

Land use types and characteristics

3.3.10 The existing land is rural catchment. The drainage property can be reflected by curve number (CN) which depends on land use. **Table 3.5** summarized the common landuse types and the corresponding CN values. A larger CN value suggest a larger runoff potential and a less permeable surface.

Table 3.5 Curve Number (CN) for Different Land Use Type

Landuse Type	CN
Upland	
Upland	65
Woodland	25
Other upland	65
Agriculture	
Active – no structures	65
Active – few structures	70
Active – many structures	75
Abandon paddy	60
Abandon ponds	100
Ponds	100
Rural activity area	70
Other agriculture	70
Village	90
Urban	
Existing	95
Future	85
Storage and rural industry	
Industry	90
Storage Area	90
New reclamation	65
Vacant lots	85
Recreational	
Paved (RECP)	90
Grassed (RECG)	70
Special use	
Airfield	85
Barracks	85
Borrow	95
Cemetery	65
Construction in Progress	90
Fire Station Dept	90
G/IC	90
Government/Institution	90
Hospital	90
Sewerage Treatment Works	75
SSSI (marsh)	100
Water Supplies Dept.	90
Highways (major rural routes)	90
Drainage	
Breakwater	100
Drainage	100
Marsh	100
Reservoir	100
River	100

3.3.11 According to the existing layout plan, part of the KTN-2 site area and nearby area is dried-up pond. The corresponding CN value is 100, which indicates impermeable surface.

3.4 Anticipated Impact

Existing drainage pipes affected by the development site

- 3.4.1 There is existing drainage near and inside the KTN-2 site. The existing drainage plan is attached on **Figure 3.1**.
- 3.4.2 At north-west of the site, there is 450 to 1200 mm diameter pipes running from west to east. The system starts at SMH1031660 outside the proposed development site. The pipe enters the north portion of the site as 1200 mm diameter before discharge to Sheung Yue River at outfall SOF1000777.
- 3.4.3 At south side of the site, there is twin 900 and single 1200 mm diameter pipes running from west to east. The system starts at SSH1003660 near Lo Wu Correctional Institution. The pipe enters the south portion of the site as 1200 mm diameter at SSH1003661 before discharge to Sheung Yue River at outfall SOF1010600.
- 3.4.4 There are also existing 150 to 450 mm diameter U-channels inside the site to connect the dried-up pond and the above pipe drainage systems.
- 3.4.5 It is anticipated that the proposed development will affect these existing drainage pipes and U-channels, which re-provision or relocation may be needed subject to the proposed buildings layout.

Flood risk to the site due to water level

- 3.4.6 Due to the existing low ground levels and land use of ponds, it is anticipated flood risk by back water from Sheung Yue River. It is suggested to propose a suitable formation level with consideration of the Sheung Yue River water level and freeboard.
- 3.4.7 According to the interface project CE18/2019 (CE), nodes N_2098 and N_55 are in proximity of the KTN-2 site. The location of nodes is shown in **Diagram 3.1**. With hydraulic model simulation under SDM 2018 end of 21st century, the maximum water levels are as follows:-

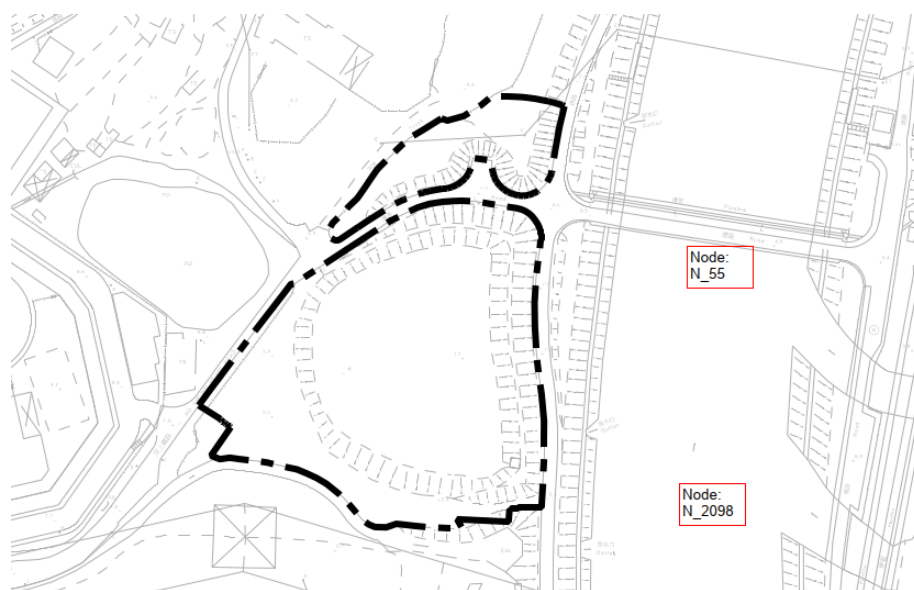


Diagram 3.1 – Location of nodes with water level information

Table 3.6 Maximum Water Levels at Sheung Yue River near KTN-2 Site (mPD)

Location	50a	50b	200a	200b
N_55	6.931	6.367	7.293	6.580
N_2098	6.940	6.381	7.303	6.588

Flood risk to others due to change of land use after land/pond filling

- 3.4.8 If the land use change will cause the surface to become less permeable, there will be increase of runoff. Additional drainage may be necessary to convey the additional flow.
- 3.4.9 However, the existing land use of pond is considered as impermeable surface with the maximum curve number 100. Even if the proposed livestock farm being fully paved, it will not further increase curve number and bring additional runoff. Therefore, it is suggested the change of land use by the proposed development will not cause adverse drainage impact by creating more flow.
- 3.4.10 With observation to the surrounding ground level, the dried-up pond may provide some storage function between the design water level at Ng Tung River and +5.5 mPD. After development this function may be lost. Therefore, it is suggested to review the storage delivered by the dried-up pond in the design stage and review the feasibility of providing retention tanks subject to the development layout.

3.5 Suggested minimum Site formation levels

- 3.5.1 The proposed 500mm freeboard for 50-year events is added on the water level data in **Table 3.7**. The maximum level will be 7.440 mPD at case 50a at node N_2098. Therefore it is suggested the minimum site formation levels to be +7.440 mPD from flood prevention perspective. Maps of flow path are provided in **Figure 3.2** to illustrate the change in flow path before and after the development for reference.

Table 3.7 Maximum Water Levels at Sheung Yue River near KTN-2 Site with 500 freeboard added to 50-year data (mPD)

Location	50a (plus 500 mm freeboard)	50b (plus 500 mm freeboard)	200a	200b
N_55	7.431	6.867	7.293	6.580
N_2098	7.440	6.881	7.303	6.588