L. Environmental Mitigation Measures - Implementation Status

Air Quality – Recommended Mitigation Measures

Air Quality Mitigation Measures during construction	Implementation Status
access roads should be sprayed with water or dust suppression chemical to maintain the entire road surface wet or paved;	✓
every stock of more than 20 bags of cement or dry PFA should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	N/A
de-bagging, batching or mixing process should be carried out in sheltered areas during the use of bagged cement;	N/A
use of effective dust screens, sheeting or netting to be provided to enclose dry scaffolding which may be provided from the ground floor level of the building or if a canopy is provided at the first-floor level, from the first floor level, up to the highest level (maximum four floors for this Project) of the scaffolding where scaffolding is erected around the perimeter of a building under construction;	N/A
dump trucks for material transport should be totally enclosed using impervious sheeting;	✓
any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;	✓
dusty materials remaining after a stockpile is removed should be wetted with water;	✓
the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with e.g. concrete, bituminous materials or hardcore or similar;	✓
the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;	✓
stockpile of dusty materials to be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;	✓
all dusty materials to be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;	✓
vehicle speed to be limited to 10 kph except on completed access roads;	✓
every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;	✓
the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and	✓
the working area of excavation should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet.	✓
Odour mitigation measures	
all malodorous excavated material should be placed as far as possible from any ASRs;	N/A
the stockpiled malodorous material should be removed from site as soon as possible; and	N/A
the stockpiled malodorous material should be covered entirely by plastic tarpaulin sheets.	N/A

Noise – Recommended Mitigation Measures

Noise Mitigation Measures during construction	Implementation Status
only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;	✓
machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;	✓
plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;	✓
silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction period;	✓
mobile plant should be sited as far away from NSRs as possible;	✓
material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities; and	✓
air compressor and hand-held breaker should be fitted with valid noise emission labels during operation; and	N/A
The Contractor shall at all times comply with all current statutory environmental legislation.	✓
Selection of quieter plant and working methods The Contractor shall obtain particular models of plant that are quieter than standards given in GW-TM. The list of assumed quieter plants can be found in the Table 4–14 of the EIA report. The Contractor shall select from the available models achieving the assumed sound levels while making reference to the GW-TM and BS5228: Part 1: 1997	✓
Use of Noise Barriers Noise barriers are proposed along the site boundary to block the direct line of sight from the most affected NSRs to the major noise contribution construction phases. The height of the noise barriers ranged from 9-10m. The noise barriers shall be built before the commencement of construction works in order to ensure protection to nearby NSRs. The noise barrier should have a surface density of at least 10kg/m^2 or material providing equivalent transmission loss. The noise barriers and hoardings should have no gaps and openings to avoid noise leakage.	P

Water Quality – Recommended Mitigation Measures

Water Quality Mitigation Measures during construction	Implementation Status
The site should be confined to avoid silt runoff to the site.	✓
No discharge of silty water into the storm drain and drainage channel within and the vicinity of the site.	✓
Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.	✓
Stockpiles to be covered by tarpaulin to avoid spreading of materials during rainstorms;	N/A
Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;	✓
Chemical waste containers shall be labelled with appropriate warning signs in English and Chinese to avoid accidents. there shall also be clear instructions showing what action to take in the event of an accidental;	✓
Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area;	✓
Any construction plant which causes pollution to the water system due to leakage of oil or fuel shall be removed off-site immediately;	N/A
Spillage or leakage of chemical waste to be controlled by using suitable absorbent materials;	N/A
Chemicals will always be stored on drip trays or in bunded areas where the volume is 110% of the stored volume;	P
Regular clearance of domestic waste generated in the temporary sanitary facilities to avoid waste water spillage.	✓
Temporary sanitary facilities to be provided for on-site workers during construction.	✓

Water Quality Mitigation Measures during construction	Implementation Status
Temporary drainage channel and associated facilities will be provided to collect the surface runoff generated within the Project Area during the construction phase.	✓
Sandbags or silt traps will need to be placed to avoid silt runoff to the drainage channel draining the water in the northern ditch. Draining of the ditches should avoid rainy weather.	✓
Excavated soil which needs to be temporarily stockpiled should be stored in a specially designated area and provided with a tarpaulin cover to avoid runoff into the drainage channels.	✓

Waste Management – Recommended Mitigation Measures

Waste Management Mitigation Measures during construction	Implementation Status
Site Clearance Waste The major construction works of Wo Shang Wai is in the development of residential buildings and other associated facilities (club house, tennis courts, etc.). The amount of site clearance works will be limited with the exception of the excavated materials. The thin layer of vegetation removed can be stored and reused for landscaping.	✓
Excavated Materials The intention is to maximize the reuse of the excavated materials on-site as fill materials.	✓
Imported Filling Material The excavated/imported filling material may have to be temporarily stockpiled on-site for the construction of road embankment and foundation of viaduct substructure. Control measures should be taken at the stockpiling area to prevent the generation of dust and pollution of stormwater channels. However, to eliminate the risk of blocking drains in the wet season, it is recommended that stockpiling of excavated materials at during wet season should be avoided as far as practicable.	✓
Construction and Demolition Materials Careful design, planning and good site management can minimise over-ordering and generation of waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork of plastic facing should be considered to increase the potential for reuse.	✓
The Contractor should reuse any C&D material on-site. C&D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal.	✓
Chemical Waste For those processes which generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	N/A
Containers used for the storage of chemical wastes should:	
be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed:	✓
have a capacity of less than 450 litres unless the specification has been approved by the EPD; and	✓
display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations,	✓
The storage area for chemical wastes should:	
be clearly labelled and used solely for the storage of chemical waste;	✓
be enclosed on at least 3 sides;	✓
have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area whichever is the greatest;	✓
have adequate ventilation;	✓
be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and	✓
be arranged so that incompatible materials are adequately separated.	✓
Disposal of chemical waste should:	
be via a licensed waste collector; and	N/A

Waste Management Mitigation Measures during construction	Implementation Status
be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers, or	N/A
to be a reuser of the waste, under approval from the EPD.	N/A
General Refuse Should be stored in enclosed bins or compaction units separate from C&D and chemical wastes. The Contractor should employ a reputable waste collector to remove general refuse from the site, separate from C&D and chemical wastes, on a regular basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.	P
Disposal of Excavated Sediment at Sea	
The requirements and procedures for excavated sediment disposal are specified under the ETWB TCW No. 34/2002 and PNAP 252. The management of the excavation, use and disposal of sediment is monitored by Fill Management Committee, whilst the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).	N/A
The excavated sediment would be loaded onto barges or other appropriate vessel and transported to the designated marine disposal site. Category L sediment and Category M sediment passing the biological test would be suitable for disposal at a gazetted open sea disposal ground. Category M sediment failing the biological test and Category H sediment passing the biological test would require confined marine disposal.	N/A
During transportation and disposal of the dredged sediment, the following measures should be taken to minimize potential impacts on water quality: -	N/A
Bottom opening transport vessels should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of vessels before the vessel is moved.	N/A
Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.	N/A

Ecology – Recommended Mitigation Measures

Ecology Mitigation Measures during construction	Implementation Status
Clear Definition of Site Limit	
Clear definition of the site limit should be provided in order to minimize and confine the disturbance during the construction period, especially the northern limit of the Site which is adjacent to fishponds within the Conservation Area (CA) zone and are considered to be ecological sensitive receivers.	✓
During wetland construction stage the WRA boundary will be delineated using a temporary hoarding in order to reduce disturbance to off-site habitats and wildlife. During the establishment phase this hoarding will be replaced with a 1 m high chain-link fence in order to reduce disturbance to the WRA through access by humans and dogs, and a hoarding will be established around the residential construction site.	N/A (WRA construction completed)
Dust and Noise Suppression and Avoidance of Water Pollution	
Good site practices of dust and noise suppression should be strictly implemented to ensure that disturbance is minimized to acceptable levels. Mitigation measures for the off-site disturbance impacts on the fishponds in the CA include hoarding at the northern site boundary during construction of the WRA to reduce noise and dust impacts to the adjacent habitats. Through the use of quieter plant and temporary/movable noise barriers, the noise level would be reduced significantly to an acceptable level. Hoarding at the northern boundary should be replaced with a 1 m high chain-link fence following construction and the WRA will then act as a buffer between the existing wetland areas and the residential part of the site until construction is completed. Hoarding will be retained between the WRA and ongoing construction work to avoid visual disturbance and reduce noise and dust emissions. Pollution of watercourses and sedimentary runoff will be minimized by good site practice, especially the containment of water and sediment within the site for removal. These standard noise and air and water quality site practices are considered to be effective measures for minimizing the disturbance impact during the construction period.	✓

Ecology Mitigation Measures during construction	Implementation Status
Planning of Construction Schedule	
The construction of the proposed project should be scheduled in phases. Because mitigation is preferably carried out in advance of the main works rather than after the completion of works, the construction of the WRA will commence at the start of the project. Construction work within the WRA is scheduled to take place in a single wet season, followed by 1.5 years of wetland establishment. During the wetland establishment period no noisy work will be undertaken within the WRA to minimize the disturbance to off-site habitats and wildlife.	N/A (WRA construction completed)
Reusing Onsite Materials	
Soil and plants on-site should be reused (e.g. used as fill material) as far as practical. Stock piles of these reusable materials should be stored in an appropriate area on-site. In particular, the re-use of the wetland soils and topsoil should be considered.	✓
Construction of the Wetland Restoration Area The WRA will be operational within 2.5 yrs from the commencement of construction (1 year for site formation and 1.5 years for establishment) and will compensate for the predicted ecological impacts of the proposed development.	✓

Landscape and Visual – Recommended Mitigation Measures

Landscape and Visual Mitigation Measures during construction	Implementation Status
CM1 - The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.	✓
CM2 - Screening of construction works by hoarding / noise barriers.	✓ (see **Appendix M** Photo 1 & 2 *)
CM3 - Reduction of construction period to practical minimum.	✓
CM4 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate.	✓
CM5 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).	✓
CM6 - Advance screen planting of noise barriers	✓ (see **Appendix M** Photo 3 *)
CM7 - Control night-time lighting and glare by hooding all lights.	N/A
CM8 - Ensure no run-off into streams adjacent to the Project Area.	✓
CM9 - Protection of existing trees on boundary of site shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at S16 and Tree Removal Application stage).	✓
CM10 - Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their destinations and not held in a nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.	✓

Legend:
✓ Implemented
× Not implemented
P Partially implemented
N/A Not applicable
* Representative photos showing the implementation of mitigation measures are presented in **Appendix M**