

Appendix 7-3. Airfield Trunk Culvert Temporary Diversion Pollution Control

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AIRFIELD TRUNK CULVERT TEMPORARY DIVERSION POLLUTION CONTROL

AIRFIELD TRUNK CULVERT TEMPORARY DIVERSION POLLUTION CONTROL STRATEGY

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1. INTRODUCTION

A planning application has been prepared in respect of a proposed vehicle underpass of Runway 16/34. This is an airfield safety project, required to improve operational safety and efficiency at the airport. The Underpass is proposed centrally within the airfield at Dublin Airport. The subject site incorporates Pier 3 and surrounding stands, Apron Taxiway 4, the Taxiway F-2, Runway 16/34 (the crosswind runway), Taxiway W1 and W2 and the West Apron, see Figure 1.



Figure 1 Dublin Airport's Existing West Apron and Central Area

The West Apron is an area of apron west of Runway 16/34, comprising 16 NBE (narrow body) and 8 WB (wide body) stands. It is used inter alia to support cargo operations, General Aviation and provision of contingency aircraft stands. It is an integral part of the infrastructure of the airport. It is currently accessed by a surface crossing of Runway 16/34 ('the West Apron Crossing') or by the airfield perimeter roads. Use of the West Apron Crossing requires meticulous coordination and adherence to strict operating procedures to ensure safety and is coordinated between Airside Management Unit and Air Traffic Control. Using the perimeter roads entails an 8km perimeter journey which is highly inefficient in terms of managing airport operations, and results in increased travel time, fuel consumption, and vehicle emissions.

Use of the West Apron Crossing will become increasingly challenging on opening of the North Runway in 2022. Once in operation, Runway 16/34 will primarily operate as a taxiway, meaning the area currently used by the West Apron Crossing will increase, from aircraft accessing the North Runway. Accordingly, an underpass of 16/34 is required for both operational safety and efficiency reasons and is proposed between Pier 3 and the West Apron, see Figure 2.

If permitted, the Underpass will allow complete segregation of vehicles from aircraft and enable fast, reliable and safe access that is critical for the continued use of the West Apron.



Figure 2 West Apron Vehicle Underpass

The project is strongly supported by IAA SRD as a critical safety project to enable operational safety both now and in the future. The Airfield Underpass project is further referred to as 'Underpass'.

This report outlines the proposed drainage strategy for the collection and disposal of storm water run-off on hard paved surfaces within the underpass and portals and in addition any existing surface water infrastructure diversions required as a result of the proposed underpass location.

1.1 Site Description

The proposed underpass is located within Dublin Airport, spanning between the West Apron to the west, the existing runway and taxiways at the centre and Pier 3 to the east. The images below highlight the proposed alignment of the underpass and location.

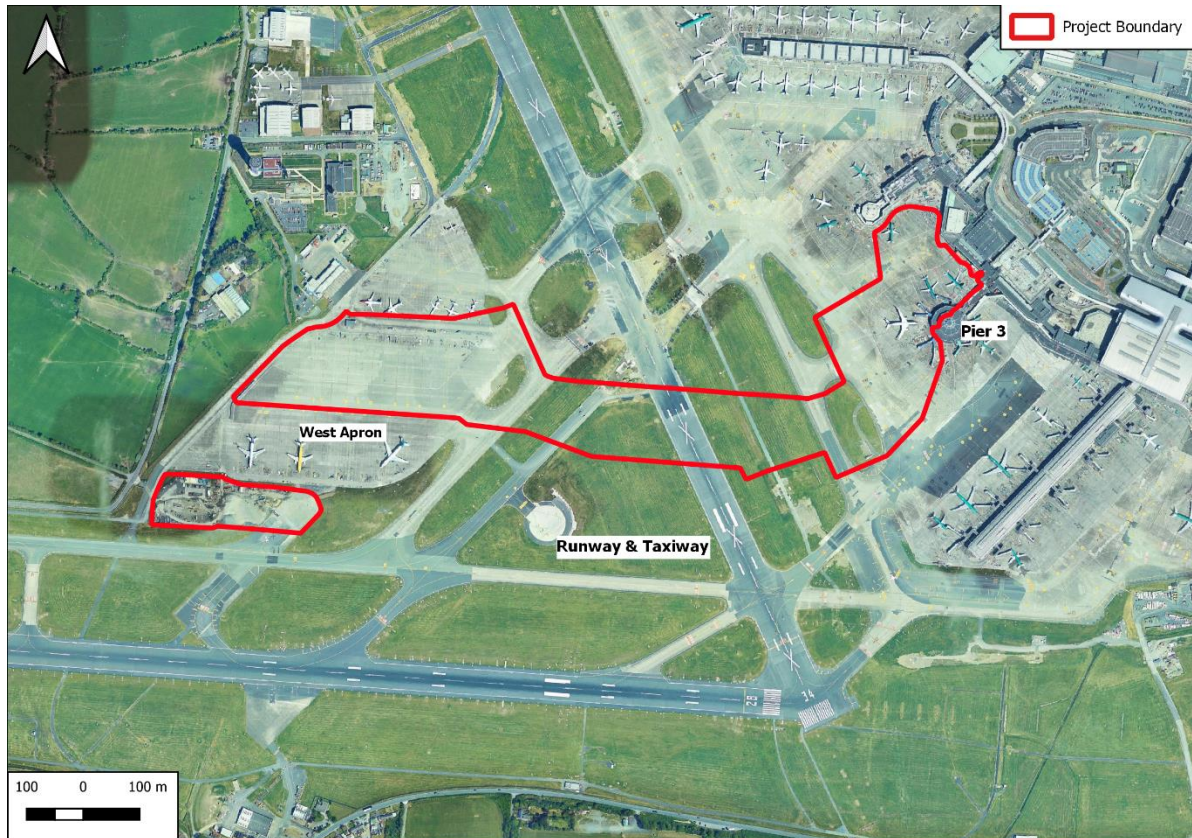


Figure 3 Location of the Western Apron Vehicle Underpass Project

This report focuses on the crossing of the Airfield Trunk Culvert that carries the Cuckoo Stream from the northwest of the airport to the southeast and pertinently above the proposed underpass. The report will establish key principles in regard to the temporary diversion required, including the pollution control strategy to be adhered to during any works.

2. AIRFIELD TRUNK CULVERT AND UNDERPASS INTERFACE

Figure 2 below illustrates the underpass alignment plan in relation to the existing Airfield Trunk Culvert routing across the airfield. The culvert shown via a blue dashed line crosses above the proposed underpass towards the eastern portal and then on to the southeast.

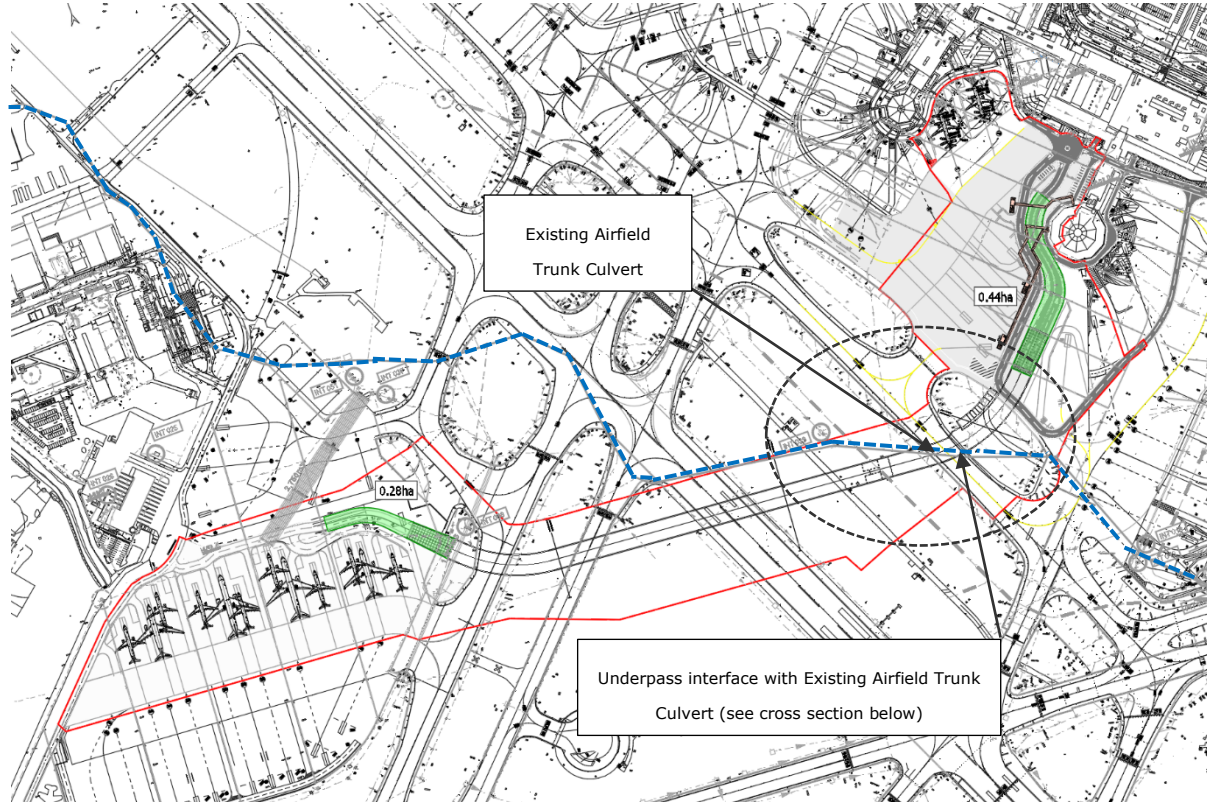


Figure 4. Underpass Layout and Airfield Trunk Culvert Interface

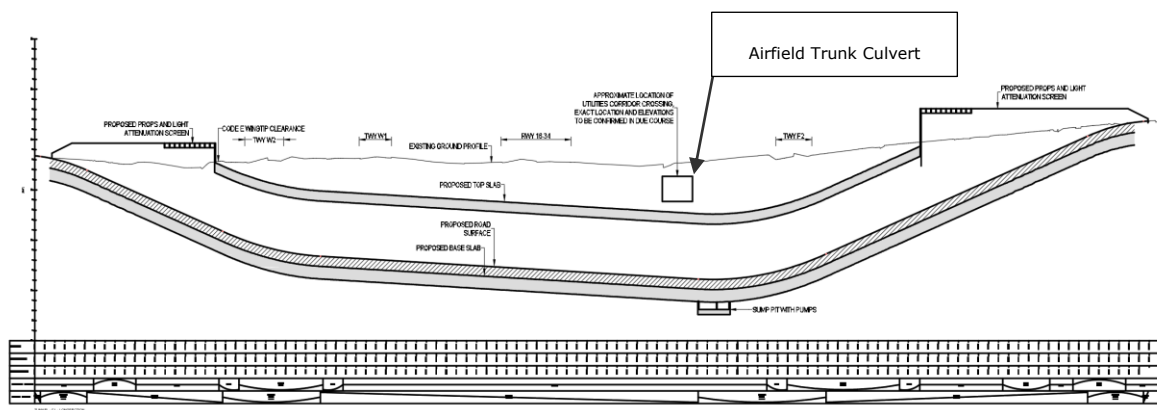


Figure 5 Underpass Alignment Long-section with Airfield Trunk Culvert Interface

Figure 3 outlines the proposed underpass alignment cross section profile and shows where the existing Airfield Trunk Culvert (1200mm diameter) crosses the proposed underpass.

The vertical alignment of the underpass ensures there is no clash with the Airfield Trunk Culvert in the permanent case. There is approximately 760mm vertical clearance between the two structures at the closest point i.e. underside of the culvert and top of the underpass roof structure.

As part of the underpass works, a new surface water drainage system is to be provided that will connect to the Airfield Trunk Culvert. Full details are shown within the Drainage Report, 1100040489-DIP-REP-4002. The strategy illustrates the segregation and conveyance of unpolluted and polluted/contaminated surface water from the underpass ensuring only unpolluted flow enters the Cuckoo Stream at a restricted flow rate. As such the proposed drainage works/connection in the permanent case are not considered to have a significant impact on the Cuckoo Stream and pollution control measures are discussed as part of the Underpass Drainage Report.

In order to construct the underpass, a temporary diversion of the Airfield Trunk Culvert will be required as part of the works. As such the Cuckoo stream will need to be safeguarded from pollution throughout the works until the permanent alignment of the culvert can be reinstated. Section 3 identifies measures to be taken during the construction of the underpass and temporary diversion of the culvert to minimise and mitigate the pollution risk to the Cuckoo Stream.

3. POLLUTION CONTROL

In order to mitigate the impact of the works on the watercourse, rigorous environmental and construction control procedures will be in place during the works. The mitigation measures are identified below. All mitigation measures are as required by Fingal County Council (FCC) and Inland Fisheries Ireland (IFI), in addition to industry best practices in regard to construction works will be implemented when these works are taking place.

Prior to, during and following the construction of the underpass, it is imperative that the operation and discharge conditions of the Airfield Trunk Culvert are maintained. The following measures will be implemented to ensure that the Cuckoo stream is not adversely affected by the proposed works.

General

Where possible, all hard surfaces that are positively drained will be installed early stage in the construction of the underpass/tunnel to allow permanent drainage facilities to be used to collect silt and hydrocarbons. This includes all the proposed new drainage installations and diversion works identified to be required as part of the underpass project.

The extent of exposed ground will be minimised where possible at all times during construction and any stockpiles outside areas specifically designed for the purpose will be covered to prevent the creation of any contaminated run-off. Areas where stockpiles are located will be positively drained through a grit trap where silt will be collected before water is discharged. Wheel-wash down areas will also be drained through a grit trap in a similar way combined with operation of appropriate procedures to keep the site area reasonably clean and minimise surface water contamination.

Daily monitoring of the weather forecast should be implemented to ensure no high intensity or extreme rainfall events occur during the underpass project, particularly during major excavation works for the underpass or temporary diversion of the Airfield Trunk Culvert which could impact the level and flow rates within the Airfield Trunk Culvert and wider network.

The locations of refuelling, storage of oil/fuel, concrete mixing and washing areas should be established where practicable to be situated ideally off site at a designated location coordinated with daa. If these are to be provided within the proposed project boundary then a buffer zone of at least 50 metres between the Airfield Trunk Culvert network should be provided.

Surface water sampling of the Cuckoo Stream at designated locations should also be implemented prior to the start of works, during works, and upon the completion of works.

The Principal Contractor carrying out the works shall identify all watercourses, drains and potential conduits for silt laden run-off and where necessary, measures shall be taken to minimise direct sediment run-off from the working site into watercourses. Pollution prevention will be achieved with both physical and procedural measures such as; temporary sediment forebays within a designated attenuation basin during construction, suitable interceptors within the permanent and temporary surface water drainage networks and suitable storage of construction materials.

The Principal Contractor shall ensure that appropriate measures are allowed for and provide dedicated persons to ensure that the required mitigation is installed and maintained to an appropriate standard.

Pollution/Silt

As part of the underpass surface water drainage design, appropriate pollution measures will be implemented and in place within the drainage network in form of full retention fuel interceptors, shut-off valves and fire suppression/contaminated water tanks. For full details of the refer to the proposed ART Drainage Strategy Report.

During the construction works, appropriate silt mitigation, straw bales and Terram will be installed, as appropriate, at locations deemed to be at risk from silt pollution during the construction works.

Geotextile materials such as Terram will be placed under new and existing drain covers and in road gullies, where appropriate, in order to intercept silt-laden surface run-off and prevent it from entering the surface water drainage network. This mitigation will be assessed on a regular basis (especially after heavy rain) and maintained if required.

Wheel wash bays and road sweeping facilities, as described previously, will further reduce the potential for silt pollution and transfer to and from the construction site.

Water Pumping/Temporary Diversion (Cuckoo Stream)

Due to the location of the crossing it is likely that a degree of over pumping will be required in order to install the sections of the underpass in the vicinity of the culvert.

In the event where pumping of water is required onsite, the requirement for water pumping will be planned in advance (as far as is practicable) and a permit to pump procedure will be in place to ensure that water pumping is controlled.

An upstream and downstream chamber within the Airfield Trunk Culvert will be required to ensure pumping occurs between a single conveyance point. This method will allow for the existing drainage conditions and discharge flow rates to be maintained whilst minimising flooding risk upstream.

Any pumping of the Cuckoo Stream is to be agreed in advance with FCC and IFI to ensure the watercourse is protected throughout and timeframes and pump rates can be confirmed.

Dewatering

If during the excavation works either groundwater or surface water run-off enters the excavation, there will be a requirement to dewater the excavation. This will be achieved by pumping water from the excavation to the nearest watercourse or drain. To ensure that no silt or sediment is transferred to the drains or watercourses, the water will be pumped via settlement tanks or collection basins where any solids in the water will settle out. The settled solids will be removed from the tank/basin as required and disposed offsite by licensed hauliers.

In addition, as mentioned above, a wheel washer will be provided to ensure that no muck and spoil is dragged offsite where it could become a potential contamination risk.

Storage of fuels and hazardous materials

Removed topsoil and excavated material is to be continued up to design levels and materials arising, if acceptable, are to be reused within the works as backfill to structures. Any surplus fill material that is not suitable for reuse within the works will be stored at the airport for future use in other projects or otherwise suitably disposed offsite. If material is not acceptable for reuse, material will be directly loaded into dump trucks and taken offsite for disposal by licensed hauliers.

daa will identify designated storage areas; these areas are to be strategically located in relation to the watercourses (i.e. Cuckoo Stream) and any other drains in the area to ensure that there is no risk of topsoil or any other material being washed into the watercourses or existing drainage networks.

The risks from concrete works when constructing the underpass will be managed and mitigated by Principal Contractor ensuring that no concrete is laid during wet weather if achievable, so that there is no risk of concrete being washed off the site and into the surface water drains or nearest watercourse.

Any temporary storage areas for chemicals or fuels will be contained within impermeable bunds constructed in line with current best practice. The Principal Contractor should ensure that staff are trained in the use of spill kits in the event of a leak or spill.

Consideration will be given to the phasing of construction to reduce the time when temporary facilities for storage of chemicals refuelling and vehicle maintenance are used to a minimum if not completely eliminated from the works by having this situated off-site.

Any fuel such as diesel shall be stored at least 30m away from any watercourse, where practicable. Oils and lubricants used on the site shall be stored in temporary vessels designed to hold 110% of the container's capacity. No oil or lubricants shall be stored within 50m of a watercourse, where practicable.

Refuelling will only take place in designated areas, on hardstanding, by appropriately trained personnel. The funnels/nozzles used will be appropriate to the equipment being used. Refuelling on the site shall be undertaken at least 30m from any given watercourses (where practicable); mobile plant shall be pulled back from watercourses for refuelling as far as possible. Fuelling tanks will be locked when not in use.

All plant and equipment shall be checked for leaks of fuel and lubricants before being allowed onto the site. The Principal Contractor will allow for regular checks and maintenance as required.

Pumps and generators used on the site will have integral drip trays where possible. All items of plant without an integral drip tray shall be stored over a portable drip tray. Drip trays shall be inspected and kept free of accumulated rainwater as necessary. Any oily water shall be disposed of at an appropriate licensed facility. Any cleaning/arising from drip trays etc. to be disposed of as hazardous waste in accordance with Environment Protection Agency (EPA) guidance and legislation.

Spill response plans and pollution control measures

A spill response kit will be available onsite and accessible to all to control pollution incidents. These spill kits will contain absorbent pads, absorbent granules and methods of disposal of materials and used kit. These kits will be located at appropriate points around the site which are considered to be

at a higher risk of pollution (e.g. refuelling area and next to fuel tanks). Further spill kits and supplies will be located in the stores within the site, where replacements for used kits will be found. The spill kits will need to be regularly inspected and immediately replaced if used.

Toolbox talks will be communicated to site staff and contractors so that they are fully informed of refuelling procedures.

Emergency Response Plan

During construction, site staff will be trained in mitigating impacts to the environment, resulting from a pollution incident.

Pollution control equipment will be available in high-risk areas and will be checked regularly to ensure the equipment is available and re-stocked if used.

Work will be stopped in the vicinity of the spill and the discharge stopped at source (i.e. turn plant off). Containment equipment will be deployed in the form of spill kits, booms, sandbags, granules/straw bales or Terram, depending on the type of pollution discharged. The Principal Contractor/Site Manager will be notified immediately and the used pollution control equipment will be disposed of in accordance with EPA guidance and legislation.

Toolbox talks will be communicated to site staff and contractors so that they are fully informed of Dealing with Environmental Incidents.