**14.0 WATER & HYDROLOGY**

**14.1 INTRODUCTION**

This chapter assesses and evaluates the potential impacts on the surrounding surface water environment. The impact on groundwater is addressed in Chapter 13.

**14.2 METHODOLOGY**

**14.2.1 General**

The methodology used in this assessment follows current Irish guidance including:

- Environmental Protection Agency (EPA) ‘Revised Guidelines on the Information to be Contained in Environmental Impact Statements’, Draft (2015);
- Environmental Protection Agency (EPA) ‘Advice Notes on Current Practice (in the Preparation of EIS)’, Draft (2015); and

**14.2.2 Criteria for Rating Impacts**

In assessing likely, potential and predicted impacts, account is taken of both the importance of the attributes and the predicted scale and duration of the likely impacts.

The quality, magnitude and duration of potential impacts defined in accordance with the criteria provided in the Draft EPA Guidelines, and the NRA criteria for rating the magnitude and significance of impacts on the water related attributes, are summarised in Table 14.1 and Table 14.2, respectively.
### Table 14.1 Glossary of Impacts following EPA Draft Guidance Document

<table>
<thead>
<tr>
<th>Impact Characteristic</th>
<th>Term</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Positive</td>
<td>A change which improves the quality of the environment</td>
</tr>
<tr>
<td></td>
<td>Neutral</td>
<td>A change which does not affect the quality of the environment</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>A change which reduces the quality of the environment</td>
</tr>
<tr>
<td>Significance</td>
<td>Imperceptible</td>
<td>An impact capable of measurement but without noticeable consequences</td>
</tr>
<tr>
<td></td>
<td>Not Significant</td>
<td>An effect which causes noticeable changes in the character of the environment without noticeable consequences.</td>
</tr>
<tr>
<td></td>
<td>Slight</td>
<td>An impact which causes noticeable changes in the character of the environment without affecting its sensitivities</td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>An impact that alters the character of the environment in a manner consistent with existing and emerging trends</td>
</tr>
<tr>
<td></td>
<td>Significant</td>
<td>An impact, which by its character, magnitude, duration or intensity alters a sensitive aspect of the environment</td>
</tr>
<tr>
<td></td>
<td>Very Significant</td>
<td>An effect which, by its character, magnitude, duration or intensity significantly alters the majority of a sensitive aspect of the environment</td>
</tr>
<tr>
<td></td>
<td>Profound</td>
<td>An impact which obliterates sensitive characteristics</td>
</tr>
<tr>
<td>Duration</td>
<td>Momentary</td>
<td>Effects lasting from seconds to minutes</td>
</tr>
<tr>
<td></td>
<td>Brief</td>
<td>Effects lasting less than a day</td>
</tr>
<tr>
<td></td>
<td>Temporary</td>
<td>Impact lasting less than a year</td>
</tr>
<tr>
<td></td>
<td>Short-term</td>
<td>Impact lasting one to seven years</td>
</tr>
<tr>
<td></td>
<td>Medium-term</td>
<td>Impact lasting seven to fifteen years</td>
</tr>
<tr>
<td></td>
<td>Long-term</td>
<td>Impact lasting fifteen to sixty years</td>
</tr>
<tr>
<td></td>
<td>Permanent</td>
<td>Impact lasting over sixty years</td>
</tr>
<tr>
<td>Type</td>
<td>Cumulative</td>
<td>The addition of many small impacts to create one larger, more significant impact</td>
</tr>
<tr>
<td></td>
<td>‘Do Nothing’</td>
<td>The environment as it would be in the future should no development of any kind be carried out</td>
</tr>
<tr>
<td></td>
<td>Indeterminable</td>
<td>When the full consequences of a change in the environment cannot be described</td>
</tr>
<tr>
<td></td>
<td>Irreversible</td>
<td>When the character, distinctiveness, diversity, or reproductive capacity of an environment is not permanently lost</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>Degree of environmental change that will occur after the proposed mitigation measures have taken effect</td>
</tr>
<tr>
<td></td>
<td>Synergetic</td>
<td>Where the resultant impact is of greater significance than the sum of its constituents</td>
</tr>
<tr>
<td></td>
<td>Indirect</td>
<td>Effects that arise off-site or are caused by other parties that are not under the control of the developer (such as a quarry)</td>
</tr>
<tr>
<td></td>
<td>Secondary</td>
<td>Effects that arise as a consequence of a project (a new waste water treatment plant will reduce the yield of mussels in a nearby estuary)</td>
</tr>
<tr>
<td>Magnitude of Impact</td>
<td>Criteria</td>
<td>Typical Examples*</td>
</tr>
<tr>
<td>---------------------</td>
<td>----------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Large Adverse</td>
<td>Results in loss of attribute and/or quality and integrity of attribute</td>
<td>Loss or extensive change to a water body or water dependent habitat</td>
</tr>
<tr>
<td>Moderate Adverse</td>
<td>Results in impact on integrity of attribute or loss of part of attribute</td>
<td>Calculated risk of serious pollution incident &gt;1% annually^2</td>
</tr>
<tr>
<td>Small Adverse</td>
<td>Results in minor impact on integrity of attribute or loss of small part of attribute</td>
<td>Increase in predicted peak flood level &gt;10mm^1</td>
</tr>
<tr>
<td>Negligible</td>
<td>Results in an impact on attribute but of insufficient magnitude to affect either use or integrity</td>
<td>Negligible change in predicted peak flood level^1</td>
</tr>
<tr>
<td>Minor Beneficial</td>
<td>Results in minor improvement of attribute quality</td>
<td>Calculated reduction in pollution risk of 50% or more where existing risk is &lt;1% annually^2</td>
</tr>
<tr>
<td>Moderate Beneficial</td>
<td>Results in moderate improvement of attribute quality</td>
<td>Calculated reduction in pollution risk of 50% or more where existing risk is &gt;1% annually^2</td>
</tr>
<tr>
<td>Major Beneficial</td>
<td>Results in major improvement of attribute quality</td>
<td>Reduction in predicted peak flood level &gt;100mm^1</td>
</tr>
</tbody>
</table>

Notes: *Additional examples are provided in the NRA Guidance Document; 1 Refer to Annex 1, Methods E and F, Annex 1 of HA216/06 2 Refer to Annex 1, Method D, Annex 1 of HA216/06

Table 14.2  Criteria for rating impact magnitude at EIAR stage – Estimation of magnitude of impact on hydrology attribute (NRA)

The NRA criterion for estimation of the importance of hydrological attributes at the site during the EIA stage are summarised in Table 14.3 below.

<table>
<thead>
<tr>
<th>Importance</th>
<th>Criteria</th>
<th>Typical Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremely High</td>
<td>Attribute has a high quality or value on an international scale</td>
<td>River, wetland or surface water body ecosystem protected by EU legislation e.g. ‘European sites’ designated under the Habitats Regulations or ‘Salmonid waters’ designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988.</td>
</tr>
<tr>
<td>Very High</td>
<td>Attribute has a high quality or value on a regional or national scale</td>
<td>River, wetland or surface water body ecosystem protected by national legislation – NHA status Regionally important potable water source supplying &gt;2500 homes Quality Class A (Biotic Index Q4, Q5) Flood plain protecting more than 50 residential or commercial properties from flooding Nationally important amenity site for wide range of leisure activities</td>
</tr>
<tr>
<td>High</td>
<td>Attribute has a high quality or value on a local scale</td>
<td>Salmon fishery Locally important potable water source supplying &gt;1000 homes Quality Class B (Biotic Index Q3-4) Flood plain protecting between 5 and 50 residential</td>
</tr>
</tbody>
</table>
### Table 14.3 Criteria for Rating Impact Significance of Hydrological Attributes (NRA)

<table>
<thead>
<tr>
<th>Importance</th>
<th>Criteria</th>
<th>Typical Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>or commercial properties from flooding</td>
</tr>
<tr>
<td>Medium</td>
<td>Attribute has a medium quality or value on a local scale</td>
<td>Coarse fishery</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flood plain protecting between 1 and 5 residential or commercial properties from flooding</td>
</tr>
<tr>
<td>Low</td>
<td>Attribute has a low quality or value on a local scale</td>
<td>Locally important amenity site small range of leisure activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flood plain protecting 1 residential or commercial property from flooding</td>
</tr>
</tbody>
</table>

### 14.2.3 Sources of Information

This assessment was considered in the context of the available baseline information, potential impacts, consultations with statutory bodies and other parties, and other available relevant information. In collating this information, the following sources of information and references were consulted:

- Drainage design prepared by DPS Engineering.
- Latest EPA Envision water quality monitoring data for watercourses in the area;
- Eastern River Basin District (ERBD) Management Plan – Liffey Water Management Unit and Programme of Measures – ERBD;
- The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government (DoEHLG) and the Office of Public Works (OPW));
- Flood points & Historical Floods – Office of Public Works (OPW) floods website [www.floodmaps.ie](http://www.floodmaps.ie)
- A number of EIS in the locality including Montjeu Limited (Planning reference no. FW15A/0038), Bristol-Myers Squibb (FFW15A/0043) and Alexion (FW14A/0020, FW14A/0138 & FW15A/0067), all available at [http://www.fingalcoco.ie/planning-and-buildings/apply-or-search-for-a-planning-application/search-planning-applications-online/](http://www.fingalcoco.ie/planning-and-buildings/apply-or-search-for-a-planning-application/search-planning-applications-online/)
14.3 EXISTING ENVIRONMENT

14.3.1 Existing Environment

The IMIL site is located within an established industrial park in Blanchardstown, Dublin 15. Figure 1.1 illustrates the site location.

The proposed development will include a new process vent abatement plant, associated chemical storage with designated bunds, aboveground connections to utilities and local drainage.

14.3.2 Hydrology (Surface Water) – Drainage Catchment

The topography is generally consistent throughout the site (approximately +84 mAOD). Arterial drainage is in a southerly direction towards the Tolka River, and on a more regional scale, southwards toward the River Liffey. The closest water feature to the IMIL site is the Ballycoolen stream located approximately 250 m south of the site (refer to Figure 14.1). There are no surface water drainage pathways from the site to off-site watercourses.

The proposed development is located within the Eastern River Basin District (ERBD) under the Water Framework Directive (WFD) (European Communities Directive 2000/60/EC), and is situated in Hydrometric Area No. 09 of the Irish River Network. It is located within the Tolka Catchment (Catchment Code: 09_4).

14.3.3 Hydrology (Surface Water Quality)

The proposed development is located within the ERBD, as defined under the European Communities Directive 2000/60/EC, establishing a framework for community action in the field of water policy – this is commonly known as the Water Framework Directive (WFD).

The WFD requires ‘Good Water Status’ for all European waters by 2015, to be achieved through a system of river basin management planning and extensive monitoring. ‘Good status’ means both ‘Good Ecological Status’ and ‘Good Chemical Status’. In 2009 the ERBD River Management Plan (RMP) 2009-2015 was published. In the ERBD RMP, the impacts of a range of pressures were assessed including diffuse and point pollution, water abstraction and morphological pressures (e.g. water regulation structures). The purpose of this exercise was to identify water bodies at risk of failing to meet the objectives of the WFD by 2015 and include a programme of measures to address and alleviate these pressures by 2015.

The strategies and objectives of the WFD in Ireland have influenced a range of national legislation and regulations. These include the following:

- Statutory Instrument (SI) No. 293 of 1988 European Communities (Quality of Salmonid Waters) Regulations 1988
- SI No. 272 of 2009 European Communities Environmental Objectives (Surface Waters) Regulations 2009
S.I. No. 386 of 2015 European Communities Surface Water Regulations (Amendment)

In accordance with the WFD, each river catchment within the ERBD was assessed and a water management plan detailing the programme of measures was put in place for each. For the purpose of this assessment both the Tolka River and Pinkeen River were assessed.

Q-Values are used by the EPA to express biological water quality, based on changes in the macro invertebrate communities of riffle areas brought about by organic pollution. Table 14.4 below summarises an explanation of the ratings; for example, Q1 indicates a seriously polluted water body while Q5 indicates unpolluted water of high quality. Table 14.4 also indicates the key used by the EPA mapping format to indicate quality status.

<table>
<thead>
<tr>
<th>Quality Ratings (Q)</th>
<th>Status</th>
<th>Water Quality</th>
<th>Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5, Q4-5</td>
<td>High</td>
<td>Unpolluted</td>
<td>🟢</td>
</tr>
<tr>
<td>Q4</td>
<td>Good</td>
<td>Unpolloted</td>
<td>🟡</td>
</tr>
<tr>
<td>Q3-4</td>
<td>Moderate</td>
<td>Slightly Polluted</td>
<td>🟠</td>
</tr>
<tr>
<td>Q3, Q2-3</td>
<td>Poor</td>
<td>Moderately Polluted</td>
<td>🟠</td>
</tr>
<tr>
<td>Q2, Q1-2, Q1</td>
<td>Bad</td>
<td>Seriously Polluted</td>
<td>🟥</td>
</tr>
</tbody>
</table>

*Table 14.4* EPA Biological Q ratings & key (source: www.epa.ie)

Available data for 2013 from the EPA on-line mapping database *Envision* is presented in Table 14.5 below together with the most recent Q-Value for both watercourses at the locations closest to the site.

<table>
<thead>
<tr>
<th>Entity Name</th>
<th>TOLKA</th>
<th>PINKEEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Name:</td>
<td>Mulhuddart Br</td>
<td>Br SE of Powerstown House</td>
</tr>
<tr>
<td>Station ID:</td>
<td>RS09T010800</td>
<td>RS09P020700</td>
</tr>
<tr>
<td>WFD CODE:</td>
<td>IE_EA_09_1868</td>
<td>IE_EA_09_1538</td>
</tr>
<tr>
<td>Entity Code:</td>
<td>09T01</td>
<td>09P02</td>
</tr>
<tr>
<td>Type of water monitored:</td>
<td>River Water</td>
<td>River Water</td>
</tr>
<tr>
<td>River Basin District:</td>
<td>Eastern</td>
<td>Eastern</td>
</tr>
<tr>
<td>Station Type (WFD):</td>
<td>Operational</td>
<td>Operational</td>
</tr>
<tr>
<td>Easting:</td>
<td>306695.89</td>
<td>305017</td>
</tr>
<tr>
<td>Northing:</td>
<td>240389.52</td>
<td>243686</td>
</tr>
<tr>
<td>Last Q Year:</td>
<td>2013</td>
<td>2013</td>
</tr>
<tr>
<td>Last Q Value:</td>
<td>2</td>
<td>2-3</td>
</tr>
<tr>
<td>Q Legend:</td>
<td>Bad Status</td>
<td>Poor Status</td>
</tr>
<tr>
<td>Q Linear Value:</td>
<td>2</td>
<td>2-3</td>
</tr>
</tbody>
</table>

*Table 14.5* EPA monitoring data for Tolka and Pinkeen rivers (to 2013)

Insert 14.1 below presents the river catchment map and water quality status (including current EPA monitoring stations).
The values listed above are for monitoring stations located upstream of the subject site. As is shown on Insert 14.1 the downstream monitoring location (RS09T011000) has a Q Linear Value of 2 (‘Poor Status’).

In accordance with the WFD, each river catchment within the ERBD was assessed and a water management plan detailing the programme of measures was put in place for each. For the River Liffey WMU (Water Management Unit) the main pressure preventing achievement of ‘Good Status’ is diffuse agricultural pollution. From a review of the EPA Envision Database, the most up to date status of the Tolka River at the nearest monitoring stations to the proposed development is ‘Poor Status’ for the 2010-2015 period. The Tolka River has a Risk Score of 1a ‘At risk of not achieving good status’.

14.3.4 On-Site Surface Water Drainage

Run off from clean areas such as roofs and other non-production paved areas (typically areas 1.5m away from the building perimeter) are collected in the onsite drainage network and drained to the existing IDA storm water system of the Blanchardstown Industrial Park (see Figure 14.2).

Surface water runoff from Building 1 is diverted to emission point SW1 along the western site boundary. Surface water runoff from Buildings 2, 3 & 4 is diverted to emission point SW2 located to the south west of the boundary. Surface water from the main carpark is
diverted to a petrol interceptor prior to entering the SW2 emission point. Drainage from newer buildings notably Building 3 and Building 4 were designed with SUDS paving and this effectively reduces the quantum of run off from these areas.

A firewater retention lagoon (1,100m$^3$) is present on site. The lagoon has been sized in accordance with an agreed methodology between IMIL and the EPA. The agreed methodology allows for all surface water falling on building aprons and external paved areas local to each building and tank farm areas to be discharged to the firewater retention pond. The pond is sampled in accordance with licence requirements and discharged to the IDA storm sewer a number of times per year subject to limit values. A shut off valve prevents site discharges to surface waters in the event of a fire.

14.3.4.1 On-Site Surface Water Monitoring

Under EPA licence (P0117-01) requirements, weekly visual inspections are carried out at surface water emission points SW1 and SW2 to ensure no obvious contamination reaching the surface water drainage systems.

As recorded in the AERs, no contamination was observed during the 2015 and 2016 reporting years.

14.3.5 Flood Risk

The potential risk of flooding at the IMIL site was also assessed. The OPW on-line database www.floodmaps.ie was reviewed with regard to incidences of historical regional and local flooding relevant to the area. No flood events have been recorded at the subject site.

The closest flood point/record is approximately 2km southwest of the site as highlighted in Insert 14.2 below. This flood event corresponds a flood event on the Tolka Navan Road adjacent to the Tolka Valley Park (November 2002). The flood point is classed as a code 3 – containing information that, beyond reasonable doubt, a flood has occurred in this area.
14.3.6 Water Supply & Waste Water

The water supply for the site comes from the public water supply. In the most recent AER the water usage for the site was c.15,000 cubic metres per year (AER, 2015). The maximum additional water requirement for the proposed development is c.3m³/hr. Irish Water (IW) have confirmed that subject to application there will be no difficulty accepting the minor increases in proposed discharges from the facility.

Waste water generated from washing floors, sinks and later stage CIP rinses from equipment and carboy (containers) cleaned in the washroom are drained to an underground attenuation tank. The waste water is stored temporarily in the attenuation tank from where it will be pumped to the process waste line which discharges to the Local Authority system via Emission Point SE2 (see Figure 14.2). Boiler blowdown and reject water from the purified waste system are also directed to SE2. Due to the nature of the wastewater it contains only diluted contaminants in small quantities.
The facility is currently licensed to dispose of up to 40\(m^3\) of wastewater per day. It is proposed to increase the daily limit value of daily volume discharge to 80\(m^3/\text{day}\). IMIL monitors the quality of wastewater discharged to sewer via SE2 in line with its EPA licence requirements. IMIL monitors the performance of its effluent for pH, flow and temperature with a continuous monitoring system. BOD, COD, suspended solids, detergents and sulphates are monitored weekly.

As part of the IE licence review application, IMIL propose to improve their wastewater management and have recently installed a neutralisation skid and attenuation tank to manage flow rates and control pH levels.

14.3.6.1 Effluent to Sewer Monitoring

As part of the IPC licence (P0117-01) requirement, regular monitoring of flow and physical and chemical parameters are measured at SE2.

14.3.7 Rating of site importance of the hydrological features

Based on the NRA methodology (i.e. Table 14.3 Criteria for rating site importance of hydrological features) this site is rated as having Low Importance.

With reference to Table 14.3 above and the provided examples the ‘Low’ Importance, the rating is based on the following: The Tolka River is the receiving waterbody for the site, it is not a source of local potable water, and is not widely used as a local water amenity i.e. not regionally significant. Additionally, the latest water quality status for the Tolka River is ‘Poor’ under the WFD assessment criteria.

14.4 CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

14.4.1 General

The characteristics of the proposed development with regard to the water & hydrology environment are outlined below. Due to the inter-relationship between soils, geology and hydrogeology, surface water (hydrology) and waste management the following impacts discussed will be considered applicable to both Chapter 13 and 15 of the EIAR.

The characteristics of the proposed development with regard to the water and hydrological environment, relate to both construction and operation activities.

14.4.2 Construction Stage

The proposed works will comprise new construction on a section of IMIL’s existing site. The key civil engineering works which will have potential impact on the water and hydrological environment during construction are summarised below.

(i) During construction, a small amount of soil and rock is estimated to be generated as part of excavations. Any spoil arising will be used onsite as fill or landscaping material.
(ii) Drainage construction include underground connections for the VOC abatement unit.

(iii) Other construction activities will include site storage of cement and concrete materials, temporary oils and fuels.

The potential impacts (described above) in relation to surface water have been assessed based on the under the following headings:

14.4.2.1 Increased Run-off and Sediment Loading

Surface water run-off during the construction phase may contain increased silt levels or become polluted from construction activities. Run-off containing large amounts of silt can cause damage to groundwater underlying the site. Silt-laden water can arise from exposed ground and soil stockpiles (prior to reinstatement).

14.4.2.2 Contamination of Local Water Courses

During the construction phase, there is a risk of accidental pollution incidences from the following sources:

- Spillage or leakage of oils and fuels stored on site.
- Spillage or leakage of oils and fuels from construction machinery or site vehicles.
- Spillage of oil or fuel from refuelling machinery on site.
- The use of concrete and cement.

Machinery on site during the construction phase may result in contamination of the surface water. Potential impacts could arise from accidental spillage of fuels, oils, paints and solvents, which could impact surface water and groundwater quality if allowed to runoff to surface water systems and/or receiving watercourses.

Concrete operations carried out near surface water drainage systems during construction activities could lead to a discharge of waste waters to a watercourse. Concrete (specifically, the cement component) is highly alkaline and any spillage to a local watercourse would be detrimental to water quality and local fauna and flora.

14.4.2.3 Conclusion

In relation to the construction phase the potential impact on the water during construction (EPA, 2002) is considered to have a Short term, Imperceptible impact with a Neutral impact on quality, i.e. an impact capable of measurement but without noticeable consequences.

14.4.3 Operation Stage

The key works which will have a potential impact on the surface water environment during operation are summarised below:

(i) Surface water run-off from the area housing the abatement structures will be diverted to the existing drainage systems. In the event of a fire at the facility, firewater generated at the site will also be diverted to the firewater retention pond.
Accidental releases of bulk chemicals and/or waste solvents stored at the process vent abatement location could occur if not mitigated adequately.

The maximum water requirement for the proposed development is 3 m³/hr. Adequate water infrastructure is available in the area, installed as part of the development of the business park. IMIL has liaised with IW regarding the application for water supply and waste water discharge.

There will be no direct discharges of contaminated water to the surface water environment during the operational phase. The Tolka River and its tributaries are at a distance of over 1km from the site boundary.

The potential impact on surface water during operation (EPA, 2002) is considered to have a Long term, Imperceptible impact, with a Neutral impact on quality i.e. an impact capable of measurement but without noticeable consequences.

14.5 REMEDIAL/MITIGATION MEASURES

14.5.1 General

The design of the proposed development has taken account of the potential impacts of the development and the risks to the water environment local to the area where construction is taking place. There are no water courses on the site to act as a direct pathway to the Tolka and tributaries, however caution will be taken to mitigate the potential effects on the local water environment and public drainage. These measures seek to avoid or minimise potential effects in the main through the implementation of best practice construction methods and adherence to all relevant legislation.

14.5.2 Construction Stage

A project-specific Construction and Environmental Management Plan (CEMP) will be established and maintained by the contractors during the construction and operational phases of the proposed project. The Plan will cover all potentially polluting activities and include an emergency response procedure. All personnel working on the site will be trained in the implementation of the procedures. At a minimum, the manual will be formulated in consideration of the standard best international practice including, but not limited, to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors, (C532) Construction Industry Research and Information Association;
- CIRIA (2005), Environmental Good Practice on Site (C650); Construction Industry Research and Information Association;
- BPGCS005, Oil Storage Guidelines;
- CIRIA 697 (2007), The SUDS Manual; and
14.5.2.1 Surface Water Run-off

As there are no watercourses present on the site, there will be no direct run-off to surface water courses during the construction phase. Mitigation measures will be utilised to prevent run-off to the stormwater network. Stormwater outfalls will be covered where applicable. Temporary storage of soil will be carefully managed in such a way as to prevent any potential negative impact on the receiving hydrological environment and the material will be stored away from any surface water collection points.

Movement of material will be minimised in order to reduce degradation of soil structure and generation of dust. Excavations will remain open for as little time as possible before the placement of fill. This will help to minimise potential for water ingress into excavations.

Weather conditions will be taken into account when planning construction activities to minimise risk of run-off from the site.

14.5.2.2 Fuel and Chemical Handling

To minimise any impact from material spillages, all oils, solvents and paints used during construction will be stored within temporary bunded areas. Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be bunded to a volume of 110% of the capacity of the largest tank/container within the bunded area(s) (plus an allowance of 30mm for rainwater ingress). Drainage from the bunded area(s) shall be diverted for collection and safe disposal.

Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles, will take place in a designated area (or where possible off the site) which will be away from surface water gullies or drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double-skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as ‘Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors’ (CIRIA 532, 2001) will be complied with.

All ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash down and washout of concrete transporting vehicles will take place at an appropriate facility offsite.

14.5.2.3 Accidental Releases

Emergency response procedures will be outlined in the site CEMP. All personnel working on the site will be suitably trained in the implementation of the procedures.

14.5.3 Operational Stage

The plant is an existing EPA licensed facility. As such, monitoring of containment measures to ensure environmental compliance is and will be undertaken as part of licence requirements. An environmental management plan (EMP) will be followed to
ensure compliance with licencing requirements. This will include site-specific emergency response measures and all relevant personnel will be trained accordingly.

Specific mitigation measures related to surface water protection for the operational phase include the following

13.5.3.1 Raw Materials and Hazardous Waste Handling from Process Vent Abatement System

The proposed new process vent abatement development is designed to operate as part of the existing IMIL high containment facility. Handling and transfer of fuel and chemicals is carefully controlled. The volume of chemicals stored and the containment measures planned will minimise the risk of release of solid/liquid material spillages to the water environment.

All process materials, product and chemicals will be delivered to the site in tamper proof and/or lockable containers or tankers, which are approved for transport use.

Storage of hazardous materials will be within designated bunded containers. All liquid wastes from the VOC unit will be piped to the designated waste storage tanks adjacent to the VOC unit where they are held temporarily before being pumped to existing bulk storage within the tank farm for subsequent incineration. The design of all bunds will conform to standard bunding specifications - BS8007:1987 and are integrity tested every 3 years in accordance with the licence requirements.

Deliveries are supervised so any spillage is likely to be detected quickly. The emergency response team are trained to deal with spills and spill kits are readily available on site.

14.5.3.2 Fire Water System

The existing onsite firewater retention pond will be used for retention of potentially contaminated material in the event of a fire or accident. The total available retention capacity afforded by the fire water retention pond will accommodate the maximum volume of contaminated fire water that could be generated in the fighting of a fire at the facility.

14.5.3.3 Surface Water Run-off

Run-off from the hardstand around the process vent abatement unit will be directed to the existing firewater retention pond.

Water captured within the chemical and waste solvent tank bunds and will be pumped out and disposed of as required.

14.5.3.4 Accidental Emissions

Operation of the plant will be in accordance with BAT (Best Available Technology) principles and in compliance with the licence for the site to ensure that inputs to, and subsequent contamination of hydrological environments does not occur during normal and/or emergency conditions (material spillage or fire event situations).
Mitigation and emergency response measures are incorporated in the existing environmental management plans as part of the Licence requirement.

14.6 RESIDUAL IMPACTS & PROPOSED MONITORING

14.6.1 Residual Impacts

The residual impacts are those that would occur after the mitigation measures have taken effect.

The residual impacts relate to those impacts that would occur after the mitigation measures, as outlined in Section 14.5 above, have taken effect. In the case of the proposed IMIL development, there is no evidence of any significant residual impacts; the potential impact on surface water during operation (following EPA, 2002 assessment criteria) is considered to have a **Long term, Imperceptible Impact**, with a **Neutral Impact** on quality i.e. an impact capable of measurement but without noticeable consequences.

14.6.2 Monitoring

As part of the IPC licence (P0117-01) requirement, weekly visual inspections are carried out at surface water emission points SW1 and SW2 and regular monitoring of flow and physical and chemical parameters are measured at sewer emission point SE2.

14.7 PREDICTED IMPACT OF THE DEVELOPMENT

Following the NRA criteria for rating the magnitude and significance of impacts on the water and hydrological related attributes, the magnitude of impact is considered **Negligible**.

14.8 CONCLUSIONS

In relation to the construction phase of the proposed development the potential impact on the water during construction (EPA, 2002) is considered to have a **Short term Imperceptible** impact with a **Neutral** impact on quality, i.e. an impact capable of measurement but without noticeable consequences.

The potential impact of the proposed development the potential impact on the water during operation (following EPA, 2002) is considered to have a **Long term, Imperceptible impact** i.e. an impact capable of measurement but without noticeable consequences.

The residual impact once proposed mitigation measured are put in place is considered to be **Neutral** in terms of quality and of **Imperceptible** significance as a result of this.
14.9 REFERENCES

EPA, (2015). Draft Revised Guidelines on the information to be contained in Environmental Impact Statements; (September 2015); Environmental Protection Agency, Co. Wexford, Ireland


IGI, (2013). Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements

Figure 14.1

Legend
- Land under ownership of applicant (Proposed Licence Boundary)
- EPA Water courses
- EPA Monitoring Stations

Copyright: Ordnance Survey Ireland/ Government of Ireland, DCENR, GSI. Ordnance Survey Ireland Licence No. EN 0059208. AWN licence no. EN 0007513

Note: Drawing is for illustrative purposes only; Do not scale
Figure 14.2
Drainage Layout

Emission Point SE1

Emission Point SW1

Emission Point SE2 (effluent to sewer with monitoring station)

Emission Point SW2
15.0 WASTE MANAGEMENT

15.1 INTRODUCTION/METHODOLOGY

15.1.1 Introduction

This chapter has been prepared to assess waste management at the IMIL facility in Blanchardstown Industrial Estate, Snugborough Road, Blanchardstown, Dublin 15. This chapter relates to waste management associated with the proposed installation of the new process vent abatement system described in Chapter 3.

15.1.2 Methodology

The assessment of the impacts of the proposed development arising from the generation of waste materials was carried out taking account of the methodology specified in the EPA Guidelines and Advice Notes (referred to in Chapter 1).

An extensive document review was carried out to assist in identifying current and future requirements for waste management and included the following National and Regional Waste Policies, Strategies and Reports:

- DoEHLG, Taking Stock and Moving Forward (2004)
- EMR Waste Management Plan 2015 – 2021

In addition, the following best practice guidelines and codes of practice were consulted:


The primary legislative instruments that govern waste management in Ireland and which are applicable to this project are:

  - European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
  - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
15.2 THE PROPOSED DEVELOPMENT

15.2.1 Construction Phase

The proposed development comprises the construction of a new process vent abatement plant. (A number of other changes, as described in Chapter 1, including the incorporation of 2 areas of recently acquired additional lands within the formal licensed boundary, the recent upgrade in relation to balancing/attenuation tank for effluent discharges and the fitting out of the Building 4 purification suite are also proposed but no significant construction work is required for these changes).

The proposed location of the abatement system is to the south of Building B4. The construction phase of the development will involve slab foundation works, installation of equipment skid, erection of structures, connections to on-site utility services and the commissioning of the new plant.

During the construction phase, there may be a surplus of materials, such as off-cuts from metal, concrete, packaging waste (cardboard, plastic etc.) as well as oversupply of some materials. The construction contractor will be required to ensure that oversupply of materials is kept to a minimum. It is anticipated that the majority of the equipment will be prefabricated off-site where possible which will significantly reduce the volume of waste generated onsite during the construction phase.

Excavations will be required to facilitate the construction of slab foundations. It is anticipated that minor spoil will be generated from the excavations required. Any excess will be used on site in landscaping and existing berms to the rear of the site.

It should be noted that until final materials and methods of construction have been decided it is not possible to predict with a high level of accuracy the volume construction waste that will be generated. However, it is anticipated that the volume of waste arising will be relatively small.

Non-hazardous wastes will be placed in suitably sized labelled receptacles, located at or near the working area. When full, the receptacles will be transferred to a central Waste Storage Area (WSA). The empty receptacles will be returned to the working area.

Hazardous waste arising will be placed into UN approved containers as appropriate.
15.2.2 Operational Phase

The existing IMIL facility gives rise to a wide variety of waste streams on a day to day basis. These fall into two main categories – non-hazardous and hazardous waste.

Wastes from the facility may include the following:

- **Non-Hazardous Wastes**
  - Disposable gowing (including hairnets, footwear, etc.)
  - Canteen/Food Waste
  - Garden Waste/landscaping etc.
  - Mixed Recyclables
  - Confidential Paper Waste

- **Hazardous Wastes**
  - Process Effluent – from waste, rinses etc. during manufacturing and laboratory activities
  - Tubing, Filters and other packaging wastes from production activities
  - Flammable Waste – solvent containing wastes
  - Waste carbon from the carbon absorber
  - Containers and other packaging (contaminated with trace materials).
  - Batteries, WEEE, lighting, cooking oil and other typical household type hazardous wastes from the facility

Other wastes generated on site in smaller quantities may include textiles (rags), cleaning products, aerosols, and paints.

A Waste Storage Area (WSA) is provided at a waste staging lobby adjacent to the entrance lobby of the recently constructed B4 building. All waste arising from the proposed development will be transferred to the existing WSA for storage in dedicated receptacles pending collection/transfer offsite by a permitted waste contractor to registered, permitted and/or licenced facilities.

All waste management will be carried out in accordance with the facility IE (Licence (Licence Register No. P01117-01) issued by the Environmental Protection Agency (EPA) and will be overseen by the IMIL Environment, Health & Safety (EHS) Department.

The EHS Department regularly audits the onsite waste storage facilities and infrastructure, and maintains a full paper trail of waste documentation for all waste movements from the site. (This will continue to be the case).

15.3 THE RECEIVING ENVIRONMENT

In terms of waste management, the receiving environment is largely defined by Fingal County Council – as the local authority responsible for setting and administering waste management activities in the area.

The EMR Waste Management Plan 2015 – 2021 is the new regional waste management plan for Fingal County Council area published in May 2015. This plan replaces the previous Dublin region plan due to changing National policy as set out in A Resource Opportunity: Waste Management Policy in Ireland and changes being enacted by the Waste Framework Directive (2008/98/EC). The new regional plan sets out the following strategic targets for waste management in the region:

- A 1% reduction per annum in the quantity of household waste generated per capita over the period of the plan;
- Achieve a recycling rate of 50% of managed municipal waste by 2020; and
• Reduce to 0% the direct disposal of unprocessed residual municipal waste to landfill (from 2016 onwards) in favour of higher value pre-treatment processes and indigenous recovery practices.

Municipal landfill charges in Ireland are based on the weight of waste disposed. In the Leinster Region, charges are approximately €160 per tonne of waste which includes a €75 per tonne landfill levy introduced under the Waste Management (Landfill Levy) (Amendment) Regulations 2012.

The Fingal Development Plan 2017 – 2023 sets out objectives and policies for Fingal that will guide their actions in regard to physical infrastructure and environment as well as the facilitator of social, cultural and economic development. In particular, a number of specific development objectives have been prepared with regards to Waste Management including:

Objective WM02 Facilitate the implementation of national legislation and national and regional waste management policy having regard to the waste hierarchy.

Objective WM03 Implement the provisions of the Eastern Midlands Region Waste Management Plan 2015 -2021 or any subsequent Waste Management Plan applicable within the lifetime of the Development Plan. All prospective developments in the County will be expected to take account of the provisions of the Regional Waste Management Plan and adhere to the requirements of that Plan.

Objective WM09 Promote increased recycling of waste in accordance with the Eastern Midlands Region Waste Management Plan 2015 -2021 (or any subsequent plan).

The external receiving environment can therefore be characterised as one where waste recovery is now readily available, in addition to waste recycling.

15.4 PREDICTED IMPACTS

The implementation of the mitigation measures outlined in Section 15.5 will ensure that a high rate of reuse, recovery and recycling is achieved at the development during the construction phase as well as during the operational phase.

It will also ensure that European, national and regional legislative waste requirements with regard to waste are met and associated targets for the management of waste are achieved. Primarily, implementation of the plan will minimise the volume of waste requiring to be disposed of at landfill.

15.4.1 Construction Phase

A carefully planned approach to waste management and adherence to a Construction and Demolition Waste Management Plan (C&D WMP) during the construction phase will ensure that the impact on the environment will be neutral, short-term and imperceptible. The opportunities for waste materials to be reused off-site will provide positive impacts in the resourcing of materials for other developments and reduce the requirement for raw material extraction.

15.4.2 Operational Phase

During the operational phase, a structured approach to waste management will promote resource efficiency and waste minimisation. Provided the mitigation measures are implemented and a high rate of reuse, recycling and recovery is achieved, the predicted impact of the operational phase on the environment will be long term and imperceptible.
15.4.3 Cumulative Impacts

The cumulative impact of the additional wastes generated by the proposed development has been considered. The existing waste management infrastructure and procedures for management of waste are sufficient and as such there will be no significant cumulative impact in terms of waste from the proposed development.

15.5 MITIGATION MEASURES

15.5.1 General

This section outlines the measures that will be employed in order to reduce the amount of waste produced at the development, manage the wastes generated in a responsible method and handle the waste in such a manner as to minimise the effects on the environment.

15.5.2 Construction Phase

A site-specific C&D WMP for the construction phase of the development will be prepared in advance of the works and implemented to ensure effective waste management and recycling of waste material generated at the site.

In the unlikely event that any potentially contaminated material is encountered during the construction works, the material will require segregation, testing and waste classification (using the HazWasteOnline application or equivalent classification tool) in accordance with the relevant legislation under the Waste Management Act and ‘European Communities (EC) Council Decision 2003/33/EC’ (assuming the waste is disposed to landfill).

These mitigation measures will ensure the waste arising from the construction of the development is dealt with in compliance with the provisions of the Waste Management Act 1996 (as amended) and associated Regulations, the Litter Act of 1997 and the EMR Waste Management Plan 2015 – 2021. It will also ensure optimum levels of waste reduction, reuse and recycling are achieved.

15.5.3 Operation Phase

Mitigation measures proposed for the operational phase are as follows:

- All wastes will be managed in accordance with the requirements of IMIL’s IE Licence and Waste Management Procedures.
- The waste management procedures will be reviewed regularly to ensure there are continual improvements in the waste management practices.
- All wastes will be segregated at source, where possible. Adequate bins will be provided at strategic locations in the manufacturing areas and offices to facilitate segregation at source.
- All non-hazardous waste materials will be transferred to suitable receptacles in the designated WSA pending transportation off site by permitted waste contractors.
- All hazardous waste will be packaged in appropriate UN approved receptacles and stored in a dedicated hazardous WSA pending transportation off site by permitted waste contractors.
- The WSA’s will be audited regularly to ensure the waste is being segregated and stored correctly.
- Bins will be clearly identified with the approved waste type to ensure there is no cross contamination of waste materials.
• All waste collected from the development will be recycled, recovered or reused where possible, with the exception of those waste streams were appropriate facilities are currently not available.
• All waste leaving the site will be transported by suitable permitted contractors and taken to suitably licensed or permitted facilities.
• All waste leaving the site will be recorded and copies of relevant documentation maintained.

15.6 RESIDUAL IMPACTS

The residual impact associated with waste management during the construction and operational phases of the proposed new development will be imperceptible taking account of the implementation of the mitigation measures outlined in Section 15.5.
16.0 INTERACTIONS

16.1 INTRODUCTION

As a requirement of the 2014 EIA Directive (2014/52/EU), and the Draft EPA Guidelines and Advice Notes, not only are the individual significant impacts required to be considered when assessing the impact of a development on the environment, but so must the inter-relationships between these factors be identified and assessed.

In the main, the majority of EIAR chapters have already included and described assessments of potential interactions between aspects however this section of the assessment presents a summary of the identified interactions.

Article 3 of the 2014 EIA Directive requires that the interactions between population & human health, biodiversity, land, soil, water, air and climate, material assets, cultural heritage and the landscape, be assessed. In the interest of completeness, the interactions between these elements and noise have also been considered.

The aspects of the environment likely to be significantly affected by the proposed development, have been considered in detail in the relevant Chapters of the EIAR.

16.2 DISCUSSION – POSITIVE IMPACTS

Material Assets on:

Population and Human Health
Construction of the new process vent abatement system will create employment within the locale on a short-term basis which is likely to have a short term positive impact.

Water
The improvements to the wastewater infrastructure, including the new equalisation tank, will have a long term positive impact on the process wastewater quality and consequently on the downstream wastewater treatment plant and its discharges.

Air and Climate on:

Population and Human Health
The proposed development entails improvements to the quality of the air emissions from the facility via the new licenced air emission point. This will ensure the activity complies with all ambient air quality legislative limits and will have a long term, positive impact on human health.

16.3 DISCUSSION – NEUTRAL IMPACTS

The reasoning behind the interactions which are given a neutral rating is as follows.

Soil and Geology on:

Water
The primary potential impact of the construction works proposed is on surface water and ground water quality in the environs of the site however it is considered that a
suitable construction management plan will ensure the proposed the impact will be neutral.

**Biodiversity**
The existing site has previously been developed and has therefore been largely stripped of any natural flora and fauna. The proposed development does not entail any significant additional new land take and therefore the impact is long term and neutral.

**Air and Climate**
There is a potential for the construction activity to impact on air quality in terms of dust generated but a suitable construction management plan will ensure a short term, neutral impact.

**Archaeological and Cultural heritage**
The proposed activity has the potential to impact on unidentified archaeological features during construction works. Archaeological inspections will be conducted by an archaeologist during works to ensure no previously unidentified features are adversely affected. The impact will therefore be long term and neutral.

**Water on:**

**Material Assets**
Irish Water (IW) have confirmed that subject to application they are agreeable in principal to an increase in the permitted volume of waste water discharged daily from the facility. Subject IW approval, the impact on material assets will be long term and neutral.

**Population and Human Health**
Run-off from the hardstand around the process vent abatement unit will be directed to the existing firewater retention pond prior to discharge to the IDA storm sewer. In the unlikely event of an uncontrolled discharge to the storm sewer system there is the potential for impact on human beings. It is concluded that the range of mitigation measures including sampling of the firewater retention pond prior to discharge to IDA storm sewer (subject to limit values) will prevent uncontrolled emissions and the predicted impact is long term and neutral.

**Biodiversity**
Run-off from the additional hardstand area will be directed to the fire water retention pond which has a controlled discharge to the stormwater sewer. Onsite mitigation measures are in place to prevent uncontrolled discharges. Designated sites are located several kilometres downstream. Therefore, the predicted impact will be long term and neutral.

**Material Assets on:**

**Soils and Geology**
Installation of the new process vent abatement system will result in minor removal of spoil. Any excess will be used on site and therefore the overall impact on the soil will be long term and neutral.

**Air and Climate on:**
Water
The operational procedures implemented by IMIL will ensure that the facility complies with the IE Licence limit values and ambient air quality legislative limits and therefore the predicted impact from air (including dust) on the water environment is long term and neutral.

Landscape on:

Population and Human Health
The proposed process vent abatement plant will be located to the south of Building 4 and will be screened from the north and west by the existing facility by existing topography and mature tree-lines/plantings. The development will also be screened from the east, south and west by existing topography and mature tree-lines/plantings located on the site boundaries. The development will have no visual presence or impact on views and therefore will not give rise to any adverse landscape or visual impacts either during construction or operation or in the short, medium or longer-term.

Soil
It is envisioned that any excess spoil generated will be used on site in landscaping and existing berms to the rear of the site. This will prevent the loss of soil from the subject site and therefore the overall impact of the landscaping scheme on the soil environment is long term and neutral.

Noise on:

Population and Human Health
Proprietary noise control measures will be employed during the operational phase to ensure that any noise emissions from site have a negligible impact at the nearest noise sensitive locations. Furthermore, noise emissions from the IMIL site should be broadband in nature and should not contain any tonal or impulsive elements.

Biodiversity
As the site is already in operation the overall noise levels will not change significantly as they are controlled by IE licence limit values. As long as noise levels continue to comply with IE licence limit values there should be no impact on flora and fauna.

16.4 DISCUSSION – NEGATIVE IMPACTS

Noise on:

Population and Human Health
During the construction phase of the project there may be some impact on nearby noise sensitive properties due to noise emissions from site. However, given that the construction phase of the development is temporary in nature and the distances between the main construction work and the nearby noise sensitive properties, it is expected that the various noise sources will not be excessively intrusive.

16.5 SUMMARY

In summary, the interactions between the environmental factors and impacts discussed in this EIAR have been assessed and the majority of interactions are long-term and neutral.