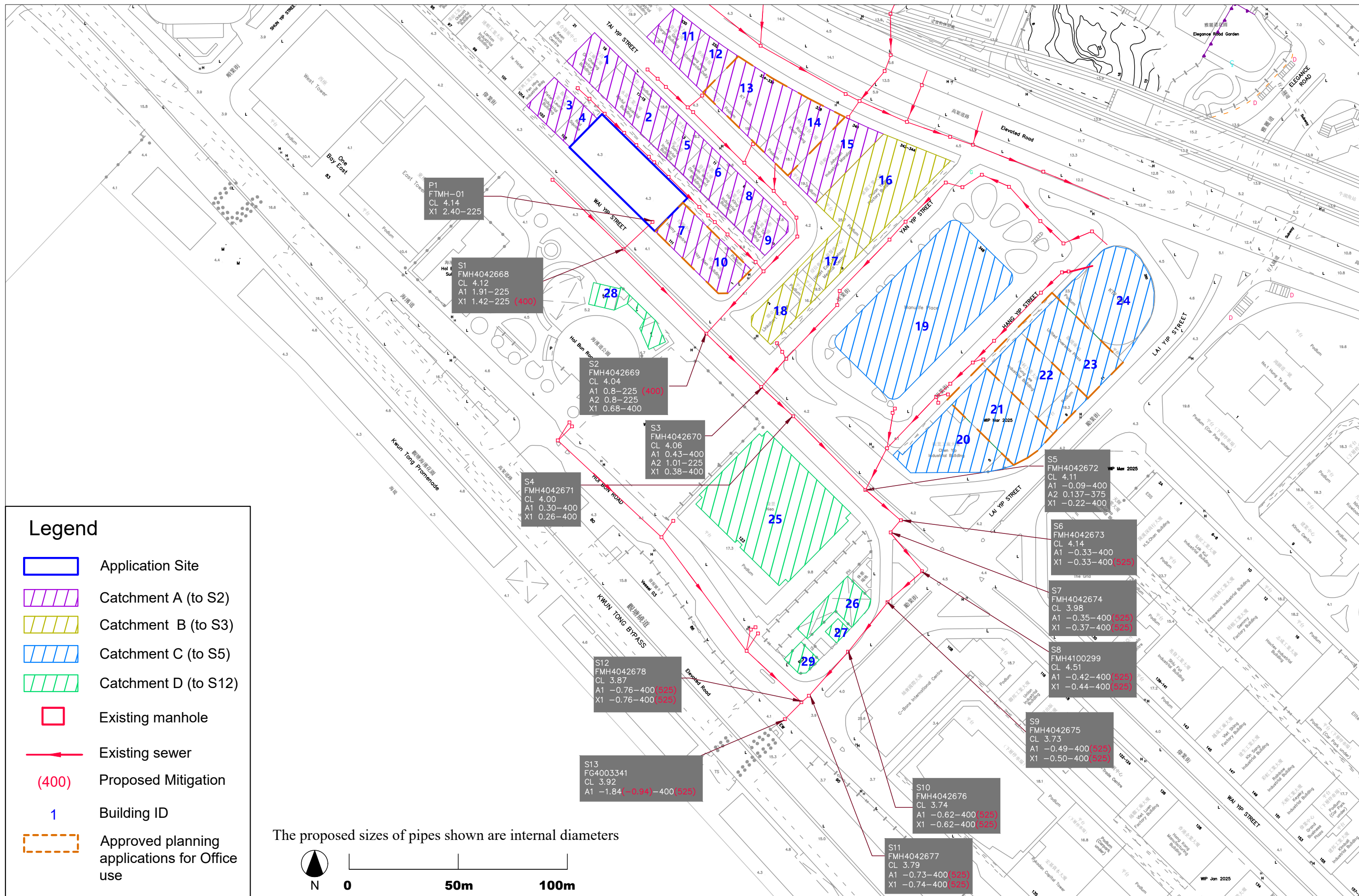




**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)****11. Air Goal Cargo Building (330 Kwun Tong Road)****Industrial - Manufacturing**

|                                 |   |                                                                                           |
|---------------------------------|---|-------------------------------------------------------------------------------------------|
| Assumed area                    | = | 2309 m <sup>2</sup>                                                                       |
| Assumed floor area per employee | = | 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)          |
| Total number of employees       | = | 53 employees                                                                              |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon) |
| Sewage generation rate          | = | <b>28.2</b> m <sup>3</sup> /day                                                           |

**12. Hong Kong Commercial Daily (332 Kwun Tong Road)****Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 2304 m <sup>2</sup>                                                                                                       |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 127 employees                                                                                                             |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>10.1</b> m <sup>3</sup> /day                                                                                           |

**13. Far East Factory Building (334-336 Kwun Tong Road)****Office**

|                                 |   |                                                                                                  |
|---------------------------------|---|--------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 7833 m <sup>2</sup>                                                                              |
| Assumed floor area per employee | = | 30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings) |
| Total number of employees       | = | 258 employees                                                                                    |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)        |
| Sewage generation rate          | = | <b>137.0</b> m <sup>3</sup> /day                                                                 |

**14. Room Kwun Tong (338 Kwun Tong Road)****Storage**

|                                 |   |                                                                                                |
|---------------------------------|---|------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 6570 m <sup>2</sup>                                                                            |
| Assumed floor area per employee | = | 250.0 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Storage)                    |
| Total number of employees       | = | 26 employees                                                                                   |
| Design flow                     | = | 180 litre/employee/day -- (refer to Table T-2 of GESF - J3 Transport, Storage & Communication) |
| Sewage generation rate          | = | <b>4.7</b> m <sup>3</sup> /day                                                                 |

**15. Johnson Industrial Mansion (340 Kwun Tong Road)****Industrial - Manufacturing**

|                                 |   |                                                                                                  |
|---------------------------------|---|--------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 5772 m <sup>2</sup>                                                                              |
| Assumed floor area per employee | = | 30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings) |
| Total number of employees       | = | 190 employees                                                                                    |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)        |
| Sewage generation rate          | = | <b>101.0</b> m <sup>3</sup> /day                                                                 |

**Total Flow of Catchment A, discharges to FMH4042669 (S2)****= 699.0 m<sup>3</sup>/day**

**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)**  
**Catchment B, discharges to FMH4042670 (S3)**

**16. Chuan Yuan Factory Building (342-344 Kwun Tong Road)**  
**Industrial - Manufacturing**

|                                 |   |                                                                                           |
|---------------------------------|---|-------------------------------------------------------------------------------------------|
| Assumed area                    | = | 13344 m <sup>2</sup>                                                                      |
| Assumed floor area per employee | = | 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)          |
| Total number of employees       | = | 307 employees                                                                             |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon) |
| Sewage generation rate          | = | <b>162.7 m<sup>3</sup>/day</b>                                                            |

**17. Hong Kong Baptist Hospital (4 Tai Yip Street)**

|                        |   |                                                                                                       |
|------------------------|---|-------------------------------------------------------------------------------------------------------|
| Sewage generation rate | = | Reference: SIA report under Approved Planning Application A/K14/782<br><b>181.6 m<sup>3</sup>/day</b> |
|------------------------|---|-------------------------------------------------------------------------------------------------------|

**18. Linkchart Centre (2 Tai Yip Street)**  
**Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 9109 m <sup>2</sup>                                                                                                       |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 501 employees                                                                                                             |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>40.1 m<sup>3</sup>/day</b>                                                                                             |

Reference: Online building profile (<https://www.interasia.com.hk/en/Kowloon-Building/Kwun-Tong/1563/Linkchart-Centre>)

**24a. KTR 350 (65% of total discharge capacity)**

**a) Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 19223 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 1057 employees                                                                                                            |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>84.6 m<sup>3</sup>/day</b>                                                                                             |

Reference: SIA report under Approved Planning Application A/K14/763

**b) F&B**

|                                 |   |                                                                                      |
|---------------------------------|---|--------------------------------------------------------------------------------------|
| Assumed area                    | = | 1201 m <sup>2</sup>                                                                  |
| Assumed floor area per employee | = | 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)       |
| Total number of employees       | = | 61 employees                                                                         |
| Design flow                     | = | 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels) |
| Sewage generation rate          | = | <b>96.8 m<sup>3</sup>/day</b>                                                        |

**b) Retail**

|                                     |   |                                                                                 |
|-------------------------------------|---|---------------------------------------------------------------------------------|
| Assumed area                        | = | 1646 m <sup>2</sup>                                                             |
| Assumed floor area per employee     | = | 28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade) |
| Total number of employees           | = | 58 employees                                                                    |
| Design flow                         | = | 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)  |
| Sewage generation rate              | = | <b>16.1 m<sup>3</sup>/day</b>                                                   |
| 65% of Total sewage generation rate | = | <b>128.4 m<sup>3</sup>/day</b>                                                  |

|                                                                 |          |                                |
|-----------------------------------------------------------------|----------|--------------------------------|
| <b>Total Flow of Catchment B, discharges to FMH4042670 (S3)</b> | <b>=</b> | <b>512.7 m<sup>3</sup>/day</b> |
|-----------------------------------------------------------------|----------|--------------------------------|

**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)**  
**Catchment C, discharges to FMH4042672 (S5)**

**19. Manulife Place**

**a) Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 42693 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 2348 employees                                                                                                            |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>187.8</b> m <sup>3</sup> /day                                                                                          |

**b) F&B**

|                           |   |                                                                                      |
|---------------------------|---|--------------------------------------------------------------------------------------|
| Total number of employees | = | 28 employees                                                                         |
| Design flow               | = | 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels) |
| Sewage generation rate    | = | <b>44.2</b> m <sup>3</sup> /day                                                      |

**b) Retail**

|                           |   |                                                                                |
|---------------------------|---|--------------------------------------------------------------------------------|
| Total number of employees | = | 1 employees                                                                    |
| Design flow               | = | 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail) |
| Sewage generation rate    | = | <b>0.3</b> m <sup>3</sup> /day                                                 |

**20. Chen Yip Industrial Building (5 Lai Yip Street)**

**Industrial - Manufacturing**

|                                 |   |                                                                                           |
|---------------------------------|---|-------------------------------------------------------------------------------------------|
| Assumed area                    | = | 7431 m <sup>2</sup>                                                                       |
| Assumed floor area per employee | = | 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)          |
| Total number of employees       | = | 171 employees                                                                             |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon) |
| Sewage generation rate          | = | <b>90.6</b> m <sup>3</sup> /day                                                           |

**21. Proposed Commercial Development at 7 Lai Yip Street (Planning Application No. A/K14/774)**

**a) Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 12375 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 681 employees                                                                                                             |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>54.5</b> m <sup>3</sup> /day                                                                                           |

**b) F&B**

|                                 |   |                                                                                      |
|---------------------------------|---|--------------------------------------------------------------------------------------|
| Assumed area                    | = | 1200 m <sup>2</sup>                                                                  |
| Assumed floor area per employee | = | 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)       |
| Total number of employees       | = | 61 employees                                                                         |
| Design flow                     | = | 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels) |
| Sewage generation rate          | = | <b>96.7</b> m <sup>3</sup> /day                                                      |

**c) Retail**

|                                 |   |                                                                                 |
|---------------------------------|---|---------------------------------------------------------------------------------|
| Assumed area                    | = | 1200 m <sup>2</sup>                                                             |
| Assumed floor area per employee | = | 28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade) |
| Total number of employees       | = | 42 employees                                                                    |
| Design flow                     | = | 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)  |
| Sewage generation rate          | = | <b>11.8</b> m <sup>3</sup> /day                                                 |

**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)****22. Tung Lee Industrial Building (9 Lai Yip Street)****Industrial - Manufacturing**

|                                 |   |                                                                                           |
|---------------------------------|---|-------------------------------------------------------------------------------------------|
| Assumed area                    | = | 9524 m <sup>2</sup>                                                                       |
| Assumed floor area per employee | = | 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)          |
| Total number of employees       | = | 219 employees                                                                             |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon) |
| Sewage generation rate          | = | <b>116.1</b> m <sup>3</sup> /day                                                          |

**23. United Overseas Plaza (11 Lai Yip Street)****Industrial - Manufacturing**

|                                 |   |                                                                                           |
|---------------------------------|---|-------------------------------------------------------------------------------------------|
| Assumed area                    | = | 7272 m <sup>2</sup>                                                                       |
| Assumed floor area per employee | = | 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)          |
| Total number of employees       | = | 167 employees                                                                             |
| Design flow                     | = | 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon) |
| Sewage generation rate          | = | <b>88.6</b> m <sup>3</sup> /day                                                           |

**24b. KTR 350 (35% of total discharge capacity)****a) Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 19223 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 1057 employees                                                                                                            |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>84.6</b> m <sup>3</sup> /day                                                                                           |

**b) F&B**

|                                 |   |                                                                                      |
|---------------------------------|---|--------------------------------------------------------------------------------------|
| Assumed area                    | = | 1201 m <sup>2</sup>                                                                  |
| Assumed floor area per employee | = | 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)       |
| Total number of employees       | = | 61 employees                                                                         |
| Design flow                     | = | 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels) |
| Sewage generation rate          | = | <b>96.8</b> m <sup>3</sup> /day                                                      |

**b) Retail**

|                                     |   |                                                                                 |
|-------------------------------------|---|---------------------------------------------------------------------------------|
| Assumed area                        | = | 1646 m <sup>2</sup>                                                             |
| Assumed floor area per employee     | = | 28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade) |
| Total number of employees           | = | 58 employees                                                                    |
| Design flow                         | = | 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)  |
| Sewage generation rate              | = | <b>16.1</b> m <sup>3</sup> /day                                                 |
| 35% of Total sewage generation rate | = | <b>69.1</b> m <sup>3</sup> /day                                                 |

|                                                                 |   |                                |
|-----------------------------------------------------------------|---|--------------------------------|
| <b>Total Flow of Catchment C, discharges to FMH4042672 (S5)</b> | = | <b>651.3 m<sup>3</sup>/day</b> |
|-----------------------------------------------------------------|---|--------------------------------|

Reference: SIA report under Approved Planning Application A/K14/763

**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)**  
**Catchment D, discharges to FMH4042678 (S12)**

**25. Neo Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 55390 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 3046 employees                                                                                                            |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>243.7</b> m <sup>3</sup> /day                                                                                          |

**26, 27, 29. Lai Yip Street Commercial Development Site (MPC Paper No. 7/23)**

**a) Office**

|                                 |   |                                                                                                                           |
|---------------------------------|---|---------------------------------------------------------------------------------------------------------------------------|
| Assumed area                    | = | 19400 m <sup>2</sup>                                                                                                      |
| Assumed floor area per employee | = | 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services ) |
| Total number of employees       | = | 1067 employees                                                                                                            |
| Design flow                     | = | 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)            |
| Sewage generation rate          | = | <b>85.4</b> m <sup>3</sup> /day                                                                                           |

**b) F&B**

|                                           |   |                                                                                      |
|-------------------------------------------|---|--------------------------------------------------------------------------------------|
| Assumed area                              | = | 1800 m <sup>2</sup>                                                                  |
| Assumed floor area per employee           | = | 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)       |
| Total number of employees                 | = | 92 employees                                                                         |
| Design flow                               | = | 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels) |
| Sewage generation rate $K \sqrt{\sum DU}$ | = | <b>145.0</b> m <sup>3</sup> /day                                                     |

**c) Retail**

|                                 |   |                                                                                 |
|---------------------------------|---|---------------------------------------------------------------------------------|
| Assumed area                    | = | 1800 m <sup>2</sup>                                                             |
| Assumed floor area per employee | = | 28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade) |
| Total number of employees       | = | 63 employees                                                                    |
| Design flow                     | = | 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)  |
| Sewage generation rate          | = | <b>17.6</b> m <sup>3</sup> /day                                                 |

**28. Hoi Bun Road Park Public Restroom**

|                                                      |   |                 |
|------------------------------------------------------|---|-----------------|
| Discharge from WC (Qty * DU)                         | = | <b>21.6</b> L/s |
| Discharge from Basin (Qty * DU)                      | = | <b>2.7</b> L/s  |
| Discharge from Single Urinal with Cistern (Qty * DU) | = | <b>1.2</b> L/s  |
| Discharge from Shower without Plug (Qty * DU)        | = | <b>2.4</b> L/s  |
| Sum of DUs                                           | = | <b>27.9</b> L/s |
| Wastewater Flow Rate $(K \sqrt{\sum DU})$            | = | <b>5.3</b> L/s  |

Frequency of use,  $K = 1$ , extracted from Table 6 of Plumbing Engineering Services Design Guide (PESDG)

Discharge Unit (DU) of WC = 1.8 L/s; DU of Basin = 0.3 L/s, DU of Single Urinal with Cistern = 0.4L/s, DU of Shower without Plug = 0.4L/s, extracted from Table 5 of PESDG

Total number of WC = 12; Total number of Basin = 9; Total number of Single Urinal with Cistern = 3; Total number of Shower without plug = 6 (Site observation)

|                                                                                                        |          |                                |
|--------------------------------------------------------------------------------------------------------|----------|--------------------------------|
| <b>Total Flow of Catchment D, excluding public toilet/restroom/RCP, discharges to FMH4042678 (S12)</b> | <b>=</b> | <b>491.8 m<sup>3</sup>/day</b> |
|--------------------------------------------------------------------------------------------------------|----------|--------------------------------|

**Table 3 Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)****Sub-total**

|                                                                                          |   |                |                     |
|------------------------------------------------------------------------------------------|---|----------------|---------------------|
| Total Flow at S0 (including Proposed Development)                                        | = | <b>884.2</b>   | m <sup>3</sup> /day |
| Total Flow at S1 (including Proposed Development)                                        | = | <b>884.2</b>   | m <sup>3</sup> /day |
| Total Flow at S2 (including Proposed and Planned Development + Catchment A)              | = | <b>1,583.1</b> | m <sup>3</sup> /day |
| Total Flow at S3 (including Proposed and Planned Development + Catchment A & B)          | = | <b>2,095.8</b> | m <sup>3</sup> /day |
| Total Flow at S4 (including Proposed and Planned Development + Catchment A & B)          | = | <b>2,095.8</b> | m <sup>3</sup> /day |
| Total Flow at S5 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S6 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S7 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S8 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S9 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S10 (including Proposed and Planned Development + Catchment A & B & C)     | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S11 (including Proposed and Planned Development + Catchment A & B & C)     | = | <b>2,747.1</b> | m <sup>3</sup> /day |
| Total Flow at S12 (including Proposed and Planned Development + Catchment A & B & C & D) | = | <b>3,238.9</b> | m <sup>3</sup> /day |
| Total Flow at S13 (including Proposed and Planned Development + Catchment A & B & C & D) | = | <b>3,238.9</b> | m <sup>3</sup> /day |

**Sub-total with Catchment Inflow Factor - East Kowloon = 1.1**

|                                                                                          |   |                |                     |
|------------------------------------------------------------------------------------------|---|----------------|---------------------|
| Total Flow at S0 (including Proposed Development)                                        | = | <b>972.6</b>   | m <sup>3</sup> /day |
| Total Flow at S1 (including Proposed Development)                                        | = | <b>972.6</b>   | m <sup>3</sup> /day |
| Total Flow at S2 (including Proposed and Planned Development + Catchment A)              | = | <b>1,741.4</b> | m <sup>3</sup> /day |
| Total Flow at S3 (including Proposed and Planned Development + Catchment A & B)          | = | <b>2,305.4</b> | m <sup>3</sup> /day |
| Total Flow at S4 (including Proposed and Planned Development + Catchment A & B)          | = | <b>2,305.4</b> | m <sup>3</sup> /day |
| Total Flow at S5 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S6 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S7 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S8 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S9 (including Proposed and Planned Development + Catchment A & B & C)      | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S10 (including Proposed and Planned Development + Catchment A & B & C)     | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S11 (including Proposed and Planned Development + Catchment A & B & C)     | = | <b>3,021.8</b> | m <sup>3</sup> /day |
| Total Flow at S12 (including Proposed and Planned Development + Catchment A & B & C & D) | = | <b>3,562.7</b> | m <sup>3</sup> /day |
| Total Flow at S13 (including Proposed and Planned Development + Catchment A & B & C & D) | = | <b>3,562.7</b> | m <sup>3</sup> /day |

Table 4 Comparision of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas

Hydraulic Capacity of Existing Sewers

| Segment | Manhole Reference | Manhole Reference | Pipe Dia. (mm) | Pipe Length (m) | Gradient | Estimated Capacity (L/s) | Peak Flow from the Proposed Development only (L/s) | Contribution from the Proposed Development only (%) | Status | Included Catchment | Daily Flow (m³/day) | Contributing Population | Peaking Factor | Public Toilet/ Restroom/ RCP (L/s) | Peak Flow from the Proposed Development and Catchment Areas (Without Water Feature Backwash) (L/s) | Water Feature Backwash (L/s) | Peak Flow from the Proposed Development and Catchment Areas (With Water Feature Backwash) (L/s) | Contribution from the Proposed Development and the Surrounding Catchment Areas (%) | Status |
|---------|-------------------|-------------------|----------------|-----------------|----------|--------------------------|----------------------------------------------------|-----------------------------------------------------|--------|--------------------|---------------------|-------------------------|----------------|------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|
| P1-S1   | FTMH-01           | FMH4042668        | 225            | 16.4            | 0.030    | 79                       | 67.5                                               | 85.4%                                               | OK     | -                  | 972.6               | 3,602                   | 6              | -                                  | 67.5                                                                                               | 2.5                          | 70.0                                                                                            | 88.5%                                                                              | OK     |
| S1-S2   | FMH4042668        | FMH4042669        | 225            | 53.5            | 0.012    | 56                       | 67.5                                               | 120.6%                                              | Spill  | -                  | 972.6               | 3,602                   | 6              | -                                  | 67.5                                                                                               | 2.5                          | 70.0                                                                                            | 125.1%                                                                             | Spill  |
| S2-S3   | FMH4042669        | FMH4042670        | 400            | 34.3            | 0.007    | 202                      | 67.5                                               | 33.4%                                               | OK     | A                  | 1741.4              | 6,450                   | 5              | -                                  | 100.8                                                                                              | 2.5                          | 103.3                                                                                           | 51.1%                                                                              | OK     |
| S3-S4   | FMH4042670        | FMH4042671        | 400            | 19.1            | 0.004    | 153                      | 67.5                                               | 44.2%                                               | OK     | A + B              | 2305.4              | 8,539                   | 5              | -                                  | 133.4                                                                                              | 2.5                          | 135.9                                                                                           | 89.0%                                                                              | OK     |
| S4-S5   | FMH4042671        | FMH4042672        | 400            | 46.5            | 0.008    | 206                      | 67.5                                               | 32.9%                                               | OK     | A + B              | 2305.4              | 8,539                   | 5              | -                                  | 133.4                                                                                              | 2.5                          | 135.9                                                                                           | 66.1%                                                                              | OK     |
| S5-S6   | FMH4042672        | FMH4042673        | 400            | 20.5            | 0.005    | 173                      | 67.5                                               | 39.0%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 82.2%                                                                              | OK     |
| S6-S7   | FMH4042673        | FMH4042674        | 400            | 6.4             | 0.003    | 106                      | 67.5                                               | 63.9%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 134.8%                                                                             | Spill  |
| S7-S8   | FMH4042674        | FMH4100299        | 400            | 22.8            | 0.002    | 89                       | 67.5                                               | 76.3%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 160.8%                                                                             | Spill  |
| S8-S9   | FMH4100299        | FMH4042675        | 400            | 20.8            | 0.002    | 93                       | 67.5                                               | 72.9%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 153.7%                                                                             | Spill  |
| S9-S10  | FMH4042675        | FMH4042676        | 400            | 28.2            | 0.004    | 123                      | 67.5                                               | 54.8%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 115.5%                                                                             | Spill  |
| S10-S11 | FMH4042676        | FMH4042677        | 400            | 26.4            | 0.004    | 122                      | 67.5                                               | 55.3%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 116.6%                                                                             | Spill  |
| S11-S12 | FMH4042677        | FMH4042678        | 400            | 3.6             | 0.006    | 141                      | 67.5                                               | 47.9%                                               | OK     | A + B + C          | 3021.8              | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 100.9%                                                                             | Spill  |
| S12-S13 | FMH4042678        | FG4003341         | 400            | 10.1            | 0.107    | 779                      | 67.5                                               | 8.7%                                                | OK     | A + B + C + D      | 3562.7              | 13,195                  | 4              | 5.3                                | 170.2                                                                                              | 2.5                          | 172.7                                                                                           | 22.2%                                                                              | OK     |

**Table 5 Hydraulic Capacity of Existing and Proposed Sewers - Free Flow Condition (Proposed Mitigation)**

| Segment | Manhole Reference | Manhole Reference | Material | Pipe Dia. | Pipe Length | Invert Level 1 | Invert Level 2 | g                | k <sub>s</sub> | s     | v                 | V    | Area           | Q                 | Estimated Capacity |
|---------|-------------------|-------------------|----------|-----------|-------------|----------------|----------------|------------------|----------------|-------|-------------------|------|----------------|-------------------|--------------------|
|         |                   |                   |          | mm        | m           | mPD            | mPD            | m/s <sup>2</sup> | m              |       | m <sup>2</sup> /s | m/s  | m <sup>2</sup> | m <sup>3</sup> /s | L/s                |
| P1-S1   | FTMH-01           | FMH4042668        | PE       | 225       | 16.37       | 2.40           | 1.91           | 9.81             | 0.0015         | 0.030 | 0.000001          | 1.99 | 0.04           | 0.08              | 79                 |
| S1-S2   | FMH4042668        | FMH4042669        | clayware | 400       | 53.49       | 1.42           | 0.80           | 9.81             | 0.0006         | 0.012 | 0.000001          | 2.03 | 0.13           | 0.26              | 255                |
| S2-S3   | FMH4042669        | FMH4042670        | clayware | 400       | 34.30       | 0.68           | 0.43           | 9.81             | 0.0006         | 0.007 | 0.000001          | 1.61 | 0.13           | 0.20              | 202                |
| S3-S4   | FMH4042670        | FMH4042671        | clayware | 400       | 19.14       | 0.38           | 0.30           | 9.81             | 0.0006         | 0.004 | 0.000001          | 1.22 | 0.13           | 0.15              | 153                |
| S4-S5   | FMH4042671        | FMH4042672        | clayware | 400       | 46.50       | 0.26           | -0.09          | 9.81             | 0.0006         | 0.008 | 0.000001          | 1.64 | 0.13           | 0.21              | 206                |
| S5-S6   | FMH4042672        | FMH4042673        | clayware | 400       | 20.50       | -0.22          | -0.33          | 9.81             | 0.0006         | 0.005 | 0.000001          | 1.38 | 0.13           | 0.17              | 173                |
| S6-S7   | FMH4042673        | FMH4042674        | clayware | 525       | 6.40        | -0.33          | -0.35          | 9.81             | 0.0030         | 0.003 | 0.000001          | 1.01 | 0.22           | 0.22              | 218                |
| S7-S8   | FMH4042674        | FMH4100299        | clayware | 525       | 22.76       | -0.37          | -0.42          | 9.81             | 0.0030         | 0.002 | 0.000001          | 0.84 | 0.22           | 0.18              | 183                |
| S8-S9   | FMH4100299        | FMH4042675        | clayware | 525       | 20.80       | -0.44          | -0.49          | 9.81             | 0.0030         | 0.002 | 0.000001          | 0.88 | 0.22           | 0.19              | 191                |
| S9-S10  | FMH4042675        | FMH4042676        | clayware | 525       | 28.23       | -0.50          | -0.62          | 9.81             | 0.0030         | 0.004 | 0.000001          | 1.17 | 0.22           | 0.25              | 254                |
| S10-S11 | FMH4042676        | FMH4042677        | clayware | 525       | 26.36       | -0.62          | -0.73          | 9.81             | 0.0030         | 0.004 | 0.000001          | 1.16 | 0.22           | 0.25              | 252                |
| S11-S12 | FMH4042677        | FMH4042678        | clayware | 525       | 3.59        | -0.74          | -0.76          | 9.81             | 0.0030         | 0.006 | 0.000001          | 1.34 | 0.22           | 0.29              | 291                |
| S12-S13 | FMH4042678        | FG4003341         | clayware | 525       | 10.11       | -0.76          | -0.94          | 9.81             | 0.0006         | 0.018 | 0.000001          | 2.99 | 0.22           | 0.65              | 648                |

Remarks: (1) g=gravitational acceleration; k<sub>s</sub>=equivalent sand roughness; s=gradient; v=kinematic viscosity of water; V=mean velocity

(2) The values of k<sub>s</sub> = 0.6mm and 3mm are used for the calculation of slimed clayware sewer, poor condition @mean velocity = approximately 1.2m/s and 0.75m/s respectively (based on Table 5: Recommended Roughness Values in Sewerage Manual)

(3) The values of k<sub>s</sub> = 1.5mm is used for the calculation of proposed polyethylene sewer, poor condition @mean velocity = approximately 0.75m/s (based on Table 5: Recommended Roughness Values in Sewerage Manual)

(4) The value of velocity (V) is referred to the Tables for the hydraulic design of pipes, sewers and channels (8th edition)

(5) Equation used: 
$$V = \frac{1.49}{n} R^{2/3} S^{1/2}$$

Table 6 Comparison of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas (Proposed Mitigation)

Hydraulic Capacity of Existing Sewers

| Segment | Manhole Reference | Manhole Reference | Pipe Dia. (mm) | Pipe Length (m) | Gradient | Estimated Capacity (L/s) | Peak Flow from the Proposed Development only (L/s) | Contribution from the Proposed Development only (%) | Status | Included Catchment | Daily Flow (m <sup>3</sup> /day) | Contributing Population | Peaking Factor | Public Toilet/ Restroom/ RCP (L/s) | Peak Flow from the Proposed Development and Catchment Areas (Without Water Feature Backwash) (L/s) | Water Feature Backwash (L/s) | Peak Flow from the Proposed Development and Catchment Areas (With Water Feature Backwash) (L/s) | Contribution from the Proposed Development and the Surrounding Catchment Areas (%) | Status |
|---------|-------------------|-------------------|----------------|-----------------|----------|--------------------------|----------------------------------------------------|-----------------------------------------------------|--------|--------------------|----------------------------------|-------------------------|----------------|------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|
| P1-S1   | FTMH-01           | FMH4042668        | 225            | 16.4            | 0.030    | 79                       | 67.5                                               | 85.4%                                               | OK     | -                  | 972.6                            | 3,602                   | 6              | -                                  | 67.5                                                                                               | 2.5                          | 70.0                                                                                            | 88.5%                                                                              | OK     |
| S1-S2   | FMH4042668        | FMH4042669        | 400            | 53.5            | 0.012    | 255                      | 67.5                                               | 26.4%                                               | OK     | -                  | 972.6                            | 3,602                   | 6              | -                                  | 67.5                                                                                               | 2.5                          | 70.0                                                                                            | 27.4%                                                                              | OK     |
| S2-S3   | FMH4042669        | FMH4042670        | 400            | 34.3            | 0.007    | 202                      | 67.5                                               | 33.4%                                               | OK     | A                  | 1741.4                           | 6,450                   | 5              | -                                  | 100.8                                                                                              | 2.5                          | 103.3                                                                                           | 51.1%                                                                              | OK     |
| S3-S4   | FMH4042670        | FMH4042671        | 400            | 19.1            | 0.004    | 153                      | 67.5                                               | 44.2%                                               | OK     | A + B              | 2305.4                           | 8,539                   | 5              | -                                  | 133.4                                                                                              | 2.5                          | 135.9                                                                                           | 89.0%                                                                              | OK     |
| S4-S5   | FMH4042671        | FMH4042672        | 400            | 46.5            | 0.008    | 206                      | 67.5                                               | 32.9%                                               | OK     | A + B              | 2305.4                           | 8,539                   | 5              | -                                  | 133.4                                                                                              | 2.5                          | 135.9                                                                                           | 66.1%                                                                              | OK     |
| S5-S6   | FMH4042672        | FMH4042673        | 400            | 20.5            | 0.005    | 173                      | 67.5                                               | 39.0%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 82.2%                                                                              | OK     |
| S6-S7   | FMH4042673        | FMH4042674        | 525            | 6.4             | 0.003    | 218                      | 67.5                                               | 31.0%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 65.4%                                                                              | OK     |
| S7-S8   | FMH4042674        | FMH4100299        | 525            | 22.8            | 0.002    | 183                      | 67.5                                               | 37.0%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 78.0%                                                                              | OK     |
| S8-S9   | FMH4100299        | FMH4042675        | 525            | 20.8            | 0.002    | 191                      | 67.5                                               | 35.4%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 74.6%                                                                              | OK     |
| S9-S10  | FMH4042675        | FMH4042676        | 525            | 28.2            | 0.004    | 254                      | 67.5                                               | 26.6%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 56.0%                                                                              | OK     |
| S10-S11 | FMH4042676        | FMH4042677        | 525            | 26.4            | 0.004    | 252                      | 67.5                                               | 26.8%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 56.6%                                                                              | OK     |
| S11-S12 | FMH4042677        | FMH4042678        | 525            | 3.6             | 0.006    | 291                      | 67.5                                               | 23.2%                                               | OK     | A + B + C          | 3021.8                           | 11,192                  | 4              | -                                  | 139.9                                                                                              | 2.5                          | 142.4                                                                                           | 49.0%                                                                              | OK     |
| S12-S13 | FMH4042678        | FG4003341         | 525            | 10.1            | 0.018    | 648                      | 67.5                                               | 10.4%                                               | OK     | A + B + C + D      | 3562.7                           | 13,195                  | 4              | 5.3                                | 170.2                                                                                              | 2.5                          | 172.7                                                                                           | 26.7%                                                                              | OK     |