;

(ii) To avoid impact to watercourses of higher ecological value, three sections of watercourses are proposed to be retained with buffer on both sides of the watercourses;

(iii) To avoid impact to major flight paths of the egretry near Pak Sha Tsuen, non-building area, open space and maximum 3-storey building height are introduced;

(iv) To avoid encroachment and fragmentation of the mature woodland behind Shan Ha Tsuen, road junctions are located away from the preserved woodland;

(v) To avoid increase in pollution loading to the Deep Bay, new sewerage network would be provided to cover existing unsewered areas within the PDA; and

(vi) To avoid cultural heritage impact, graded historic buildings have been preserved within the RODP and the associated heritage resources are protected.

Minimisation of Impacts

(i) To minimise road traffic noise impact, multi-storey buildings at the Employment Belt serve as barrier to further reduce impact of road traffic noise from Yuen Long Highway on the residential areas in the south;

(ii) To minimise construction noise, use of quieter plants and careful scheduling of construction works would be implemented; and

(iii) To minimise construction dust, good site practices including watering of exposed areas and careful scheduling of construction works would be implemented.

SPECIFIC ENVIRONMENTAL ASPECTS TO HIGHLIGHT

14. The key findings of the EIA report in specific environmental aspects are summarized in the ensuing paragraphs.

Ecology

15. Three watercourses with higher ecological values have been identified within the PDA. To avoid direct impact to these watercourses, a conservation zoning of "Green Belt (1)" covering 15m buffer on both sides along these watercourses is proposed. The creation of a retention lake (about 0.6 ha), reedbed/retention pond (about 4 ha) and Hillside River Corridor (about 570 m) would provide additional foraging habitat for ardeids and aquatic fauna.

16. The egretry near Pak Sha Tsuen is outside the PDA and over 120m away from the proposed site formation and / or construction works and as such indirect impacts are considered to be low. Impacts to the majority of flightlines have been avoided by provision of open space and non-building area on the RODP. Additional feeding opportunities for breeding ardeids would be provided through the creation of the retention lake, the reedbed / retention pond and the Hillside River Corridor and through the protection of the three retained watercourses with buffers and the revitalisation of nullahs.

17. The moderate impacts resulting from loss of about 2.4 ha of hillside secondary woodland would be mitigated through an off-site compensatory woodland planting area at a compensation area ratio of at least 1:1.

18. Through proper implementation of the mitigation and enhancement measures recommended in the EIA report, including the avoidance of direct impact to key habitats, incorporation of watercourse buffer zones, and provision of connectivity between ecological habitats, there would be an overall ecological gain in the PDA, which contains a large area already disturbed by brownfield operations.

Noise

19. The EIA report has recommended the implementation of a series of carefully chosen noise mitigation measures, including the use of quiet plants and scheduling of works. With these measures, construction noise arising from the Project would meet relevant criteria.

20. During operation stage, the relocation of existing brownfield operation would minimize I/R interface problem. The Employment Belt proposed next to the Yuen Long Highway would provide convenient access to the strategic highway network, and hence avoiding the freight traffic from travelling through the residential neighbourhood in the PDA. Also, these multi-storey buildings would serve as a physical barrier to further reduce industrial noise from the existing industrial zone outside the PDA near Fui Sha Wai and the road traffic noise from Yuen Long Highway.

21. The EIA report has proposed mitigation measures including use of low noise road surfacing, noise barriers, semi-enclosures / full enclosures, building orientation and provision of acoustic windows to mitigate traffic noise impact. With these mitigation measures in place, respective noise levels at sensitive receivers would meet relevant criteria.

Air Quality

22. During construction stage, with mitigation measures such as good site practices, watering of exposed areas and careful scheduling of works, the construction dust level would meet relevant criteria.

23. During the operation stage, the relocation of existing brownfield operations would minimize I/R interface issues. Sufficient buffer distances from roads have been proposed for planned residential sensitive receivers. Five existing livestock farms within the Project site would be removed under this Project and this would reduce the total odour emissions in the area and improve the odour conditions in future from existing situation. The areas in the vicinity of the retained chicken farm are proposed to be rezoned as "G" for government depot and serve as part of buffer between the retained chicken farm and sensitive land uses.

Sewerage and Water Quality

24. The proposed sewage treatment and disposal strategy for YLS involves collection of sewage through a proposed sewerage system to the new on-site STW. There would be no net increase in the pollution loading to the Deep Bay, as most of the treated sewage effluent generated by the Project would be either reused as reclaimed water for non-potable water supply, or properly disposed of at North Western Water Control Zone. A small amount of surplus treated sewage effluent would be discharged to a reedbed adjoining the proposed STW for further polishing before entering the revitalized Yuen Long Nullah.

Land Contamination

25. 697 sites within the PDA were identified to have potential site contamination. Further site investigation works would be conducted to identify the need for decontamination works before the YLS PDA development.

Landscape and Visual

26. About 17,421 trees consisting of approximately 170 species were found within the development boundary. Out of the 77 trees identified as Important Trees (including 42 potentially OVTs and 35 rare/protected species), it is anticipated that about 34 of them are in direct conflict with the footprint of the Project development. The actual impact on these trees as well as tree treatment and compensatory planting would be finalised at detailed layout design stage.

27. The transformation of presently predominantly brownfield sites into a contemporary planned community with proper landscape treatments would result in landscape and visual improvement.

Cultural Heritage

28. There are two declared monuments within the assessment area. In addition, there are 15 graded historic buildings, one proposed graded historic building and one nil-graded historic building located within the assessment area. Direct impacts on all these built heritage are not anticipated. There are no Archaeological Potential Areas (APAs) within the Project area.

Other Environmental Impacts

29. Other environmental impacts including waste management and fisheries have been satisfactorily addressed in the EIA report. With the implementation of the recommended mitigation measures, the Project would comply with the requirements of the TM.

ENVIRONMENTAL MONITORING AND AUDIT (EM&A)

30. The EIA report includes an EM&A Manual which recommends EM&A programmes during the construction and operational phases of the Project. Key recommended EM&A requirements cover air quality, noise, water quality, waste management, land contamination, ecology, visual & landscape and cultural heritage.

PUBLIC CONSULTATION

31. The Applicant has made the EIA report, EM&A Manual and Executive Summary available for public inspection under the EIAO from 8 August 2017 to 6 September 2017. During the inspection period, a total of 11 public comments were received by EPD. The main environmental concerns raised by the public are related to ecology, preservation of agricultural land, odour impact and noise impact assessments of the Project. These main concerns would be summarised in a gist to be provided separately.

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Environmental Assessment Division
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