1. Risk Assessment Report for Planning Application No. A/NE-KLH/633

1.1 Scope of Work

The aim of this study is to address the comments from Water Supplies Department.

1.2 The Proposed Development

The application site is located at Yuen Leng Village, Tai Po. It has a total area of about 925.45m^2 and is currently vacant, flat and fenced off. The site has long been hard paved with no vegetation for more than 30 years. While the application site falls within the upper indirect Water Gathering Ground (WGG), there is DSD's public stormwater drains along the immediate west of the site.

The development proposal only consists of a temporary village car park with 20 parking spaces (private car only) and EV charging station for a period 3 years. It is intended to relieve the genuine demand for parking spaces to serve the villagers in the area. To encourage villagers to transition from using traditional gasoline-powered cars to EV cars to decrease the potential environmental impact caused by traditional cars, the proposed temporary village car park will be restricted to EV cars only. Traditional gasoline-powered cars are not allowed to enter. No toilet facility, car washing or repair activity will be allowed. In order to eliminate any pollution it may possibly arise from the proposed vehicle park and EV charging station, minor drainage channels have been proposed parallel to the site entrance of the application site within the existing boundary walls, so that surface runoff during rainfall events collected within the application site would be discharged to the drainage channels (which will be connected to the public stormwater drains along the immediate west of the site) and subsequently to the public stormwater drains in a controlled manner. The details of the proposed drainage will be provided for relevant department's consideration as an approval condition.

1.3 Assessment of Impact During Construction Phase

1.3.1 Factors that may affect the Water Gathering Ground

The application site is flat, hard paved, and fenced off. The only construction activities involved in the proposed development would be the installation of the meter cabinets and outdoor H-pole switchgear demarcation and the proposed minor drainage channel (to be erected parallel to the site entrance of the application site within the existing boundary walls), which may involve minimal excavation of not more than 1m at specific locations. Minor excavation may cause sediments, other suspended solids and contaminants. As such, works should be carried out in such a manner as to minimise adverse impacts on the water quality.

1.3.2 Proposed Mitigation Measures and Management Practices

Control of potential water quality impact arising from the minor excavation for the instalment of the EV Chargers shall be achieved based on the following principles:

- Minimisation of runoff;
- Prevention of the likelihood of the identified pollutants being in contact with rain or runoff; and
- Measures to abate pollutants in the stormwater runoff.

In order to minimise the likelihood of the potential hazards as identified above, the Applicant has proposed a series of mitigation measures and management practices:

1. Installation works should be programmed to minimise excavation works where practicable during the rainy days;
2. During installation of meter cabinets and outdoor H-pole switchgear demarcation and erection of the proposed drainage channel, no earth and other installation materials which may cause contamination to WGG are allowed to be stockpiled or stored on site;
3. All excavated or filled surfaces shall be protected from erosion and siltation to any water courses shall be prevented within WGG;
4. All spoils shall be contained and protected; and effluent containing spoils shall be disposed of after desiltation;
5. Minor drainage channels (including newly constructed ones) should be adequately covered so as to prevent debris from getting into the drainage system;
6. Vehicle wheel washing facilities should be provided such that mud, debris, etc. attached to the vehicle wheels or body can be washed off before the vehicle leaves the application site;
7. Waste and other garbage generated during the installation works would be dumped properly; and
8. The existing retaining wall will not be demolished, which ensures the collected surface runoff will be discharged into the proposed drainage system within the application site.

With the above mitigation measures, the potential impacts of the proposed development to the water bodies due to the installation works is minimised.

1.4 Assessment of Impact During Operation Phase

1.4.1 Factors that may affect the Water Gathering Ground

1. Discharge of effluent, sewage, or foul water;
2. Solid waste and sludge;
3. Use and storage of pesticides, herbicides, toxicants, chemical solvents, larvicidal oil,

rodenticide, tar and petroleum, oil;

4. Use and storage of chemicals such as fertilizers and detergents;
5. Existence of oil leakage & spillage;
6. Close distance between structures & uses of the development and water courses;
7. Lack of fencing to trap wind-blown litters;
8. Kerbs & drains surrounding vehicle park/ drainage traps at each drainage outlet;
9. Lack of oil & grease decontamination kit;
10. On-site vehicle inspection, maintenance, repairing & washing activities/ machinery repairing;
11. Oil tanker parking inside vehicle park;
12. Use of detergents & fertilisers; and
13. Vehicle dust, scraps and oil deposited on paved road surface.

During operation, potential water quality impact would be the surface runoff during rainfall event which is known as non-point source of pollution. Substances such as vehicle dust, scraps and oil may be deposited on paved road surface. Pollutants contributed by non-point source are often bound or adsorbed onto particles, thus an effective stormwater management system will be the removal of pollution sources prior to rainstorm and the provision of facilities that collect sediment.

1.4.2 Proposed Mitigation Measures and Management Practices

In order to minimise the likelihood of the potential hazards as identified above, the Applicant has proposed a series of mitigation measures and management practices, which are detailed in **Annex 1**.

The operation of the car park and EV Chargers will only commence once the construction of the proposed drainage system has been completed upon satisfaction of relevant Government departments. During operation, collected surface runoff will be discharged into the proposed drainage channels within the application site, which is connected to the public stormwater drains along the immediate west of the site. Given the proposed development is small scale in nature, the increase in surface runoff generated from the proposed development should not be in significant amount. Apart from the site entrance and the rear entrance (for pedestrian only if required), the existing retaining wall has enclosed the application site, which ensures surface runoff will be trapped within and will be discharged into the proposed drainage channels within the application site. The Applicant will properly manage and maintain the facilities within the application site.

Good management measures such as regular cleaning and sweeping of road surface/ open areas is suggested. The road surface/ open area cleaning should also be carried out prior to occurrence of rainstorm. U-channels and catchpits provided will be regularly inspected and cleaned out by the operator. With the removal of pollutants, the pollution levels from stormwater would be much reduced, and given the stochastic nature of non-point source pollution and the proposed management measures, there will be no significant impact expected.

Therefore, there will be no flooding arising from the proposed development, and no adverse water quality impact on nearby water bodies during operation of the proposed development is anticipated.

1.5 Recommendations

To protect the integrity of the upper indirect WGG, no well will be sunk and no excavation exceeding 1m within the Site. To minimise the likelihood of the potential hazards during the construction and operational phases, mitigation measures and good management practices have been proposed as detailed in **Section 1.3** and **Section 1.4** above.

The operation, maintenance of the electrical vehicle charging station is relatively clean, therefore it is anticipated that contamination and leaching of contaminants to the WGG would be very low. The "Conditions of Working within Water Gathering Grounds" shall be complied.

1.6 Conclusion

All potential hazards are anticipated to remain at low risk or to be reduced after the implementation of mitigation measures. The analysis shows the proposed vehicle park and EV charging station would cause no material increase in pollution effect within WGG and low risk of pollution to be arisen from the erection of the proposed structure and facilities which will be installed to maintain the operation of the proposed vehicle park and electric vehicle charging station.

The applicant shall undertake that the operation and maintenance of the electric vehicle charging station shall not cause any contamination and leaching of contaminants to WGG. This report shows that contamination to be caused to the water course in the WGG by the proposed development is not anticipated.

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
1	Discharge of effluent, sewage or foul water	M	M	M	No activity will produce foul water, sewage or effluent of the Site. No toilets will be proposed within the site. Therefore, no sewage will be produced at the site. Notice will be posted at the site to forbid any usage and storage of pesticides, toxicants, flammable solvents, larvicidal oil, rodenticide, tar, petroleum oil and fertilizers. Electric Vehicles (EV) do not produce any contaminants or petroleum waste such as oil leakage or spillage comparing with traditional cars. The proposed temporary village car park will be restricted to EV cars only. Traditional gasoline-powered cars are not allowed to enter. Nevertheless, oil and grease decontamination kit will be placed at the site to absorb any potential oil and grease that might be found on site. These measures would help prevent foul water or effluent discharging to	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
					the WGG.			
2	Soil waste and sludge	L	L	L	As the site will be solely for parking of EV cars with EV charging station, there is on-site operation/ workshop activity at the site. No solid waste will be produced at the site. Any waste (expected to be small in amount) will be put into rubbish bins which will be placed at adequate location. It will be regularly collected and transferred to the nearest refuse collection point. The collection point is near Tai Po Yuen Leng Tsuen Gate (大埔元嶺村牌坊).	L	L	L
3	Use and storage of pesticides, herbicides, toxicants, chemical solvents, larvicidal oil, rodenticide, tar and petroleum, oil;	L	M	L	No usage or storage of pesticides, herbicides, toxicants, chemical solvents, larvicidal oil, rodenticide, tar and petroleum, oil will be allowed at the site. Notice will be posted at the site to forbid any usage and storage of pesticides, herbicides, toxicants, chemical solvents, larvicidal oil, rodenticide, tar and petroleum, oil.	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
4.	Use and storage of chemicals such as fertilizers and detergents;	L	M	L	No chemicals such as fertilizers and detergents is allowed to be used at the site. Notice will be posted at the site to prohibit the use of chemicals.	L	L	L
5	Existence of oil leakage & spillage	L	M	L	**EV do not produce any contaminants or petroleum waste such as oil leakage or spillage comparing with traditional cars.** The proposed temporary village car park will be restricted to EV cars only. Traditional gasoline-powered cars are not allowed to enter. Nevertheless, oil and grease decontamination kit will be placed at the site to absorb any potential oil and grease that might be found.	L	L	L
6.	Close distance between structures & uses of the development and water	M	L	L	The only structure within the site is a cabinet and it is separated by the road, cycling track, and fence.	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
	courses							
7.	Lack of fencing to trap wind-blown litters	L	L	L	An existing boundary wall has been erected on all sides to trap all wind-blown litters such as paper, plastic bags, bottles and boxes from the Site. Any waste (expected to be small in amount) will be put into rubbish bins which will be placed at adequate location. It will be regularly collected and transferred to the nearest refuse collection point. The collection point is near Tai Po Yuen Leng Tsuen Gate (大埔元嶺村牌坊).	L	L	L
8.	Kerbs & drains surrounding vehicle park/ drainage traps at each drainage outlet	M	M	M	Minor drainage channel are proposed to be erected parallel to the site entrance of the application site within the existing boundary walls, which will then connected to the public stormwater drains along the immediate west of the site. Drainage traps will be installed at each of the drainage outlets and sufficient capacity to ensure that proper collection and disposal of potential fuel and lubricants.	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
					Oil and grease decontamination kit will be placed at the site to absorb any potential oil and grease that might be found. Signage for alerting not to pollute WGG should be displayed.			
9.	Lack of oil & grease decontamination kit	M	M	M	**EV do not produce any contaminants or petroleum waste such as oil leakage or spillage comparing with traditional cars**. The proposed temporary village car park will be restricted to EV cars only. Traditional gasoline-powered cars are not allowed to enter. Nevertheless, oil and grease decontamination kit will be placed at the site to absorb any potential oil and grease that might be found.	L	L	L
10.	On-site vehicle inspection, maintenance, repairing & washing activities/	M	M	M	No vehicle inspection, maintenance, repairing and washing activities will be allowed within the site. Notice will be posted at the site to prohibit vehicle inspection,	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
	machinery repairing				maintenance, repairing, washing activities and machinery repairing.			
11.	Oil tanker parking inside vehicle park	L	M	L	No oil tanker will be allowed to be parked inside the site to avoid oil leakage or spillage. A notice will be posted at the entrance of the site to prohibit oil tanker to enter the site.	L	L	L
12.	Use of detergents & fertilisers	L	L	L	No detergents nor fertilisers will be used at the site. Notices will be posted at the site to prohibit the use of detergents and fertilisers.	L	L	L
13.	Vehicle dust, scraps and oil deposited on paved road surface	M	M	M	Minor drainage channel are proposed to be erected parallel to the site entrance of the application site within the existing boundary walls, which will then connected to the public stormwater drains along the immediate west of the site. Good management measures such as regular cleaning and sweeping of road surface will be conducted. The road surface cleaning will also be	L	L	L

Annex I

Factors	Potential Hazard	Likelihood	Consequence	Risk Level	Proposed Mitigation Measures	Likelihood	Consequence	Residual Level
					carried out prior to occurrence of rainstorm. With the removal of pollutants, the pollution levels from stormwater would be greatly reduced.			