An Bord Pleanála,

64 Marlborough St.

Rotunda,

Dublin 1.

Date 23rd October 2022

RE : Dart + West+ Project . Reference 314232 . Interested Party not notified and excluded from process.

Dear Sirs,

My Name is Patrick Comerford and I wish lodge an objection and make observations in relation to the planning application submitted by Dart + West for planning permission for new Railway lines and Depot located between Maynooth & Kilcock. The project in its current form (your application reference 314232) is unacceptable and the application is invalid in so far as it has failed to adhere to the most basic planning regulation and furthermore I want to formally make a request for an Oral hearing.

I enclose the statutory fee of €50.00. However, I believe that I am an interested party in this process, and I have not been properly notified or consulted in regard to this application and as such no fee should be required to be paid for reasons that I will set out later in this document

I say that I only became aware that the planning permission for Dart + West had been lodged by chance in the last few days. I have checked and there is no signage or notices erected in Ballycurraghan or locally in the Kilcock area to notify the public of this 200-acre development which I find difficult to understand.

Furthermore, I say and believe that the location of the proposed depot has not been properly thought out and the current proposal is located completely in the wrong area. I believe that the new depot should be located west of Kilcock possibly behind the Musgraves storage facility where I understand none of the severe flooding issue and other difficulties associated with Ballycurraghan site will be encountered. This would also have the significant benefit of including Kilcock as part of this new network expansion. The population of Kilcock is expanding rapidly with over eight thousand commuters would also benefit from this new dart connection. The traffic in Maynooth at present is chaotic due to colleges and over development and the commuters from Kilcock should not have to travel there to further compound matters and to make their travel connection.

It is my view that the application is flawed on many levels and should be invalidated. I wish to also reiterate my fundamental objection to this substantial development in a zoned green belt area subject to sever flooding and believe an alternative location should be found for the project.

My Background and Location

I live in Ballycurraghan, Maynooth Co.Kildare having purchased a farmhouse and lands there in 2001. I am the owner of these lands and all rights of way both public and private associated and deriving from the Land Register Folio KE37481F. My Home and Farm is adjacent to the proposed new Rail and Depot extension to the Irish Rail Network between Maynooth. This proposed 200-acre development is to be located in a flood plain, and in an area that is subject to severe flooding over the years and this matter has been further compounded by poor decisions made particularly in relation to the M4 Motorway.

History and Background.

What first attracted me to the property was the cut stone house in an idyllic setting with a tree lined laneway and all the hedge rows filled with mature oaks and specimen trees at least 150 years old. (See pictures appendix 50 Pictures 1,2, & 3). The privacy of the area and the peace and solitude is incredible yet we live only two kilometers from the historic town of Maynooth

I purchased Ballycurraghan house and lands in 2001 comprising of Folio 37481F (see Figure 3 page 15) and all associated rights of way in-order to raise my family in a country setting, to farm and to work with horses. I immediately set out sensitively and carefully restoring the courtyard and outbuilding of this period cut stone property.. In 2007 I was granted planning permission by Kildare to refurbish the main house and build stables, tack room, yard, sheds, horse walker and other associated works. All this work had been carried out over the years at considerable expense. I say that my family have worked and competed at all equestrian levels for many years including securing team medals for the Irish pony eventing team in both Hungary and Bishop Burton in England in 2017 and 2018. In 2018 we retired some of our eventing mares and have commenced a breeding program with a view of breeding eventing ponies and producing them to the highest levels. As part of our service, we also give private tuition during the course of the week with my partner being a qualified instructor.

My House and Farm is located down a quiet cull de sac, and I can say for over twenty years my family have been using this private road every day to exercise and walk our dogs. I have also found the road extremely suitable to drive and break young horses , train and hack my horses as part of my business.

Effects of Dart + West on Ballycurraghan.

I understand the need for Dart + West Rail System and I see it as a necessary and a progressive project which I have no objection to in principle. However, the issue with the location of the Depot and compound on lands that have a history of severe flooding is difficult to understand. This Depot is enormous ,almost 200 acres. Furthermore, the attempt by Irish rail to ignore my private rights of way that have been in existence for years and to alter private road layouts without consultation or agreement is unacceptable. Roads that have been used privately for walking dogs, hacking horses, running and will now be no longer available for that purpose and the peace and tranquillity we currently enjoy will be gone forever. Instead, will be subjected to five years of inconvenience during construction , continuous noise, and ongoing 24/7 disruption when the facility is up and running.

I can say that no consultation has taken place with me and Irish rails or their consultants to try and mitigate the effect that the location of the Depot and a marshalling yard running 24/7 adjacent to a Farm with breeding mare used for equestrian purposes will have. Indeed, no consultation has taken place as to the possible effects that the introduction of an additional entrance onto a private lane from the new link L5041 will have on the security of my farm and property.

In addition, there is no mention going forward in relation to the maintenance of Ballycurraghan road and hedges or it is even contemplated in the application. It is my understanding that the local farmer who his having him land compulsory purchased will not now be maintaining his hedges as he had done over the years at his farming holding is now not viable.

I will now set out below my concerns and concerns and observations in relation to this planning application as follows.

Environment

I can say that breeding and producing horses is specialist work and required a quiet and tranquil environment to be successful . The proximity of the Depot to my land will seriously affect this business and make it impossible and give rise to the following.

1. 24 /7 loud noise
2. Flashing lights
3. Pollution
4. Security problems
5. Unpleasant environment for future residents
6. Habitat Destruction.
7. Breach of proper procedure and statutory notification by Dart West

1. Noise

The disturbance due to noise can be broken down into two categories:

A. Construction Noise
B. Operation Noise

A. **Construction Noise**.

There are heavy civil engineering works required to complete the infrastructure of the Depot as outlined in drawings Engineering no 37 -41 and the Railway order Book of reference no 39 – 40 .

There is also the demolition of the existing bridge OBG24 and the construction of the new bridge OBG23A and a new link road access road from R.148 to the L5041. The road access to the Depot is located adjacent to the Northeast corner of my farm as shown on drawing "Works Layout Plan No WP39,

The entrance roadway to the marshalling yard and the yard tracks are adjacent to my lands. There will be considerable excavation works projected by Irish rail to be 250,000 m3 or 25,000 lorries not to mention the importing of material such as construction material, steelworks, ballast, tracks, and overhead electrification structures. The extract from the book of reference outlines a very large and industrialised construction which will create serious noise and disruption to my animals, my family and my property.

B. **Operational Noise**

The Depot is offset from the tracks of the main line. The choice of the location of the Depot adjacent to a breeding mare's is unacceptable. The operation facility of the Depot is directly adjacent to my farm. The permanent compound and storage facility for the depot is located directly opposite my house and farm as is the proposed new link road and new bridge.

Thus, the noise of lighting, transporting, and stacking of ballast, heavy steel beams and Construction equipment and machinery will be a constant and indefinite operation thus causing noise and disruption my breeding farm on a daily basis and all night when operational.

Tuition and teaching lesson requires a quiet environment to avoid startling horses and to upsetting children's confidence . This again is going to prove impossible based on the information provided in this application due to continuous noise and heavy plant operating.

2. Flashing Lights

The disruption and disturbance from flashing lights can be from two sources

A. Construction of "Depot
B. Operation of "Depot

A. Construction

The lights from construction equipment will cause flashes and constant illumination during twilight hours. The lights normally also come with a loud waring sound to indicate plant operating. In construction times the flashing lights will occur during commissioning.

Cars and construction equipment travelling Over the bridge will have headlight beams directed directly at the paddocks.

Cars and construction equipment entering and exiting the "Depot' will travel along the roadway adjacent to the paddocks with lights flashing

B. Operation

The trains entering the "Depot' will travel in an East to West/West to East direction entering and leaving the 'Depot. Thus, there will be over head operational lighting particularly at the control centre Ref 39.8 and 39.9.

The trains stopping and starting will give constant nose. I understand from the schedule that approximately 30 trains will be travelling morning and evening along with train line and testing and regular washing of carriages will also be required. This constant din of noise will be compounded by use of air compressor and other loud service machinery operating on a nightly basis.

3. Pollution and Flooding

The construction of the "Depot' will give rise to pollution from rising dust, airborne dust and infiltration of the Water Systems and the natural drainage of the site and the adjoining lands. This can be broken down into two categories also

A. Construction of "Depot
B . Operation of "Depot

A. Construction Pollution and Flooding

The construction of the "Depot " adjacent to my farm will give rise pollution of my lands and air from air borne dust.

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The location of the depot compounds directly adjacent to my farm will create the most intense pollution. The hauling of the ballast for the marshalling yard and the spreading and compacting of hardcore for road works, tracks, large embankments and buildings will cause serious air pollution. Construction work will also cause considerable dust including demolition of existing bridge.

The wastewater from the construction site will have to be treated and it's not clear from the drawings how this will be achieved.

B. Operation Pollution and Flooding

The operation of the depot with at least 60 trains a day constantly moving will give rise to air borne dust from ballast and the general environment of the Depot.
The size of the attenuation ponds appear to be too small and there does not seem to be sufficient volume provided for run of the industrial use of the depot compared to the existing normal run off from agricultural lands. i.e., the capacity of the attenuation ponds are too small at the Depot compared to the existing normal run off of agricultural lands i.e., the capacity

4. Security

The diversion of the L5041 to the Northern boundary of Ballycurraghan and exposing the area to what will be a very busy public road will pose many problems for me including the problem of security of my property and farm. For many years we have lived 1 km at the end of a quiet private road. Dart + West now proposes to put a new entrance less than 150 meters from my house and farm. I will now have no option but

to invest considerable funds in new Security cameras automated gates and new security fencing similar to that which is being proposed for the new Depot in order to protect my property, family, and animals.

5. Unpleasant Environment for Residence

The Location of the proposed depot adjacent to my house and farm operating on a 24/7 basis with all the noise and inconvenience associated with this will have a detrimental effect on the future enjoyment of my home and the value of my property. The construction works will be considerable and cause significant inconvenience for almost 5 years not to mention the final operation of the depot. This will greatly reduce the value and enjoyment derived from the holding and almost certainly make it impossible to continue a breeding program for horses.

Visually the new roads and train lines will be located significantly higher that existing roads, almost 2 meters in places to avoid flooding. When you add large metal support systems for electrification of trains the final level will be approximately 6.5 m above existing road levels which will have a detrimental effect on the landscape of Ballycurraghan and be visually toxic.

6. Habitat Destruction

This is an enormous development and will have huge implications in terms of flooding, additional traffic and noise pollution for the area and will include the destruction of Mature oak Trees.. Almost 50 Oaks are due to be felled and wildlife habitat destroyed. At least 200 acres of land being compulsory purchased locally for this proposed project and no consultation with Ballycurraghan residents who will be significantly impacted by this proposed development.

In the planning application the lands in Ballycurraghan and the surrounding areas are mis-described as agricultural lands and not a mature hedgerow with over 400 oak trees. In over 200 acres being considered for the development of this project locally I find it difficult to understand that the DART + West Consultants can make no adverse finding in relation to habitat destruction locally . Ballycurraghan and the surrounding areas has become a haven for wildlife over the years. The boundaries of the train and canal to the North, the M4 to the west and Maynooth to the East has served to create a secluded habitat for many animals to thrive. The following animals due to the privacy of the area and over the years this area had.

- Red and sika Deer that reside and migrate across lands from Courtown House to Carton House. These animals are protected, and no provision had been made in development plans for this.
- Otters reside here and this is acknowledged by Kildare Co.Co. signage on way into Kilcock. These animals are protected and again not provision has been made in development plans.
- Breeding Kingfishers live on Lyreen river across from Bryan McCanns house. These birds are protected.
- Breed Jay birds reside in hedge rows of nearly 400 mature oak trees.
- Red Squirrels has been seen amount the OAK TREES and these animals are again protected.
- Various species of Bat which are again protected. I also cannot find any Bat Impact assessment report in relation to the effect that all new proposed industrial lighting is going to have on these animals.

7. Breach of proper procedure by Irish Rail.

I referred to the railway orders book of reference schedules July 2022 4th schedule, *Lands of which temporary position may be taken* . According to the drawings submitted by Dart + West it is envisaged to carry out road alignment to private laneway reference DW0 38P 95b. Permission for this work has not been sought or has it been included the railway orders included with this application“ dart West. I refer you to drawing Depot construction compounds Figure 5-387 below and Millfarm permanent way compound figure 5 -357 with areas of proposed works marked in yellow.

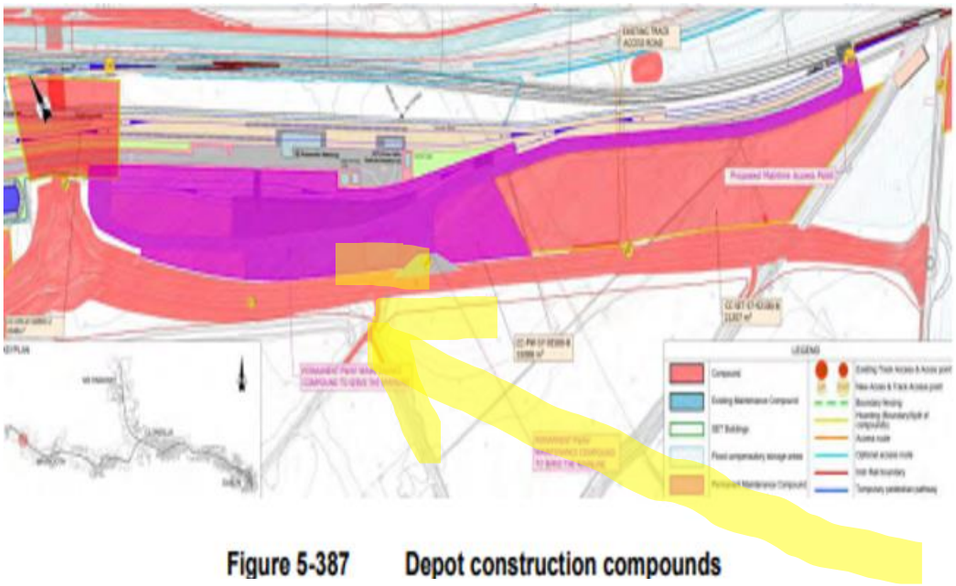


Figure 5-387 Depot construction compounds

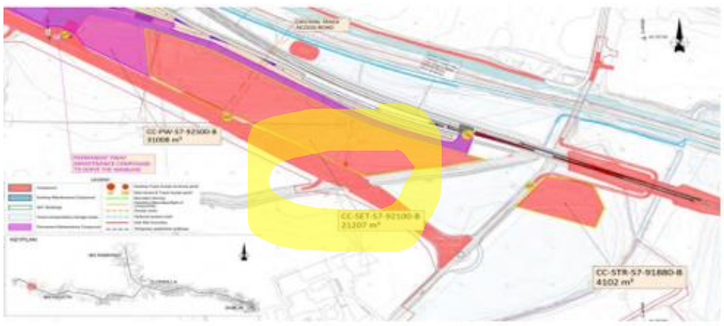


Figure 5-357 Millfarm permanent way compound

Indeed, there has been no consultation with the residence of Ballycurraghan in relation to this work or has there been any attempt explain the need for it. A further note that directly across from this proposed entrance main to Ballycurraghan will be a permanent entrance to the depot. According to the drawing submitted by Dart + West there will be automatic Gate security fencing 24-hours security. It would appear that in addition to considerable extra volumes of traffic been directed to our doorstep security of our properties has been compromised by inclusion of this legal and unnecessary entrance. Furthermore, there is a cut stone dating to the 1800s it has not been included any archaeological surveys that has been proposed to be demolished.

8.0 Right of Way to access road to Ballycurraghan

All the Residence of Ballycurraghan have a right of way to use the road from the L5041 over the Lands in Laraghbryan EAST to access to and from their properties and Ballycurraghan. This is not a public right of way but a private one. To this end the Residents of Ballycurraghan have made significant contributions to maintained and upkeep this road for over 20 years as Kildare County Council determined that it was a private lane and not their responsibility. It would now appear that our right to use existing lane is being extinguished and new road arrangement is being put in place without any notice or consultation. I refer to the Railway orders Appendix 1 Schedule 7 below *Private Rights of way which may be extinguished*. You will note that the private rights of way of the residents of Ballycurraghan right of way are not acknowledged or included in Railway orders and no consultation has taken place with residence of Ballycurraghan in relation to this work..

Another new entrance to new link road being provided between the L5041 and Ballycurraghan Lane one hundred and fifty meters from my property. Again, the residents of Ballycurraghan were not acknowledged in Railway orders and no consultation has taken place with residence of Ballycurraghan in this regard . In addition, there is no mention of Victorian stone arch over river at this point or why our right of way are being affected.. .

In relation to the second entrance , you will see from Figure 1. Below. Dart + West Proposed CPO at Ballycurraghan with new entrance to Land at Ballycurraghan marked in yellow se out below. Figure 2 show a picture of the proposed work at the depot with alteration to private laneway at Ballycurraghan circled in yellow. Clearly this work should have been included as part of the Railway order as private rights of way and private road is being altered. I can say that Irish rail or their consultants did not notify or engage with me in relation to this work. In fact, the contrary is true in so far as I was told by a Dart West Employee that the proposed works has notifying to do with me . Clearly this is not the case. Figure 3 shows Land at Ballycurraghan including right of way over roadway to Ballycurraghan marked in yellow with area of proposed alteration and entrance to Laneway marked in blue .

It would appear that the requirement for this new entrance to Ballycurraghan is because the existing lane way will be impassable during flooding and this additional entrance to the Ballycurraghan laneway is required as it will be the only access available to the Residents of L 5041 during flooding. I cannot categorically confirm as there are no proper drawings submitted with actual finished level's, but I estimate the new road to be on an embankment and to almost 2 meters higher than the existing lane at Ballycurraghan. This will definitely ensure that the residents of Gheel Autism will be flooded.

A similar situation transpires in relation to the first entrance at Jacksons Bridge. This is not a public right of way but a private one. To this end the Residents of Ballycurraghan have made significant contributions to maintained and upkeep this road for over 20 years and Kildare County Council have acknowledged this and determined that it was a private lane and not their responsibility. It would now appear that our right to use existing lane is being extinguished and new road arrangement is being put in place without any notice or consultation. I refer to the Railway orders Appendix 1 Schedule 7 below *Private Rights of way which may be extinguished*. You will note that the private rights of way of the residents of Ballycurraghan right of way are not acknowledged or included in Railway orders and no consultation has taken place with residence of Ballycurraghan in relation to this work..

Figure 1. Dart + West Proposed CPO in grey at Ballycurraghan with new entrance to Land at Ballycurraghan marked in yellow

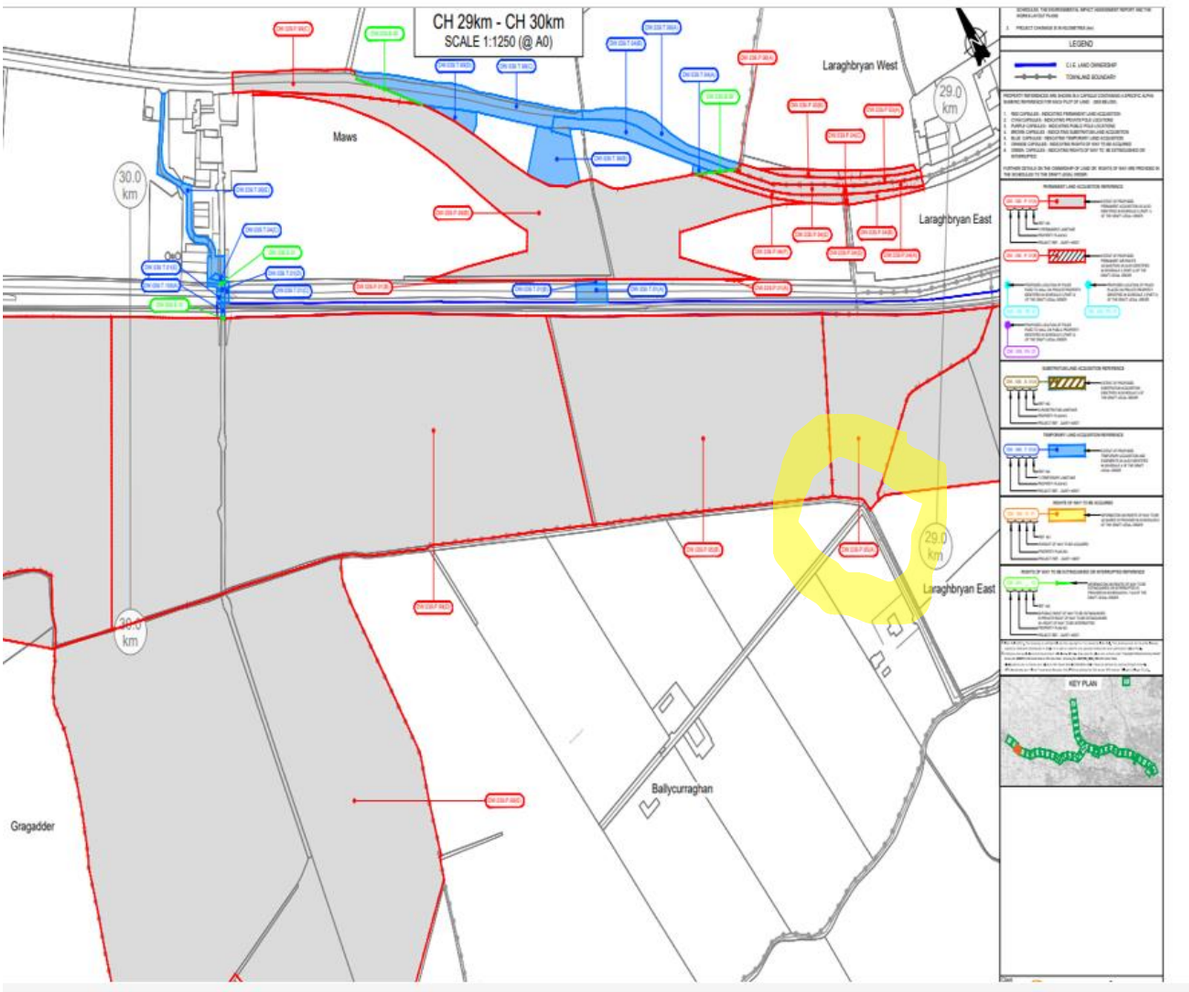


Figure 2 show a picture of the proposed work at the depot with alteration to private laneway at Ballycurraghan circled in yellow. Clearly this work should have been included as part of the Railway order as a private right of way and a private road is being altered. Neither Irish rail or their consultants notified or engage with me in relation to this work

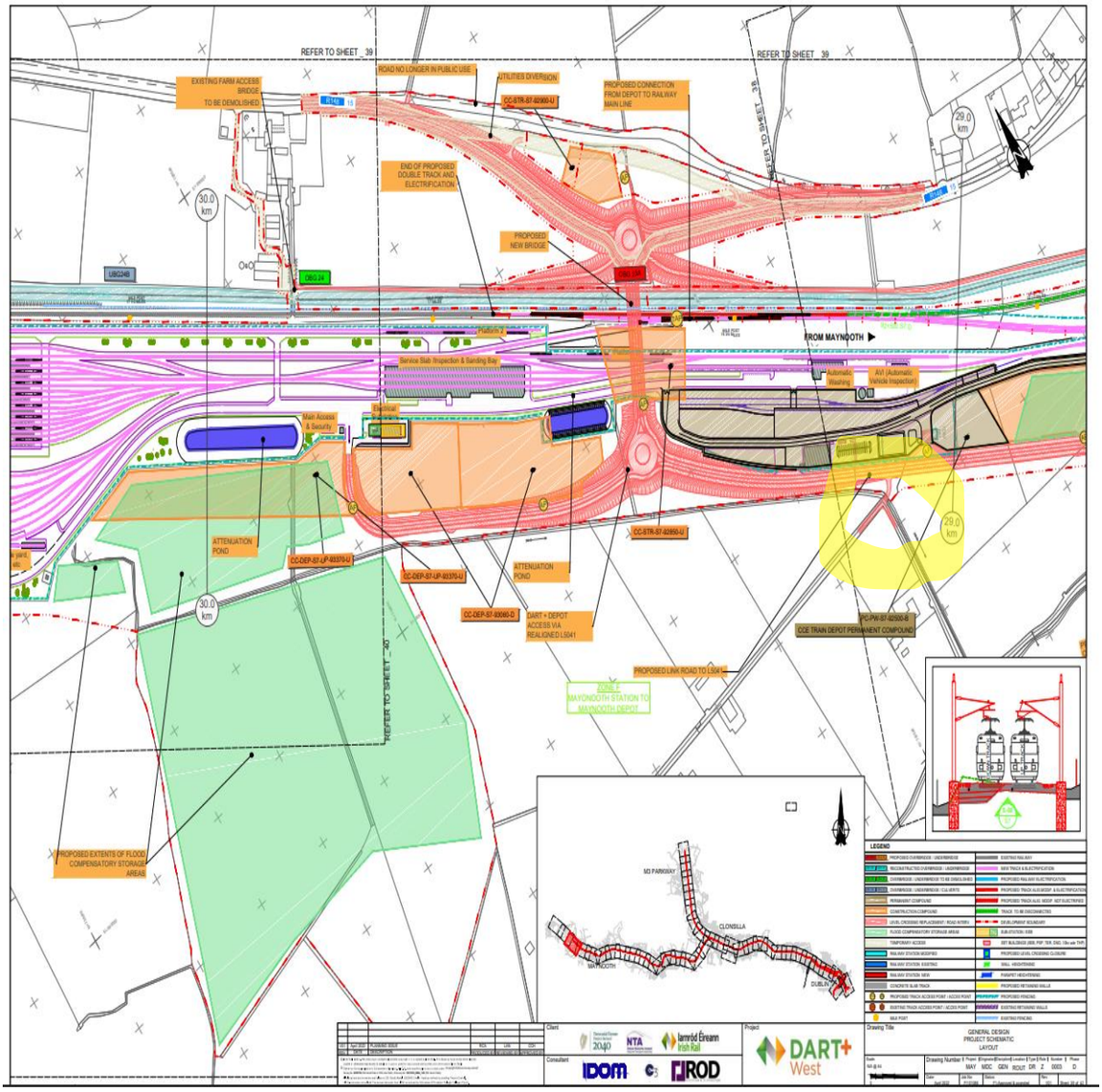
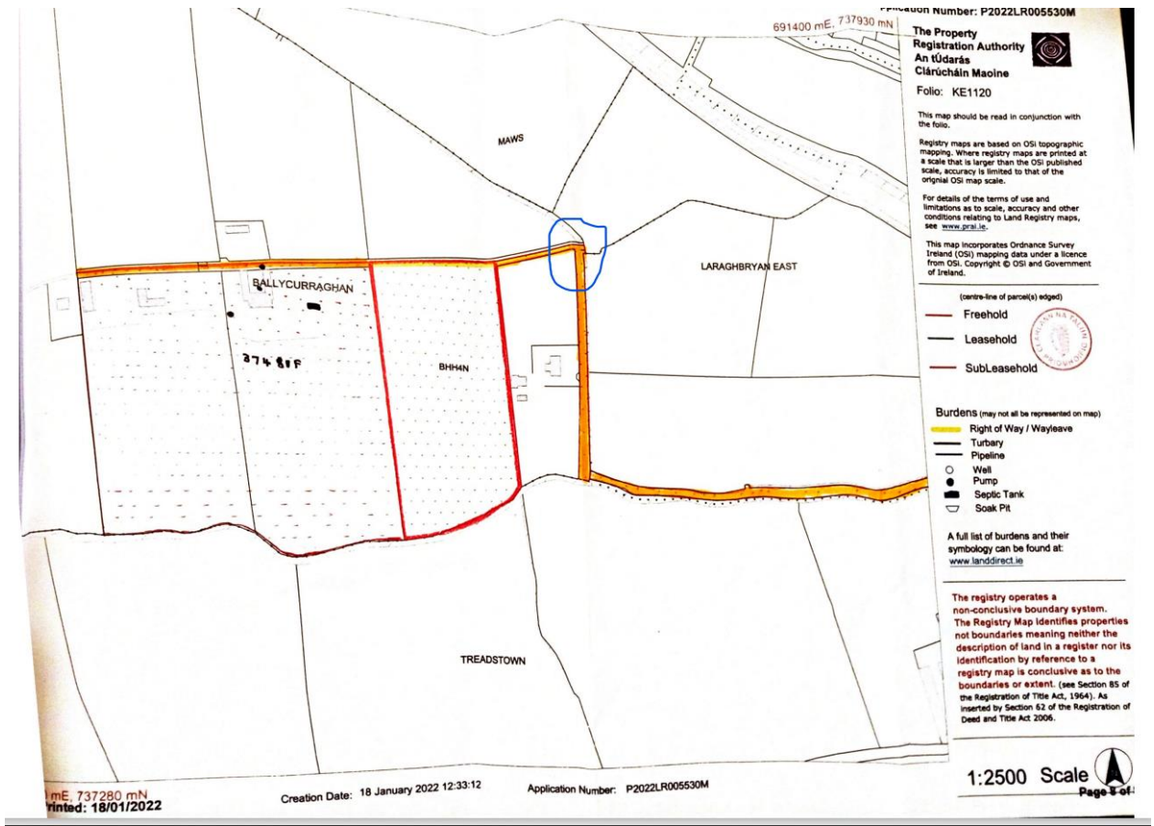


Figure 3 shows Land at Ballycurraghan right of way over roadway to Ballycurraghan with area of proposed alteration and entrance to Laneway marked in blue



9. " The DEPOT"

This proposed Depot is an enormous industrial development that it difficult for people to comprehend. It will be something equivalent to Heuston train Station in Dublin only twice as large being constructed in a quiet secluded countryside area. Directly across the road from the new proposed entrance to Ballycurraghan will be a new link road and a new gated compound and Ballycurraghan privacy and security will be compromised while Dart + West will have 24-hour security and CCTV cameras.

The drawing for depot are not properly complete and doesn't include proper levels . It is not possible to compare the levels of the new works as compared with the existing levels of the surround countryside

Depot - General Layout.

Noise Pollution @ Depot

The Depot is projected to take 30 months to complete, and from what I understand the finding by the Consultants in this planning application is that it will not impact the residents of Ballycurraghan which I find astonishing. The noise from the Demolition and Construction phases will unbearable and have a huge impact on breeding mares and foals .

Private tuition will be impossible especially when schooling nervous children or young horse in Ballycurraghan will be impossible . I also find it difficult to understand how the residents in the Autism will be able to tolerate such ongoing disruption with the continuous din.

There will be ongoing noise with train movements forward from early hours to late at night. Testing and maintenance of trains not to mention the sparking from overhead cables, and compressor.

10. Flooding to Ballycurraghan & Surrounding Areas.

Set out below is an Extract from Hydraulic Modelling Summary.

The Hydraulic Modelling findings indicate *that the areas surrounding OBG23 Jacksons bridge are low lying, and the water flow is significantly constrained by the canal group culvert UDG22 and the removal of the flood plain to the north of Jacksons Bridge . Extreme fluvial events result in considerable flooding in the lands south of the canal and subsequent inundation of the rail line. The models indicate that the large portion of subject areas including lands within the footprint of the proposed rail and embankment and access road are within flood zone A.*

Post development model shows flood pathways are maintained by the revision of flood conveyance culverts while displaced volumes are accommodated in the compensatory storage areas. The development results in a minor increase in flood levels South of the proposed embankment so these are seen as negligible overall.

Depot site - the hydraulic model indicates that out of bank flow paths flow through the depot site in multiple locations. Flooding is generally shallow with localized areas of ponding. The model indicates that the proposed Depot is within flood zone A. The post development model shows flood paths are maintained by realigned channel around the proposed Depot. Displaced volumes are accommodated in the compensatory storage areas the development will result in a minor increase in flood levels to the West of the depot though these are seen as negligible overall.

Although great care and modern widely accepted methods have been used in the preparation and interpretation of the hydraulic models there is inevitably a range of inherent uncertainties assumptions made during the estimation of design flaws and the construction of flood models this inherent uncertainty necessitates a precautionary approach when interpreting the flood extent and flood depth mappings

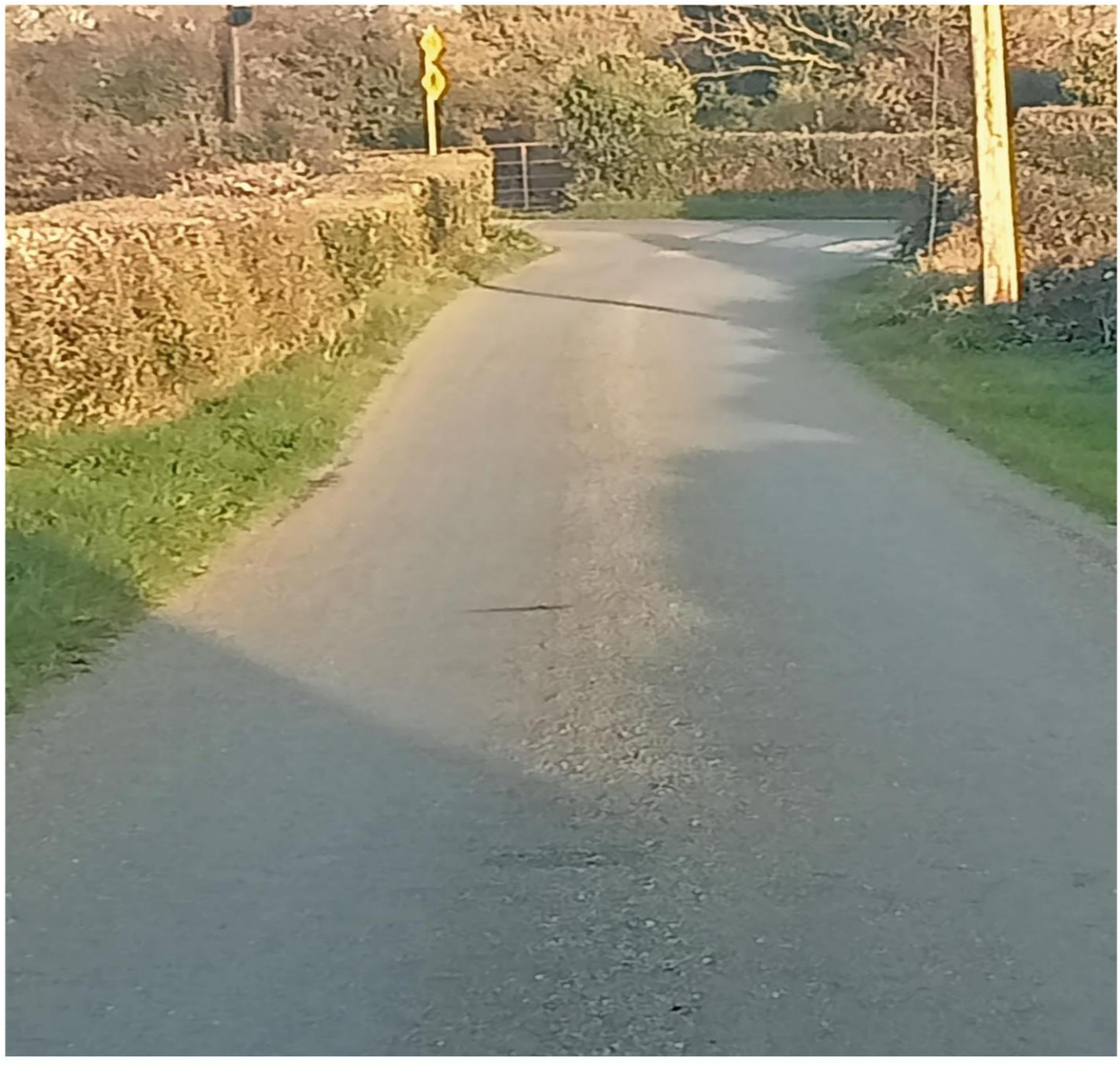
What is essentially being said here by the Dart West consultants is that in this Proposed 200-acre development projection are for only a minor increase in flood levels but overall, they see the impact as negligible. However, the consultants are not prepared to stand over their finding in that if their modelling proves wrong and they recommend a cautionary approach should be adopted when interpreting flood depth mapping.

It is impossible to assess flooding impact in absence of proper drawings with levels. Again, you will note that a provision is being made for compensatory storage ponds to provide additional capacity for flooding at Jacksons Bridge. However, these ponds are located in areas that are subject to severe flooding already, so no additional capacity is essentially being provided here and as such all the modelling is wrong. Indeed, I would argue that less compensatory storage is essentially being provide when you calculated the areas being displace by the proposed embanked link road and proposed embanked rail line

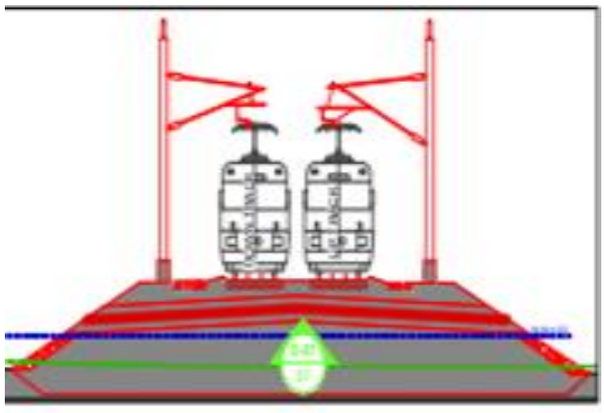
Indeed, if you look carefully at the Dart West Consultants proposal o show the likely scenario in the event of flooding at Jacksons bridge and surround areas in a climate change scenario. This Photo is taken directly from the Dart West Planning application and the projected flooding will be extensive . The Photo also clearly shows that Gheel Autism buildings in Ballycurraghan and its residents will be flooded and there is no provision to defend or protect these vulnerable people in this planning application.

You will note from the photo above which is the Post Development climate change scenario at Jacksons Bridge that a considerable section of the M4 is impassible possibly in the region of 5 km. For clarity I have highlighted the M4 in the bottom to the photo. Why in a spend of over 1 billion are the government not doing anything to prepare for this projection and help the most vulnerable people in our society

Picture of Junction for Ballycurraghan Road and Jacksons Bridge



Levels at Jacksons Bridge and Train Levels Showing train line actual train level 1.4 m above flood plain average or just below level of hedge.



Blue line in picture above represents 60.36 which 1.40 above Ballycurraghan Lane level which is going to visually have a serious effect on the area.

Picture No 3 showing farmgate, field and hedge.

Picture No 4 showing projected train level and f existing flood levels every three years

Picture 5 . Receeding Floodwaters at Jacksons Bridge / Ballycurraghan November 2017

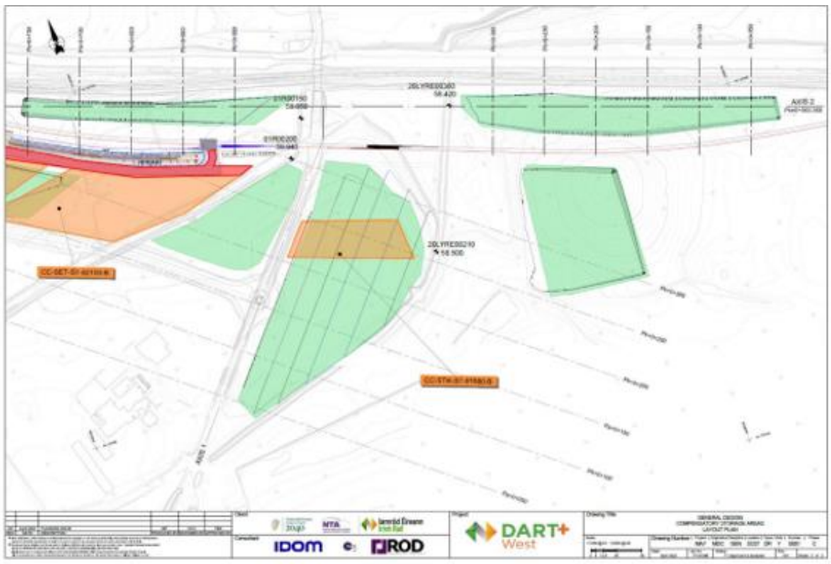
Above please see the area that it is allocated to compensatory flooding capacity. As you can see this area is subjected to severe flooding already. The Water table level is extremely high so any excavation is only going to expose ground water. In my view there will be no additioal compensatory flooding capacity provided.

The flood projections all show Gheel Autism school flooding and no efforts have been included in planning application design to deal with this fact. Indeed, it would appear that new link road is going to compound flooding further in so far as the flood plain on right hand side of Ballycurraghan lane is being considerable reduced by raised embankments to the new link road and the new train link. In my view flood water will be trapped between new link road and Autism School and absolutely no provision is being made to deal with this fact.

Ballycurraghan has experienced flooded approximately every three years since 2000. It is incorrect to say in this planning application that events are a one in one-hundred-year event. Laraghbryan west and Ballycurraghan was flooded to a level of circa 60.50 m in 2000 . Above please see picture of flooding from 2017 which caused considerable upset for the residents of Gheel Autism when they were not able to maintain their routine and travel to Maynooth. Flooding from the year 2000 blocked M4 for a week and there is no plan to increase culvert under canal and railway at Jacksons bridge. The current projection from the DART WEST Engineers are forecasting approximately 5 km of the M4 to flood during certain events and no attempt is being made to correct or prevent this. Are we really prepared to have traffic diverted through Maynooth for a month to bypass a flooded M4 like we had to endure in 2000.

The M4 was built without any compensatory flood relief to help alleviate flooding in the area and a similar situation is occurring here in so far a designed holding ponds are located in areas that are a flood plain already. Below please see compensatory flood ponds . These ponds are located in areas that are subject to severe flooding and will provide no additional capacity in my view

Compensatory ponds for flood at Jacksons Bridge.



On further reading, it would appear that the requirement for this new entrance to Ballycurraghan is because the existing lane way will be impassable during flooding and this additional entrance to the Ballycurraghan laneway is required as it will be the only access available for the residents of Ballycurraghan to access the L 5041 during flooding. It is my understanding that the level of the new link road will be substantially higher than the lane way to Ballycurraghan possibly as much as two meters higher or level 61.00 with the existing laneway at 59.00. I have carefully read all the planning file in relation to this application, and I cannot find finished level of road or railway lines. There is one level on a drawing in relation to the depot which indicated a level of 64.00 which is two meters above the level of my home in Ballycurraghan. The planning applications does not clearly set out finished levels, However the flood relief proposals indicate the new link road higher than the flooding to the floodplain in Larabryan West which is the only information I have to go on.

You will note from the Drawing above which is the Post Development climate change scenario at OGB23 which clearly show the proposed new link road L5041 and proposed new rail above the flood plain. Gheel Autism buildings and its residents are flooded and there is no provision to defend or protect this area in this planning application. The existing road L5041 is flooded at Threadstown and a considerable section of the M4 is impassible in the region of 5 km. You will also note that there is no flooding to the north of Jackson Bridge as the 10-acre flood plain on Maynooth college lands was raised by 3.0 m during construction of M4 without proper permission being sought. In places where this land meets the tow path for the canal and particularly at Jacksons bridge its clearly visible the extent of the land fill with earth piles up against existing trees by as much a 2.5 m which is causing them to struggle and die.

I have looked at the flooding calculations and the calculated Qbar is in accordance with calculations available in OPW Hydrological study (Eastern CFRAM Study, HA10 Hydrology Report, Belfast, April 2016). However, The 1% AEP runoff significantly differs from the OPW hydrology study. The calculations of 1% AEP runoff (QusaEP sEA =26.0 litres/s) proposed by Roughan & O'Donovan underestimate 1% AEP runoff by c100% when compared to the OPW Hydrological study when sized to area of Ballycurraghan development 100 ha (QusAEP-OPW= 52.25 litres/s). The reason for that could be application of different growth factors but this needs to be explained. The OPW downsizing calculation is explained in the text below. The catchment area at Ballycurraghan is 11.6km with corresponding QsAE=9960 litres/s. When proportionally sized to the Ballycurraghan development area of 100 ha it is calculated that 1% AEP runoff is 52.25 litres/s. Due to urbanisation this value is more appropriate.

Furthermore, proposed runoff from Ballycurraghan is storage and infiltration of the entire surface water generated by the proposed development into attenuation basin of 100,000m2 which is 1.5m average depth. This provides attenuation of approximately 150,000 m3. With runoff from the development of 9960 litres per seconds this attenuation would be full within 4.25 hours. For a comparison the 1% AEP storm with duration of 4 hours is equal to 54.2 1/s/m2 (Met Eireann DDF curves for coordinates).

The runoff calculation using rational method from Fluvio R&D study (Flood impact of The Depot suggests runoff from existing and newly paved areas (total 20 ha) is between 47 litres/s for existing condition and 114 litres/s for design development, which gives an increase of 66 litres/s. Preferable runoff from the Depot development for the design of attenuation is 52.25 litres/s. The proposed runoff by 26 litres/s by Roughan & O'Donovan appears to be underestimated. Due to high water levels it is unlikely that any infiltration is possible during flooding and rainfall as the ground water table would be high and soil would be saturated. The bloodlines 0.1% AEP and 1% AEP of amended Roughan & O'Donovan are also not in accordance with the terrain contours produced by Dart West Surveyor .

In conclusion I'm asking An Board Pleanala to invalidate this application from Dart West and to request the applicants Dart West to find an alternative location for this Depot.

- Their application is deficient in several areas and has not followed proper planning procedures in relation to proper notification and consulting with the public or forming baseline for all noise in Ballycurraghan. .
- The Consultants have also predicted serious flooding on the M4 and yet they have not included any solutions to mitigate the impact that this flooding will have on local residents and the public in general. The protection of Gheel Autism from flooding is also completely ignored. The Engineers have qualified their calculation by saying that best practice has been employed but that they cannot be help responsible for any unforeseen events. Its dot in dispute that the area will flood. All that is for debate is the extent of it .
- The drawing furnished are schematic drawings and no proper levels have been included. The final height of the road l5041 and the railway cannot be established properly however the electric supports appear to be 6.5 meters above the existing levels in Ballycurraghan at present.
- The picture showing the final view of the Depot from various locations are wholly incomplete and do not include the link road l5041 or the final proper height for the rail line.
- No proper Archaeological assessment has been completed on almost half the Depot site.
- There is not proper assessment carried in relation to the destruction of habitat and its impact that this huge industrial complex will have on the local wildlife in Ballycurraghan . 150 year oak trees are being felled without any proper attempt to include them as part of the overall development which will help to mitigate the negative impact of the rail line and depot might have in the area..

If no alternative site can be found and this project get permission in its current form then I will have no alternative but to seek compensation for the injurious effect, nuisance, and serious damages that this enormous development will have on my family ,my property, and my business,

Finally I reserve the right to provide expert witnesses in support of my claims it required .

Yours Faithfully

Patrick Comerford

Ballycurraghan House.

Maynooth

Co.Kildare.

<u>In relation to Dart West planning application, you will notice my observation as follows in Table of Contents</u>

Table of Contents

Railway order Book of Reference schedule July 2022

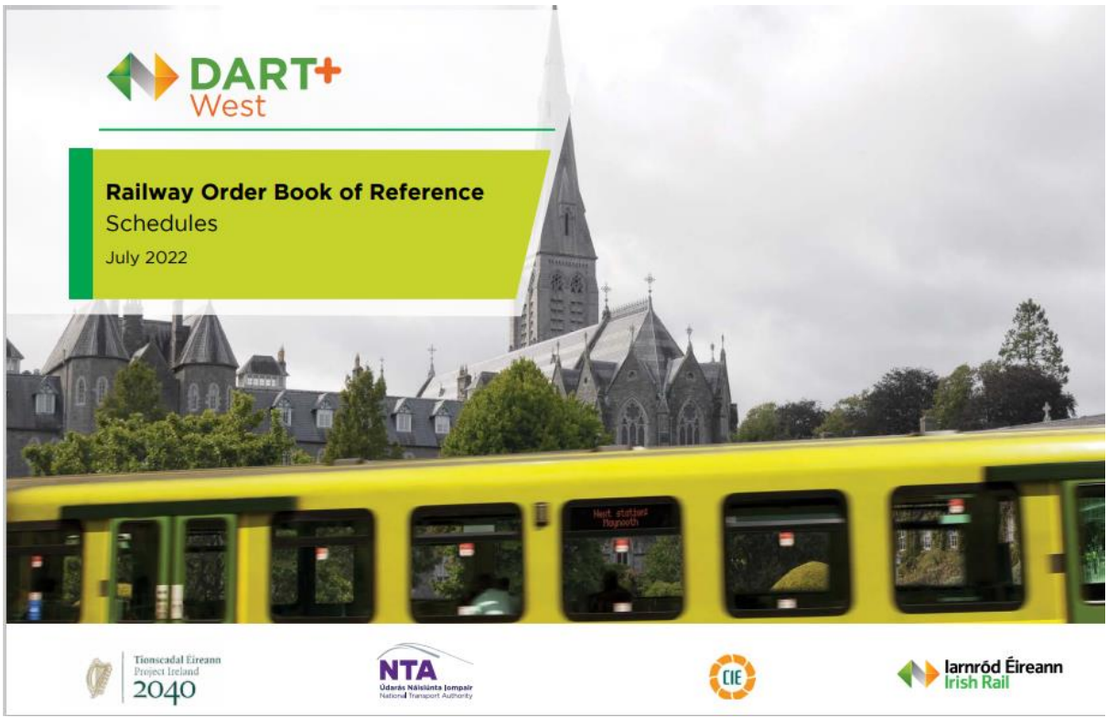
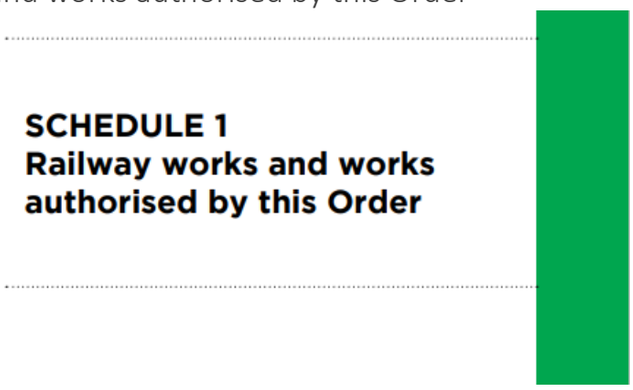


Table of contents


SCHEDULE 1
Railway works and works
authorised by this Order

- Provision of twin track rail line between Maynooth Station and the proposed maintenance depot along with realignment of the rail line to the south of Jackson's Bridge
- Road realignment of the R148 regional road, west of Jackson's Bridge, a bridge over the canal and rail, new junctions and construction of new link roads to the depot and to the L5041 local road, south of Jackson's Bridge
- Provision of a new train maintenance depot between Maynooth and Kilcock
- Provision of excavated flood compensations areas between Maynooth and Kilcock
- Alteration of 220kV ESB line west of Maynooth
- Proposed temporary main storage & distribution centre off the R122 northwest of Dublin Airport

This Schedule 1 is intended to be read in conjunction with the Plan of the Railway Works - the referenced Railway Works Drawings (which includes Property Details Drawings, Alignment Details Drawings and Structural Details Drawings) which set out more particularly the railway works and which form part of this Railway Order.

39. Railway Order – Sheet 39 (29.0 – 30.0km)

Works No.	Description	Drawing No.
39.1	Realignment of R148 west of Jackson's Bridge south of the existing R148 with two roundabouts and a new bridge (OBG23A) over the rail and canal linking to realigned L5041 south of the rail line. Existing R148 to be broken up and removed, where no longer required. Provision of separate road access to the depot and connection to the existing road network (R148 and L5041) and new roundabouts north and south of the bridge.	• WP039
39.2	Demolition of an existing farm access bridge (OBG24) west of the proposed new bridge (OBG23A) including demolition of existing bridge over the canal and bridge over the greenway	• WP039
39.3	A new CCE (Chief Civil Engineering) Compound to the eastern side of the depot. The CCE Compound is to provide storage areas for ballast, and track elements such as sleepers, rails, space to stable maintenance vehicles, and accommodation and facilities for maintenance workers. The CCE Compound building is in the southern part of the complex and adjacent to the road entrance, provided with parking spaces on its western side. Dimensions of this building are 33m x 19m with a height of 5m.	• WP039
39.4	Construction of attenuation pond to manage runoff from depot and associated works.	• WP039
39.5	Provision of flood compensatory storage areas, to manage displaced flood waters and flood risk impacts on the existing drainage regime due to hydraulic constraints.	• WP039
39.6	Provision of a depot located on agricultural lands between Maynooth and Kilcock, parallel to the mainline with two railway connections to the mainline and road access from R148 over a length of approximately 2.5 km and up to 260m in width	• WP039
39.7	Provision of drainage systems two attenuation ponds to cater for treatment and attenuation of runoff from the depot and other proposed infrastructure.	• WP039

Works No.	Description	Drawing No.
39.8	Provision of an access control building close to the depot entrance gate to provide security control for the access/egress to the depot facilities. Building dimensions (W x L x H): 5.0m x 5.0m x 3.0m.	• WP039
39.9	Provision of an electrical Traction Substation adjacent to the access control building. Fencing and provision of pedestrian and road access from the main road. Building dimensions (W x L x H): 10.0m x 30.0m x 5.0m.	• WP039
39.10	Internal access roads within depot	• WP039
39.11	Provision of a service slab enclosed building with open eastern and western facades to allow trains to pass to the facility. The southern margin of the building contains the staff amenities and the technical rooms and equipment. There is staff access to the building by the road and pedestrian paths to the south side of the building. Building dimensions (W x L x H): 23.7m x 184.0m x 9.0m	• WP039
39.12	Provision of an automatic washing plant AWP at the depot entrance, in the main access route for the trains which have passed through the AVI facility. The AWP dimensions are 42m long and 9.5m wide. The AWP has an adjacent control room for the control panel, equipment and tanks. Staff access to the building by the road and pedestrian paths to the facility's south side. The road has sufficient capacity at the eastern part to allow HGVs to manoeuvre when making deliveries within the AWP and the service slab area.	• WP039
39.13	Automatic Vehicle Inspection facility	• WP039
39.14	Prepare the sites and compounds initially by constructing safety fencing or hoarding as required, undertaking site clearance/demolition or diversion/protection works and excavating to formation level for all works.	• WP039
39.15	Establish construction sites and compounds at four locations including temporary fencing/hoarding, site offices, welfare facilities, storage facilities, workshops, construction plant and equipment required to carry out the works.	• WP039
39.16	Construct services and utility diversions and connections as shown indicatively on the drawings.	• WP039

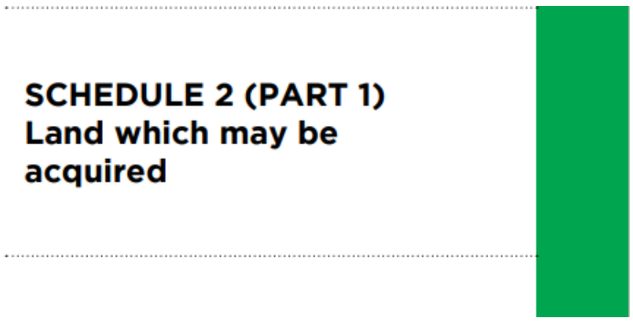
Works No.	Description	Drawing No.
39.17	Provide traffic management measures in the vicinity of the construction sites, including temporary road closures, removal of parking spaces, redirection of traffic in the area and making good any damage to the roadway.	• WP039
39.18	Electrification of the existing rail line along with signalling and telecommunications infrastructure including installation of overhead electrification equipment.	• WP039
39.19	Installation of new fencing along rail boundary and temporary works areas for these works.	• WP039

40. Railway Order - Sheet 40 (30.0 – 31.0km)

Works No.	Description	Drawing No.
40.1	Provision of a main depot building in the southern part of the complex, parallel to the stabling yard, comprised of three main areas. i. The northern side for drivers and cleaners' facilities is proposed to be accessed by an underpass corridor from the main lobby of the building. ii. The central part of the building consists of the maintenance shed with all the maintenance tracks and train access from both sides of the building. iii. The southern part of the building with the workshops, storage, administration, and staff amenities.	• WP040
40.2	Provision of a carpark of 125 vehicles for staff and visitors in the main parking area close to the main building.	• WP040
40.3	Future provision for a second automatic washing facilities building and automatic vehicle inspections facilities building	• WP040
40.4	Provision of a space reserved for a recreational area with trees, landscaping, benches, and walking paths on the western side of the facility.	• WP040
40.5	Provision of unloading bay for train carriages, with an exterior yard of 34.0m x 110.0m for the manoeuvring of delivery vehicles.	• WP040
40.6	Provision of a stabling area parallel to the main building and the test track. The dimensions are 354m in length and 82.5m in width. The length of the stabling area is designed for berthing two **FLU** (**F**ull **L**ength **U**nits or 10-car units) with additional aprons at both sides of concrete slab track to allow the pass of vehicles. The stabling yard is composed of a ballast track and platforms for accessing the trains.	• WP040
40.7	Provision of an emergency access connecting to Branganstown Road/ Connaught Street.	• WP040
40.8	Provision of flood compensatory storage areas, to manage displaced flood waters and flood risk impacts on the existing drainage regime due to hydraulic constraints.	• WP040
40.9	Realignment of existing stream to the south of the depot	• WP040
40.10	Construct services and utility diversions and connections as shown indicatively on the drawings.	• WP040

Works No.	Description	Drawing No.
40.11	Provide traffic management measures in the vicinity of the construction sites, including temporary road closures, removal of parking spaces, redirection of traffic in the area and making good any damage to the roadway.	• WP040
40.12	Installation of new fencing along rail boundary and temporary works areas for these works.	• WP040

Schedule 2 (Part 1) Lands may be Acquired



Calculation of Land CPO at Ballycurraghan excluding MAWS and Gragadder

DART WEST CPO							
Carlos Clarke	20		DW039P99A				
	30260		DW039P99B				
	3618		DW039P99C				
	123861		DW039P99D				
	160046		DW039P99E				
	111693		DW040P99A				
	5933		DW040P99B				
	11278		DW040P99C				
	446709	m2			0.000247	110.3371	acres
Bryan Mcann	192	m2	DW038P94A				
	14399	m2	DW038P94B				
	483	m2	DW038P94C				
	2218	m2	DW038P94D				
	73594	m2	DW038P94E				
	33855	m2	DW038P94F				
	124741	m2			0.000247	30.81103	acres
Michael Noone	54245	m2	DW038P95A				
	19061	m2	DW038P95B				
	73306	m2			0.000247	18.10658	acres
						159.2547	acres

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.99(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 20 **Description** Road Verge **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.99(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.99(B)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 30260 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.99(B)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.99(C)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 3618 **Description** Road **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.99(C)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.99(D)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 123861 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.99(D)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.99(E)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 160046 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.99(E)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.040
Property Number	P.99(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 111693 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.040.P.99(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.040
Property Number	P.99(B)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 5933 **Description** Greenfield **Situation** Branganstown, County Kildare **Townland** Branganstown	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.040.P.99(B)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.040
Property Number	P.99(C)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 11278 **Description** Greenfield **Situation** Gragadder, County Kildare **Townland** Gragadder	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.040.P.99(C)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.95(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 19061 **Description** Greenfield **Situation** Ballycurraghan, County Kildare **Townland** Ballycurraghan	Michael Noone Straffan Road Maynooth County Kildare		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.95(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.039
Property Number	P.95(B)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 54245 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Michael Noone Straffan Road Maynooth County Kildare		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.P.95(B)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.038
Property Number	P.94(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 33855 **Description** Greenfield **Situation** Treadstown, County Kildare **Townland** Treadstown	Bryan McCann Treadstown Manor Maynooth County Kildare		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.038
Property Number	P.94(B)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 1710 **Description** Road **Situation** Treadstown, County Kildare **Townland** Treadstown	Bryan McCann Treadstown Manor Maynooth County Kildare		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(B)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.038
Property Number	P.94(C)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 14399 **Description** Greenfield **Situation** Treadstown, County Kildare **Townland** Treadstown	Bryan McCann Treadstown Manor Maynooth County Kildare		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(C)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.038
Property Number	P.94(D)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 483 **Description** Road **Situation** Laraghbryan East, County Kildare **Townland** Laraghbryan East	Bryan McCann Treadstown Manor Maynooth County Kildare		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(D)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

Property Plan	DW.038
Property Number	P.94(E)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 2218 **Description** Road **Situation** Laraghbryan East, County Kildare **Townland** Laraghbryan East	Bryan McCann Treadstown Manor Maynooth County Kildare		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(E)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 2 (PART 1)
Land which may be acquired

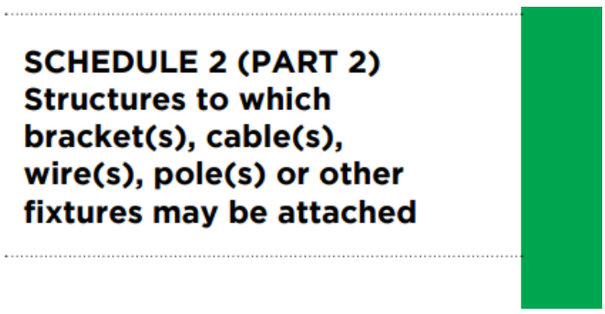
Property Plan	DW.038
Property Number	P.94(F)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 73594 **Description** Greenfield **Situation** Laraghbryan East, County Kildare **Townland** Laraghbryan East	Bryan McCann Treadstown Manor Maynooth County Kildare		

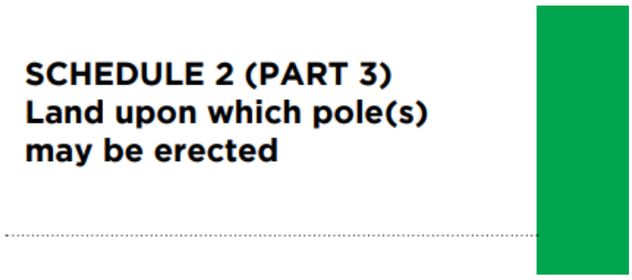
Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.P.94(F)

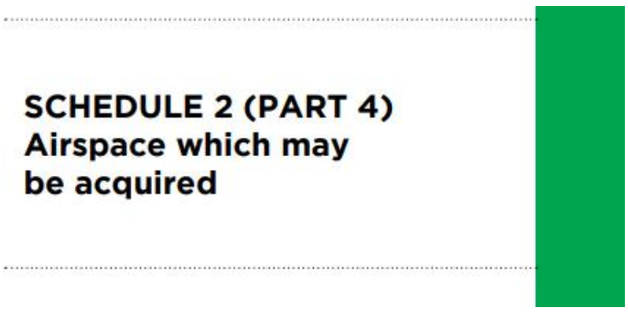
Schedule 2 (Part 2) Structures to Which bracket(s), cable(s), wire(s), pole(s), or other fixtures may be attached



Schedule 2. (Part3) land upon which pole(s) may be erected.

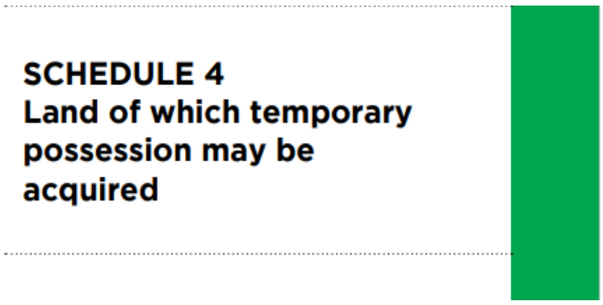


Schedule 2 Part (4) Airspace which may be acquired.



Schedule 3 Lands which substratum acquired

SCHEDULE 3
Land of which substratum acquired


SCHEDULE 4
Land of which temporary possession may be acquired

In relation to this section please note no mentions of area of Ballycurraghan private road where alteration works are planned, and significant access required and no consultation with residents.

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.038
Property Number	T.94(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 192 **Description** Road **Situation** Laraghbryan East, County Kildare **Townland** Laraghbryan East	Bryan McCann Treadstown Manor Maynooth County Kildare		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.T.94(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.01(D)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 139 **Description** Canal Bridge **Situation** Maws, County Kildare **Townland** Maws	Waterways Ireland 2 Sligo Road Enniskillen Co. Fermanagh		Carlos Clarke Limited 98 St. Stephen's Green Dublin

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.01(D)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.04(C)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 71 **Description** Private Access **Situation** Maws, County Kildare **Townland** Maws	Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare		Carlos Clarke Limited 98 St. Stephen's Green Dublin

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.04(C)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.99(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 1895 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.99(A)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.99(B)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 2460 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.99(B)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.99(C)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 4558 **Description** Road **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.99(C)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.99(D)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 598 **Description** Greenfield **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.99(D)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.99(E)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 1432 **Description** Private Access **Situation** Maws, County Kildare **Townland** Maws	Carlos Clarke Limited 98 St. Stephen's Green Dublin		

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.99(E)

DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.100(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 59 **Description** Railway Overbridge Road **Situation** Maws, County Kildare **Townland** Maws	Córas Iompair Éireann Heuston Station Dublin 8		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare Carlos Clarke Limited 98 St. Stephen's Green Dublin

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.100(A)

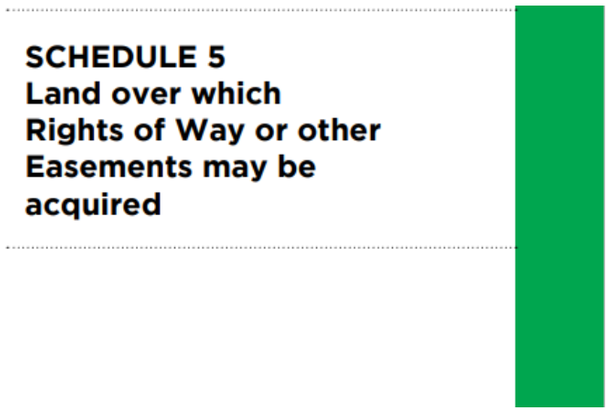
DART + West Project - BOOK OF REFERENCE - SCHEDULE 4
Land of which temporary possesion may be acquired

Property Plan	DW.039
Property Number	T.100(A)

QUANTITY, DESCRIPTION AND SITUATION OF LAND	OWNERS OR REPUTED OWNERS	LESSEES OR REPUTED LESSEES	OCCUPIERS
Quantity (sq.m.) 59 **Description** Railway Overbridge Road **Situation** Maws, County Kildare **Townland** Maws	Córas Iompair Éireann Heuston Station Dublin 8		Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare Carlos Clarke Limited 98 St. Stephen's Green Dublin

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.T.100(A)


SCHEDULE 5
Land over which
Rights of Way or other
Easements may be
acquired

In relation to this section please note no mentions of area of Ballycurraghan private road where alteration works are planned, and significant access required and no consultation with residents.

DART + West Project - BOOK OF REFERENCE - SCHEDULE 5
Land over which Rights of Way or other Easements may be acquired

Property Plan	DW.038
Property Number	R.94

SITUATION, DESCRIPTION OF RIGHTS AND QUANTITY	PERSON(S) ENTITLED TO RIGHT, OWNERS OR REPUTED OWNERS AND OCCUPIERS OR REPUTED OCCUPIERS
Situation Treadstown, County Kildare	Coras Iompair Eireann Heuston Station Dublin 8
Description The right for CIE its successors, assigns, servants, agents, licensees, invitees, tenants and undertenants and others to utilise the right of way for the construction, operation, inspection and maintenance of the railway.	Bryan McCann Treadstown Manor Maynooth County Kildare
Quantity (sq.m.) 1950	

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.038.R.94

Schedule 6 Public rights which may be extinguished.

In relation to this section please note no mentions of area of Ballycurraghan private road where alteration works are planned, and significant access required and no consultation with residents.

DART + West Project - BOOK OF REFERENCE - SCHEDULE 6
Public Rights which may be extinguished

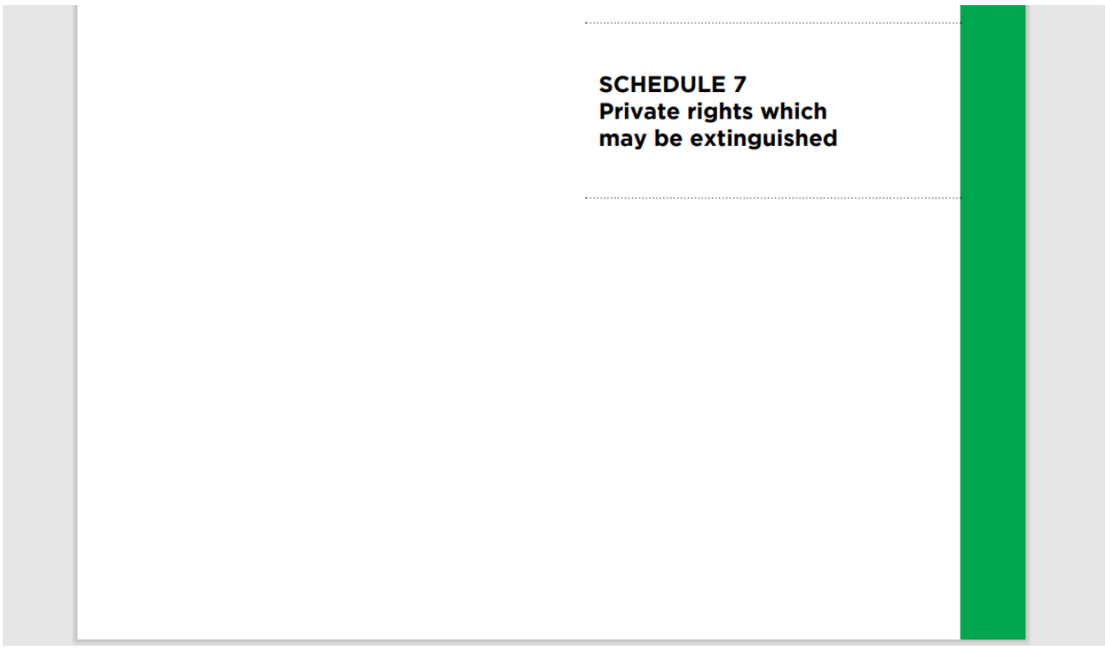
Property Plan	DW.039
Property Number	B.08

SITUATION OF LAND	PERSON(S) ENTITLED OR REPUTED ENTITLED TO EXERCISE THE RIGHT OF WAY
Situation R148, Maws, Kildare	Kildare County Council Áras Chill Dara Devoy Park Naas County Kildare Carlos Clarke Limited 98 St. Stephen's Green Dublin Traversed by Public

Observations

Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.B.08

Schedule 7. Private rights which may be extinguished



In relation to this section please note no mentions of area of Ballycurraghan private road where alteration works are planned, and significant access required and no consultation with residents.

DART + West Project - BOOK OF REFERENCE - SCHEDULE 7
Private Rights which may be extinguished

Property Plan	DW.039
Property Number	E.01

SITUATION OF LAND AND DESCRIPTION	PERSON(S) ENTITLED OR REPUTED ENTITLED TO EXERCISE THE RIGHT OF WAY
Situation South of R148, crossing the Royal Canal and Rail Line, Maws, Kildare **Description** Extinguishment of Private Right of Way over existing road-over-rail bridge	Carlos Clarke Limited 98 St. Stephen's Green Dublin 2 Coras Iompair Eireann Heuston Station Dublin 8

Observations

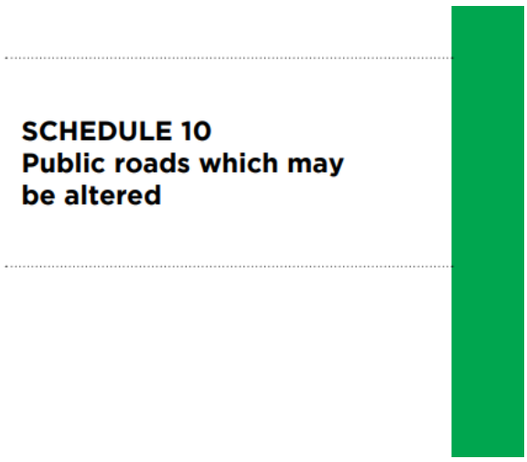
Referenced By: C.I.E.
Date: 20/06/2022 **Ref. No.** DW.039.E.01

Schedule 9 New roads which may be constructed.

SCHEDULE 9
New roads which may be constructed

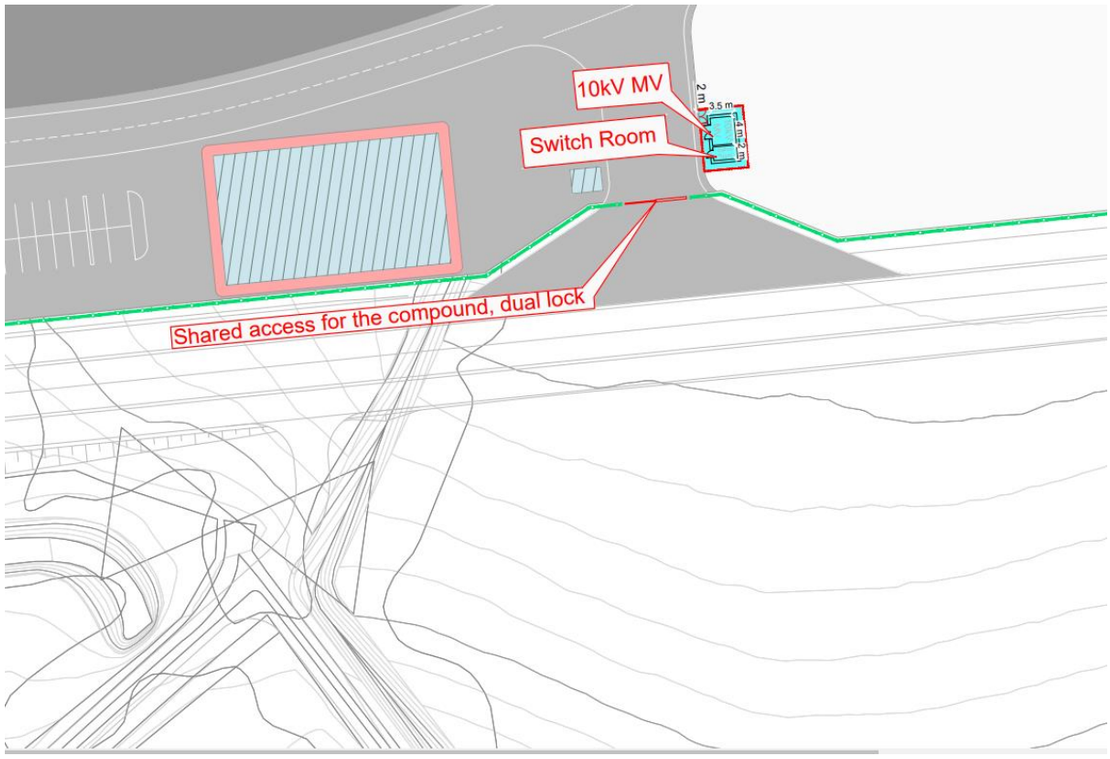
L5041 Jackson's Bridge	• New bridge to be constructed over the exiting rail line, the Royal Canal and proposed depot to connect the realigned L5041 to the realigned R148 and depot access road. • New roundabout to be constructed online of existing L5041. Existing L5041 to be cul-de-sacced north and south of realigned railway track for vehicular traffic while continued access to be maintained for pedestrians and cyclists with a new bridge under the realigned rail line along the existing L5041. • L5041 to be realigned south and to the west of Jackson's Bridge to tie in with the roundabout and new access road to the depot and the new realigned R148.	• WP038 • WP039
R148 west of Jackson's Bridge	• Realignment of R148 west of Jackson's Bridge south of the existing R148 with two roundabouts and a new bridge over the rail and canal linking to realigned L5041 south of the rail line. Existing R148 to be broken up and removed where no longer required.	• WP039

Schedule 10 Public roads which may be altered.



L5041 Jackson's Bridge	• L5041 (north and south of railway) to become cul-de-sac with new roundabout to be constructed south of Jackson's Bridge to tie in with new link road. • L5041 to be realigned to accommodate new overbridge constructed to facilitate new double rail track.	• WP038

Road Name	Description	Works Layout Plan No.
R148 West of Jacksons Bridge	• Existing R148 to be realigned south of existing alignment to tie into new roundabout junction and bridge to connect to the realigned L5041 and access to the proposed depot.	• WP039

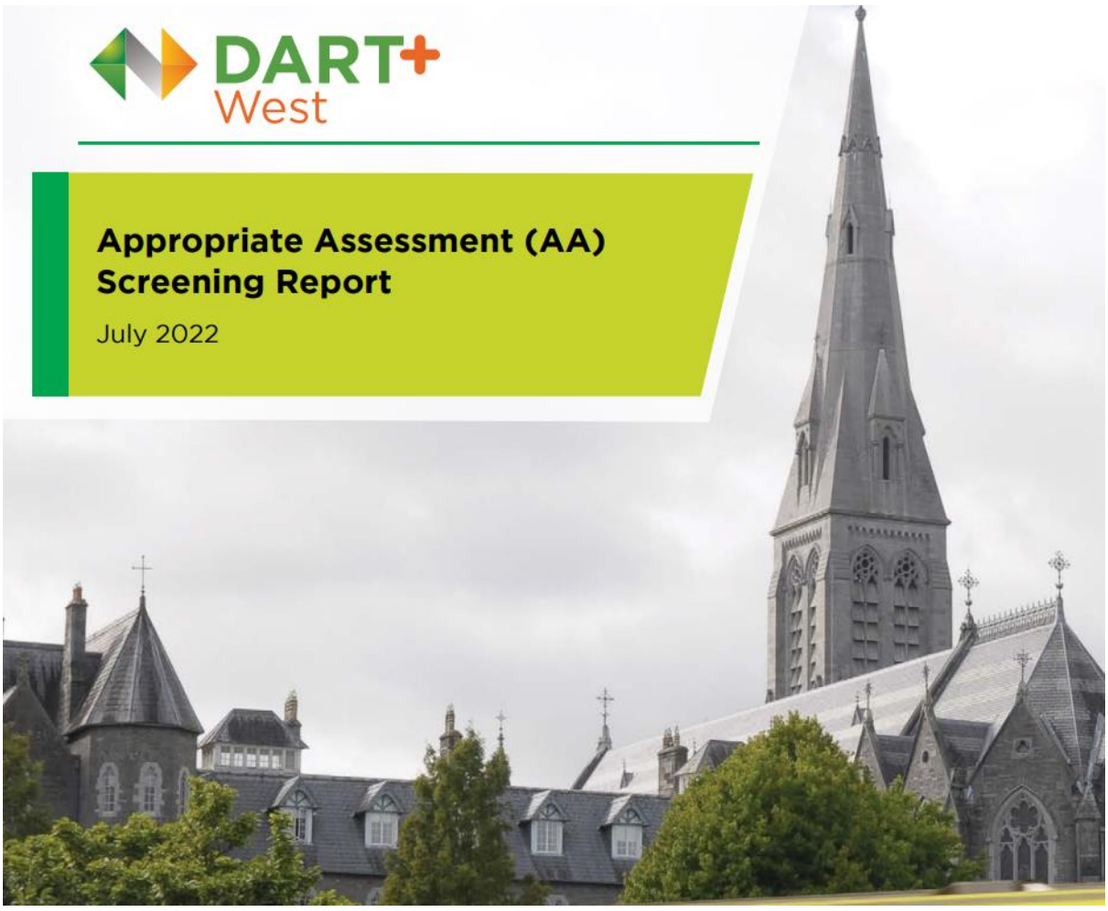


Drawing Title

SET TECHNICAL BUILDINGS
MAYNOOTH DEPOT ENTRANCE+CCE COMPOUND

Scale:	Drawing Number | Project | Originator | Discipline | Location | Type | Role | Number | Phase					
1:500 @ A1	MAY	MDC	SET	DEPM	DR	Z	0004	D
0 2.5 6.25 12.5 25	Date: April 2022	Job No: P/101086	Status: F1-Approved & accepted		Rev: V01	Sheet: 01 of 01	

This drawing shown new compound located directly across from new entrance from L5041 to Ballycurraghan.


DART+
West
Appropriate Assessment (AA)
Screening Report
July 2022

1.2 Competent Experts

This AA Screening Report was prepared by ROD Ecologist Patrick O'Shea. Patrick holds a Bachelor's degree in Botany from Trinity College Dublin and an MSc in Ecological Management and Conservation Biology from Queen's University Belfast. He is a full member of the Chartered Institute of Ecological and Environmental Management (CIEEM) and has 9 years' experience in ecological consultancy.

A hydrogeological assessment was carried out by Alex Jones and used to inform this assessment. Alex Jones is a Chartered Geologist specialising in Hydrogeology. Alex Jones holds an MSc in Environmental Hydrogeology and a BSc (Hons) in Environmental Science. He is employed as a Chartered Senior

[1] Including inter alia S.I. 290 of 2013; SI 499 of 2013; SI 355 of 2015; the Planning, Heritage and Broadcasting (Amendment) Act 2021, Chapter 4; SI 293 of 2021.

Hydrogeologist with JBA and has 13 years' experience in the evaluation of development impacts for developers, regulators, and other public bodies.

3. IDENTIFICATION OF LIKELY SIGNIFICANT EFFECTS

3.1 Establishing the Likely Zone of Impact

Section 3.2.3 of DEHLG (2010) outlines the procedure for selecting the European sites to be considered in AA. It states that European sites potentially affected should be identified and listed, bearing in mind the potential for direct, indirect and cumulative effects. It also states that the specific approach in each case is likely to differ depending on the scale and likely effects of the plan or project. However, it advises that the following sites should generally be included:

- All European sites within or immediately adjacent to the plan or project area.
- All European sites within the likely zone of impact of the plan or project.
- In accordance with the Precautionary Principle, all European sites for which there is doubt as to whether or not they might be significantly affected.

The "likely zone of impact" of a plan or project is the geographic extent over which significant ecological effects are likely to occur. In the case of plans, this zone should extend to a distance of 15 km in all directions from the boundary of the plan area. In the case of projects, however, the guidance recognises that the likely zone of impact must be established on a case-by-case basis, with reference to the following key variables:

- The nature, size and location of the project.
- The sensitivities of the ecological receptors.
- The potential for cumulative effects.

For example, in the case of a project that could affect a watercourse, it may be necessary to include the entire upstream and/or downstream catchment in order to capture all European sites with water-dependent features of interest.

Having regard to the aforementioned key variables, the likely zone of impact of the proposed development was defined as:

- The entire area within 550 m of the proposed development boundary.
- All watercourses within 550 m of the proposed development boundary including a 10 m buffer, downstream as far as and including the Liffey Estuary Lower Transitional Waterbody, the Tolka Estuary Transitional Waterbody and the Broadmeadow Water Transitional Waterbody.

The buffer was defined as 550 m around the proposed development which is the precautionary flushing distance for waterbirds informed by the sensitivity of different species, the potential for visual and noise disturbance, and the ambient disturbance levels (Cutts et al., 2009; Cutts et al., 2013). The use of amenity grassland by Light-bellied Brent Geese has been considered, and the 550m buffer includes all areas of amenity grassland in the vicinity of the proposed development. Any potential Light-Bellied Brent Goose feeding areas outside this buffer are screened by buildings, walls and natural boundaries which will act as effective barriers to noise and visual disturbance.

The watercourses within 550 m of the proposed development boundary, and downstream as far as their transitional waterbodies, is the extent to which hydrological impacts could potentially occur downstream of the proposed development in the River Liffey, River Tolka and Dublin Bay[6].

In relation to impacts on groundwater and groundwater dependent species and habitats, *Guidelines on Procedures for Assessment and Treatment of Geology and Hydrogeology for National Road Schemes* (TII, 2008) recommends that for National roads, the study area should be 250 m either side of the centreline and notes that professional judgement must be applied in assessing whether the study area needs to be extended. The Hydrogeological Assessment undertaken to inform the AA Screening Report concluded that

[6] As defined in Directive 2000/60/EC of 23 October 2000 establishing a framework for Community action in the field of water policy (the Water Framework Directive), transitional waters are as bodies of surface water in the vicinity of river mouths which are partly saline in character as a result of their proximity to coastal waters but which are substantially influenced by freshwater flows.

the proposed development would result in imperceptible to slight impacts on the groundwater system immediately surrounding the depot. These effects will be attenuated with distance from the depot. In effect, any effects on groundwater flows further away will be less than slight to imperceptible. All areas where track lowering is proposed, for the purposes of assessing effects on the Rye Water Valley/ Carton SAC, concluded that the impact of the track lowering at the location of the works is imperceptible. Therefore, the buffer of 550 m exceeds the limit for potential effects on ground water flows.

A geographical representation of the ZoI was generated in ArcGIS 10.4 using the proposed development boundary, publicly available basemaps (OpenStreetMap) and Environmental Protection Agency (EPA) shapefiles. This was used in combination with NPWS shapefiles to identify the boundaries of European sites.

Six European sites occur within the likely zone of impact of the proposed development. These sites are the Rye Water/ Carton SAC, the South Dublin Bay & River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC, the Malahide Estuary SAC, and the Malahide Estuary SPA. The South Dublin Bay SAC occurs adjacent to the likely zone of impact. The South Dublin Bay SAC is not considered to be connected to the proposed development as the Great South Wall forms an effective barrier against any potential effects on the integrity of this site.

Table 3-1 below lists all of the European sites which are connected to the proposed development and describes how those sites are connected to the proposed development. There are no connections between the proposed development and any European sites other than those listed in Table 3-1. Detailed descriptions of those sites are given in Section 3.2. The European sites within the likely zone of impact are illustrated in Appendix A.

Table 3-1 European sites located within and adjacent to the likely zone of impact.

European site [site code]	Are there potential pathways for impacts from the proposed development to this site? Explain.
Rye Water Valley/Carton SAC [001398]	**Yes.** At its closest point, the existing railway line is within this European Site for a distance of 400 m, at the Rye Water crossing (Louisa Bridge), east of Leixlip. The railway line is immediately adjacent to this European site for a further 230 m west of Louisa Bridge train station. The railway line also passes close to this European site at the Carton Estate over a length of 200 m. However, at this location, it is separated by the Royal Canal, vegetation and the R148. Two new watercourse crossings, a stream diversion and the construction of a flood compensatory storage area are proposed 3.5 km upstream of this site.
South Dublin Bay and River Tolka Estuary SPA [004024]	**Yes.** The shortest absolute distances from the proposed development to this site are 750 m east to the Tolka Estuary and 2.2 km south-east to Sandymount Strand. The shortest distance from the proposed development to the site via a hydrological connection is 3.7 km east (through the Royal Canal and the River Liffey) to Dublin Port which is within the likely zone of impact. There is a potential pathway through the existing surface water drainage network between the proposed development and this site through the River Tolka, which has a hydrological distance of 1.1 km. Therefore, the effective distance to the site is 1.1 km.
North Bull Island SPA [004006]	**Yes.** The shortest absolute distance from the proposed development to this site is 3.5 km north-east. The shortest distance from the proposed development to the site via a hydrological connection is 6.2 km east (through the Royal Canal and the River Liffey and across the River Tolka Estuary) to the Bull Wall, which is within the likely zone of impact. There is a potential pathway through the existing surface water drainage network between the proposed development and this site through the River Tolka and River Tolka Estuary, which has a hydrological distance of 4.3 km. Therefore, the effective distance to the site is 4.3 km.
North Dublin Bay SAC [000206]	**Yes.** The shortest absolute distance from the proposed development to this site is 3.5 km north-east. This distance is over land. The shortest distance from the proposed development to the site via a hydrological connection is 6.2 km north-east (down the Royal Canal and the River Liffey and across the River Tolka Estuary), which is within the likely zone of impact. There is a potential pathway through the existing surface water drainage network between the proposed development and this site through the River Tolka and River Tolka Estuary, which has a hydrological distance of 4.3 km. Therefore, the effective distance to the site is 4.3 km.
Malahide Estuary SAC [000205]	**Yes.** The shortest absolute distance from the proposed development to this site is 7 km east. This distance is over land. The shortest distance from the proposed development to the site via a hydrological connection is approximately 10.5 km east (down the Rowelstown Stream and Broadmeadow River), which is within the likely zone of impact. Therefore, the effective distance to the site is 10.5 km.

European site [site code]	Are there potential pathways for impacts from the proposed development to this site? Explain.
Malahide Estuary SPA [004025]	**Yes.** The shortest absolute distance from the proposed development to this site is 7 km east. This distance is over land. The shortest distance from the proposed development to the site via a hydrological connection is approximately 10.5 km east (down the Rowelstown Stream and Broadmeadow River), which is within the likely zone of impact. Therefore, the effective distance to the site is 10.5 km.
South Dublin Bay SAC [000210]	**No.** This European site is located adjacent to the likely zone of impact, on the opposite side of the Great South Wall. The shortest absolute distance from the proposed development to this site is 2.3km south-east. This distance is over land. The shortest distance from the proposed development to the site via a hydrological connection is 7.2 km south-east, down the Royal Canal and the River Liffey and across the open water of Dublin Bay, beyond the Great South Wall, to an area which is outside the likely zone of impact. Therefore, the effective distance to this European site is 7.2 km. The Great South Wall forms a barrier between the likely zone of impact and the SAC. The Qualifying Interests of the SAC are all habitats, and therefore there are no pathways for effects exist between the proposed development and this European site.

Table 3-4 Evaluation of the likely effects of the proposed development in view of the Conservation Objectives of the North Bull Island SPA [004006]

Qualifying Interest	Conservation Objective as per NPWS (2015c)	Does the proposed development provide for any potential delay or interruption in the achievement of this Conservation Objective, as defined by its Attributes and Targets?	Adverse Effect
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	*"To maintain the favourable conservation condition of Light-bellied Brent Goose in North Bull Island SPA"*	Light-bellied Brent Geese feed on grasslands in Dublin City when their main food source in Dublin Bay, eelgrass, becomes exhausted. Areas close to the proposed development which have been identified as Brent Geese feeding sites include Ashington Park, Marin Savage Park and St. Vincent's Primary School. Light-bellied Brent Geese are vulnerable to collision with OHLE. Therefore, likely significant effects cannot be excluded.	Yes
Shelduck (*Tadorna tadorna*) [A048]	*"To maintain the favourable conservation condition of Shelduck in North Bull Island SPA"*	The closest suitable habitat for these species is 750 m from the proposed development in the River Tolka Estuary. The hydrological distance between the proposed development and the Tolka Estuary is 1.1 km, through the existing surface water drainage system and the River Tolka. The location, nature and scale of the proposed development are such that any water quality impacts will be very localized and will dissipate in a very short time, before reaching the SPA. Therefore, the proposed development does not have the potential to significantly affect these Qualifying Interests, in view of their Conservation Objectives.	No
Teal (*Anas crecca*) [A052]	*"To maintain the favourable conservation condition of Teal in North Bull Island SPA"*		No
Pintail (*Anas acuta*) [A054]	*"To maintain the favourable conservation condition of Pintail in North Bull Island SPA"*		No
Shoveler (*Anas clypeata*) [A056]	*"To maintain the favourable conservation condition of Shoveler in North Bull Island SPA"*		No
Oystercatcher (*Haematopus ostralegus*) [A130]	*"To maintain the favourable conservation condition of Oystercatcher in North Bull Island SPA"*		No
Golden Plover (*Pluvialis apricaria*) [A140]	*"To maintain the favourable conservation condition of Grey Plover in North Bull Island SPA"*		No
Grey Plover (*Pluvialis squatarola*) [A141]	*"To maintain the favourable conservation condition of Grey Plover in North Bull Island SPA"*		No
Knot (*Calidris canutus*) [A143]	*"To maintain the favourable conservation condition of Knot in North Bull Island SPA"*		No
Sanderling (*Calidris alba*) [A144]	*"To maintain the favourable conservation condition of Sanderling in North Bull Island SPA"*		No
Dunlin (*Calidris alpina alpina*) [A149]	*"To maintain the favourable conservation condition of Dunlin in North Bull Island SPA"*		No
Black-tailed Godwit (*Limosa limosa*) [A156]	*"To maintain the favourable conservation condition of Black-tailed Godwit in North Bull Island SPA"*		No

Summary Of Effects Identified

DART+ West
RODIDOM 3 Projects

3.4 Summary of Effects Identified

In Section 3.1, it was established that six European sites, namely the Rye Water Valley/Carton SAC, the South Dublin Bay and the River Tolka Estuary SPA, the North Bull Island SPA, the North Dublin Bay SAC, the Malahide Estuary SAC and the Malahide Estuary SPA occur within the likely zone of impact. Table 3-2, Table 3-3 and Table 3-4 above established that, in the absence of appropriate mitigation, the proposed development is likely to have significant effects on three of the Qualifying Interests of those sites, in view of their Conservation Objectives. A summary of the Qualifying Interests likely to be affected in each site is given in Table 3-8 below.

Table 3-8 Summary of the European sites likely to be affected by the proposed development and the Qualifying Interests likely to be affected in each site.

European site	Qualifying Interest
Rye Water Valley/Carton SAC	Petrifying Springs Narrow-mouthed Whorl Snail (*Vertigo angustior*) Desmoulin's Whorl Snail (*Vertigo moulinsiana*)
South Dublin Bay and River Tolka Estuary SPA	Light-bellied Brent Goose (*Branta bernicla hrota*)
North Bull Island SPA	Light-bellied Brent Goose (*Branta bernicla hrota*)

In- Combination Effects

4. IN-COMBINATION EFFECTS

Article 6(3) of the Habitats Directive requires that AA be carried out in respect of any plan or project which is likely to have a significant effect on one or more European sites, "either individually or in combination with other plans or projects". Therefore, regardless of whether or not the likely effects of a plan or project are significant when considered in isolation, the potential for the plan or project to significantly affect European sites in combination with other past, present or foreseeable future plans or projects must also be assessed.

In the case of DART+ West, this AA Screening Report has found that the proposed development, individually, is likely to have significant effects on three European sites. Therefore, the assessment of the proposed development must proceed to Stage 2 (AA). The assessment of likely significant effects on those European sites arising from the proposed development, in combination with other plans or projects, should be undertaken at that stage.

Conclusions

5. CONCLUSION

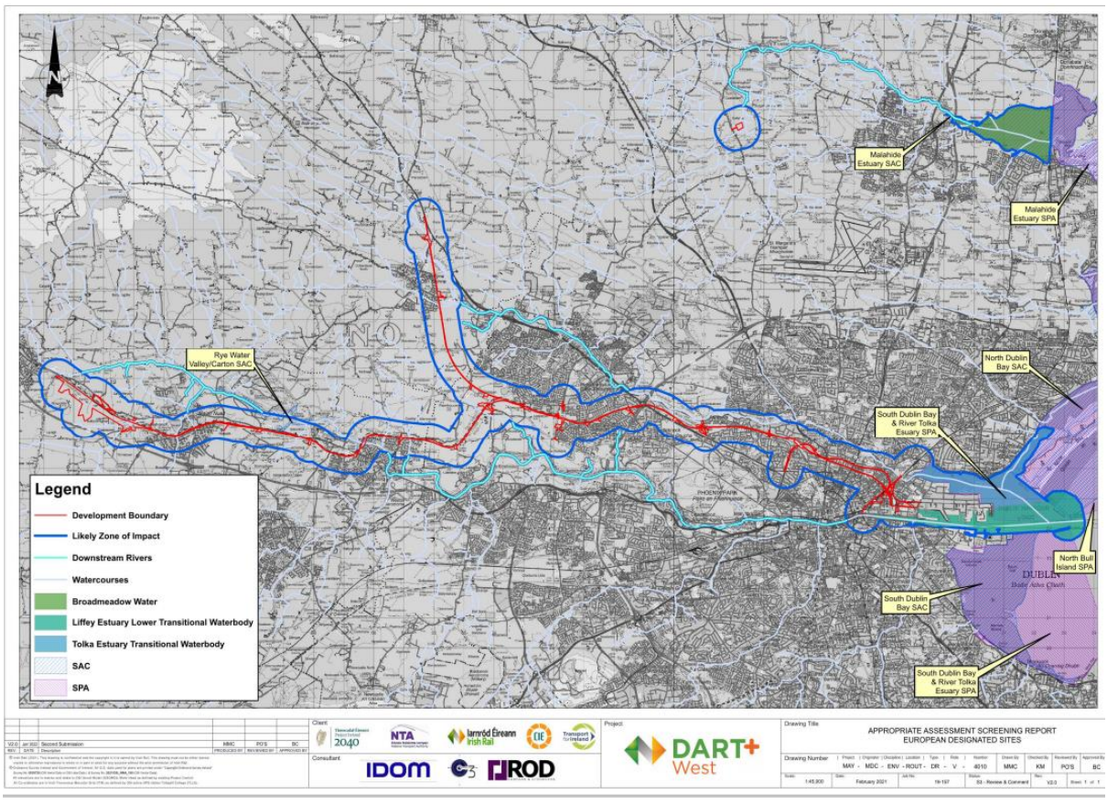
In accordance with Article 6(3) of the Habitats Directive, Part 5 of the Birds and Natural Habitats Regulations, Part XAB of the Planning and Development Acts, the relevant case law, established best practice and the Precautionary Principle, this AA Screening Report has considered the proposed development and its potential to significantly affect European sites. This report has concluded, on the basis of objective information, that the proposed development, either individually or in combination with other plans or projects, is likely to give rise to impacts which would constitute significant effects on three European sites, namely the Rye Water Valley/Carton SAC, the South Dublin Bay and River Tolka Estuary SPA and the North Bull Island SPA, in view of their Conservation Objectives.

In light of this conclusion, it is the considered opinion of ROD, as the author of this AA Screening Report, that the Applicant , as the Competent Authority in this case, in completing its AA Screening in respect of the DART+ West, should find that the proposed development, either individually or in combination with other plans or projects, is likely to have a significant effect on three European sites, namely the Rye Water Valley/Carton SAC, the South Dublin Bay and River Tolka Estuary SPA and the North Bull Island SPA, in view of their Conservation Objectives. Therefore, the Applicant should determine that AA is required in respect of the proposed development.

As the proposed development is a development by or on behalf of a public authority and requiring AA, Section 177AE of the Planning and Development Act will apply. This means that the role of competent authority will be assumed by An Bord Pleanála ("the Board"). The Board's AA must contain complete, precise and definitive findings and conclusions in relation to the implications of the proposed development for the integrity of the Rye Water Valley/Carton SAC, the South Dublin Bay and River Tolka Estuary SPA and the North Bull Island SPA. A Natura Impact Statement (NIS) should be prepared to provide the Board with the scientific information upon which it will base its findings and conclusions. The NIS should take the form of a comprehensive examination, analysis and evaluation, including recommendations, in respect of the implications of the proposed development, individually and in combination with other plans and projects, for the integrity of the European sites concerned.

The Dart West consultants have concluded as part of this submission that their planning application will have no adverse effect on habitat for Wildlife in Ballycurraghan are surrounding areas. This is completely contradicted by evidence on the ground

Appendix A
Likely Zone of Impact



Construction compounds and haulage routes

Mi

5.9.5.3 Construction compounds and haulage routes

The construction compound planned for the track doubling is the Maynooth permanent way compound (CC-PW-S7-92340-B), which is located close to the track and west to the UBG22B. Access into Maynooth permanent way compound will be from R148 road off of the M4 motorway.

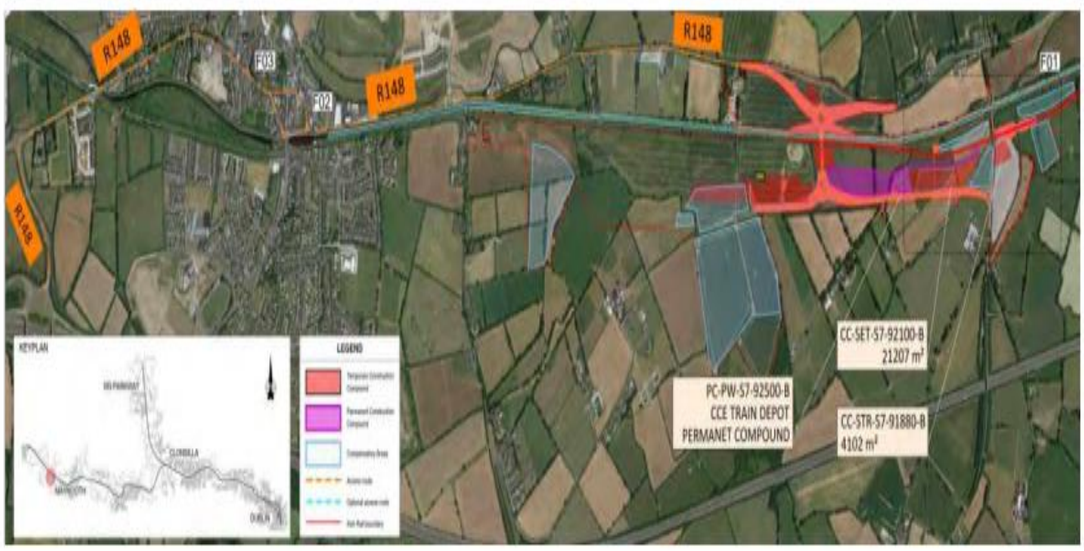


Figure 5-356 Millfarm compounds and haulage route

Figure 5-356 Millfarm storage and compounds will be accessed through Kilcock bringing all addition traffic and congestion associated with this to Kilcock. If this project proceeds there is an argument to provide additional access to in both directions M4 from L5041

Millfarm Permanent way compound & New Bridges UBG222A & UGB22B

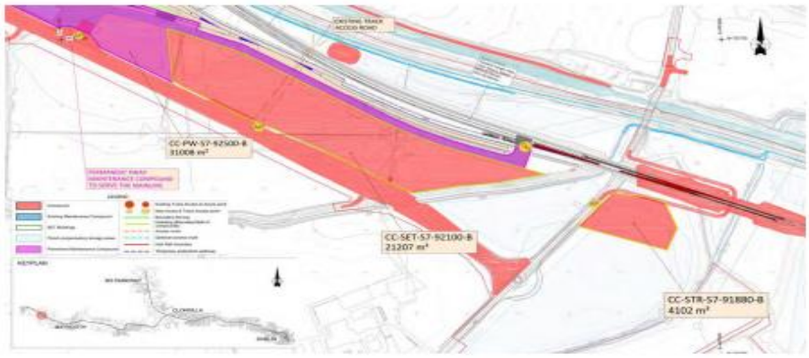


Figure 5-357 Millfarm permanent way compound

5.9.6 New underbridges UBG22A & UBG22B

5.9.6.1 Overview of works required

Before the connection with the depot the alignment crosses the Lyreen River where two structures are required to be construction (UBG22B and UBG22A) as shown below.

- UBG22A: New underbridge crossing over the Lyreen River.
- UBG22B: New underbridge crossing over the Reach 1 Stream.

Figure 5-358 New structures UBG22B and UBG22A

For UBG22A, the structural solution for this underbridge is an in-situ reinforced concrete frame section, orthogonal to the railway line and will grant the support of the double-track railway line that runs over it. The internal free dimensions of the underbridge are 12.00 x 4.75 m and with another two spans, one on each side, which brings a total length of 32.00 m. At both ends of the underbridge there are wingwalls to contain the earthwork of the railway line. The chainage position and dimensions of the culvert are detailed in the table below.

UBG 22 A & B proposals and plans

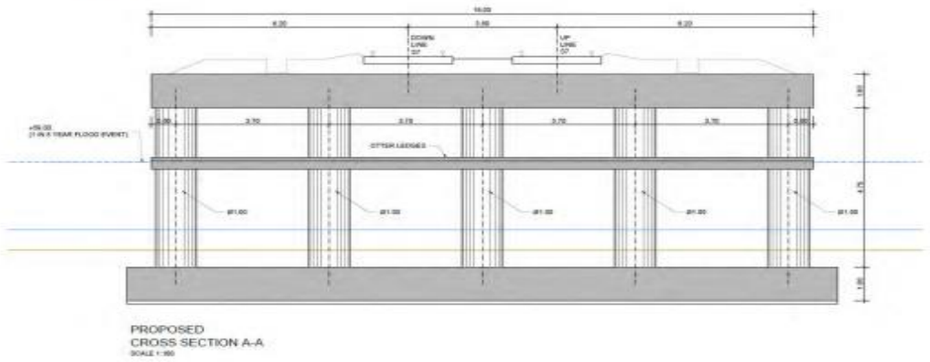


Figure 5-361 Section A-A - proposed pier design

For UBG22B, the structural solution for this underbridge is an in-situ reinforced concrete frame section, orthogonal to the railway line and it will support the double-track railway line that runs over it. The internal free dimensions of the culvert are 7.00 m x 4.40 m and with a length of 19.50 m. At both ends of the culvert there are wingwalls to contain the earthwork of the railway line. The chainage position and dimensions of the culvert are detailed in the table below.

Table 5-19 Culvert Specifications

Structure	Chainage	Description	Width (m)	High (m)	Thickness (m)
UBG22B	91+937	Water culvert, railway underbridge	7.00	4.40	Top slab = 0.60 Vertical wall = 0.50

The culvert is a reinforced concrete frame section with a constant thickness for the top slab, bottom slab and walls.

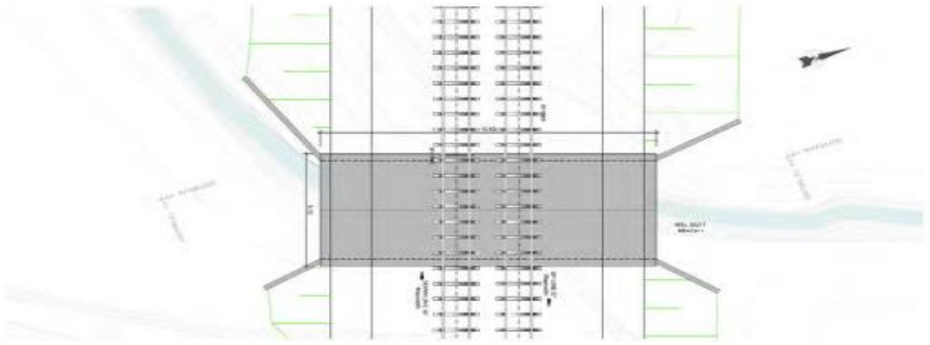


Figure 5-362 Location and plan view of UBG22B

Table 5-18 Culvert Specifications

Structure	Chainage	Description	Width (m)	High (m)	Thickness (m)
UBG22A	91+795	Water culvert, railway underbridge	9.50+12+9.50	4.75	Top slab = 1.00 Vertical walls = 1.00 Middle piers = d 1.00

The underbridge consists of a reinforced concrete frame section with a constant thickness for the top slab, bottom slab, middle piers, and solid walls on both ends.

One of the spans designed for the UBG-22A structure will allow pedestrians and cyclists to pass through. The existing ground level has been maintained to ensure sufficient conveyance through the structure.

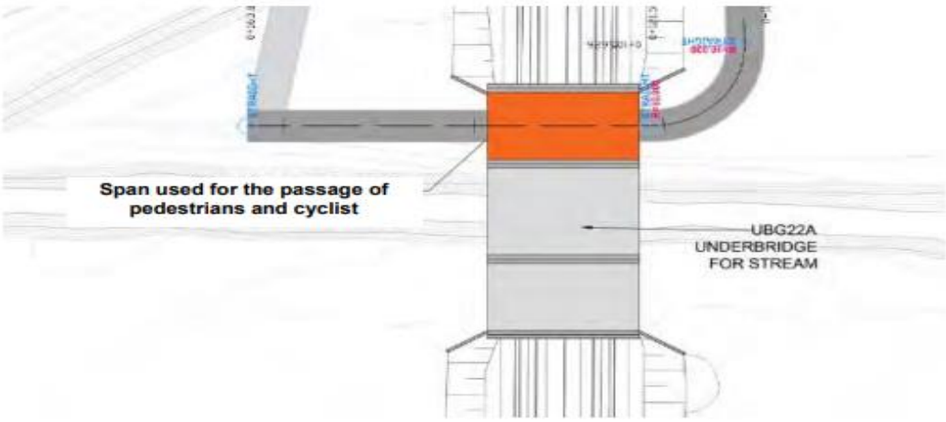


Figure 5-359 Location and plan view of UBG22A

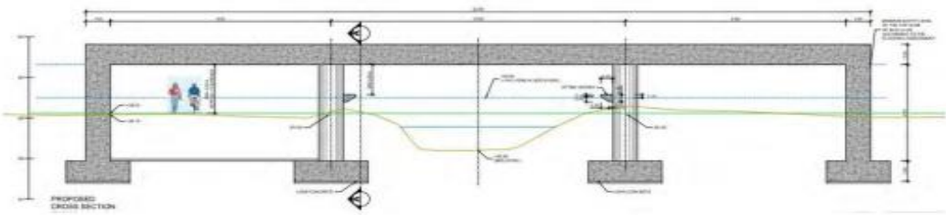


Figure 5-360 Cross section of UBG22A

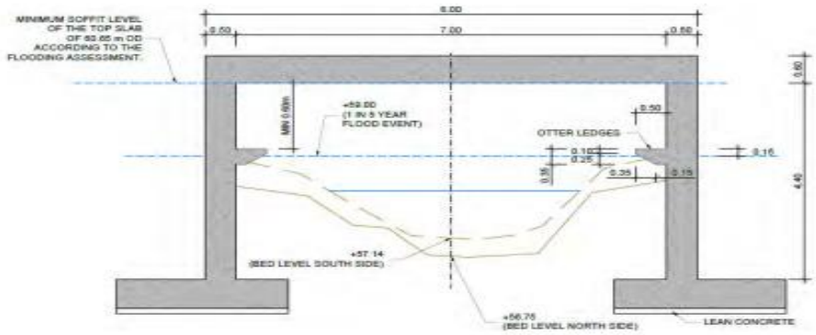


Figure 5-363 Cross section of UBG22B

5.9.6.2 Construction methodology

The construction sequence of the culvert and underbridge structures is proposed as follows:

- Phase 1: Site preparation (utility diversions, place temporary sheet piles to mitigate the impact on the existing stream, etc.).
- Phase 2: Excavation and construction of the foundations, including temporary dewatering during construction where there are potential water ingress issues.
- Phase 3: Construction of the vertical walls.
- Phase 4: Construction of the top slab.
- Phase 5: Excavation and construction of the wingwalls (foundation and vertical wall), including placement of waterproofing elements and drainage system.
- Phase 6: Embankment work (filling and compacting).
- Phase 7: Finishing.

No significant traffic restrictions are anticipated to be required during these works.

As shown in the following design chart, the total construction duration of UBG22A is estimated around 42 weeks. No railway and road closures are required. All the works will be performed during daytime project construction working hours as set out in Section 5.2.1.

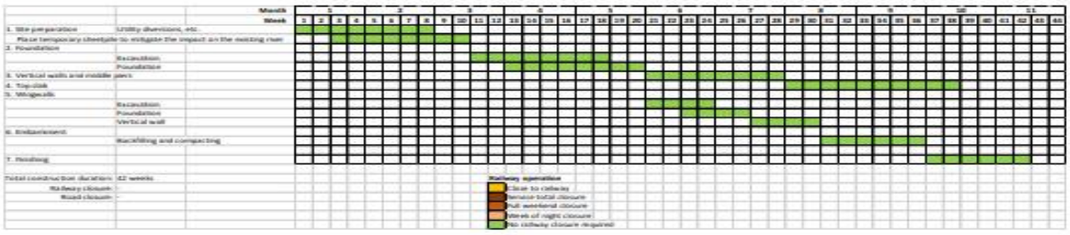


Figure 5-364 Construction duration of UBG22A

The total construction duration of UBG22B is estimated around 36 weeks, see below design chart. No railway and road closures are required. All the works will be performed during daytime project construction working hours as set out in Section 5.2.1.

UBG22A projected to take 36 weeks with no road closures required.

5.9.7 Overbridge OBG23A

5.9.7.1 *Overview of works required*

The construction of a new bridge is required (OBG23A) between the depot and Maynooth, providing access from R148 to the depot.

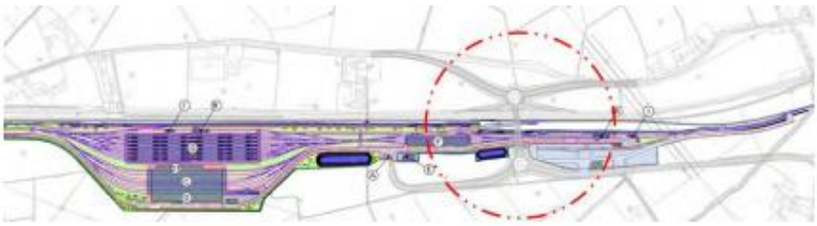


Figure 5-368 Location of OBG23A

It is proposed to construct a precast concrete beam deck of 5 spans.

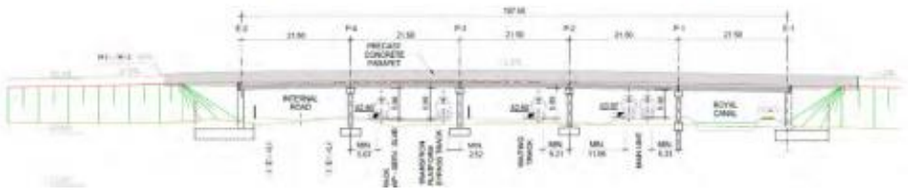
The total length of the bridge is approximately 107.5 m, consisting of 5 spans of 21.5 m each. The required deck thickness is approximately 1.0 m with a 0.2 m top slab. The width of the bridge is 16.8 m.

A piled foundation solution has been proposed for the Pier-1 to avoid any impact on the adjacent Royal Canal (see Figure 5-369). For the purposes of this EIAR the rest of the piers and abutments are assumed to be founded on piled foundations (worst case). However, it may be possible to change to reinforced concrete pad foundations should the till be stiff or bedrock shallow, subject to detailed geotechnical investigation during detailed design.

5.9.7.2 Construction methodology

The new bridge OBG23A construction methodology is described as follows:

1. Site preparation: utility and existing path diversions (see Section 5.3.5).
2. Excavation and construction of six foundations. A piled foundation solution has been proposed for the Pier-1 to avoid any impact on the adjacent Royal Canal (see Figure 5-369).
3. Construction of the reinforced concrete bridge piers:
   - One pier in the verge located between the Royal Canal and mainline.
   - One pier in the verge located between the mainline and walking track.
   - One pier in the verge located between the walking track and transition platform bypass track.
   - One pier in the verge located between the transition platform bypass track and sidewalk.



7. Casting of the top slab.

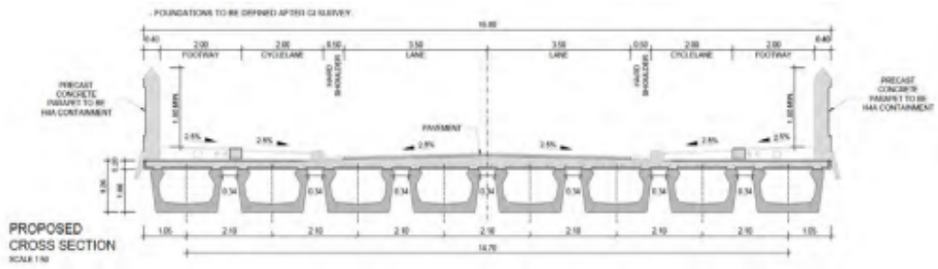


Figure 5-370 Cross section of proposed solution for OBG23A

8. Finishing of carriageway, cycle lanes and footways.
9. Installation of ancillary equipment (parapets, lightning columns, etc.).

As shown in following table, the total construction duration is estimated at approx. 47 weeks, including two full weekends of possession and 2 weeks of night closure working on the mainline railway.

Most works will be performed during daytime project construction working hours as set out in Section 5.2.1.

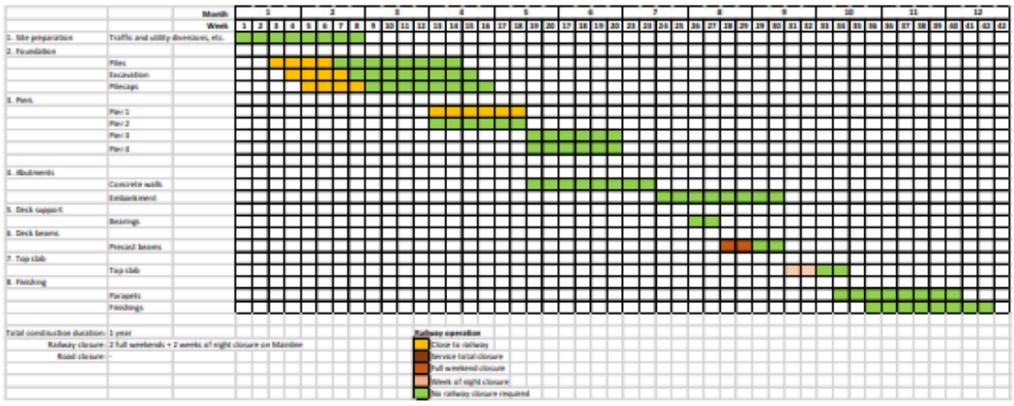


Figure 5-371 Construction duration of OBG23A

5.9.7.3 Construction compounds and haulage routes

OBG23A structure main compounds (CC-STR-S7-92850-U and CC-STR-S7-92900) are located at both sides of the canal, next to OBG23A layout. Vehicles needing to deliver material or access the compounds will use R148 road to connect the compound in the north side and Newtown Road to connect with the compound of the south side.

OGB23A projected to take 12 months to complete, and Newtown Road is proposed to take traffic from the south which is going to cause great difficult for residents .

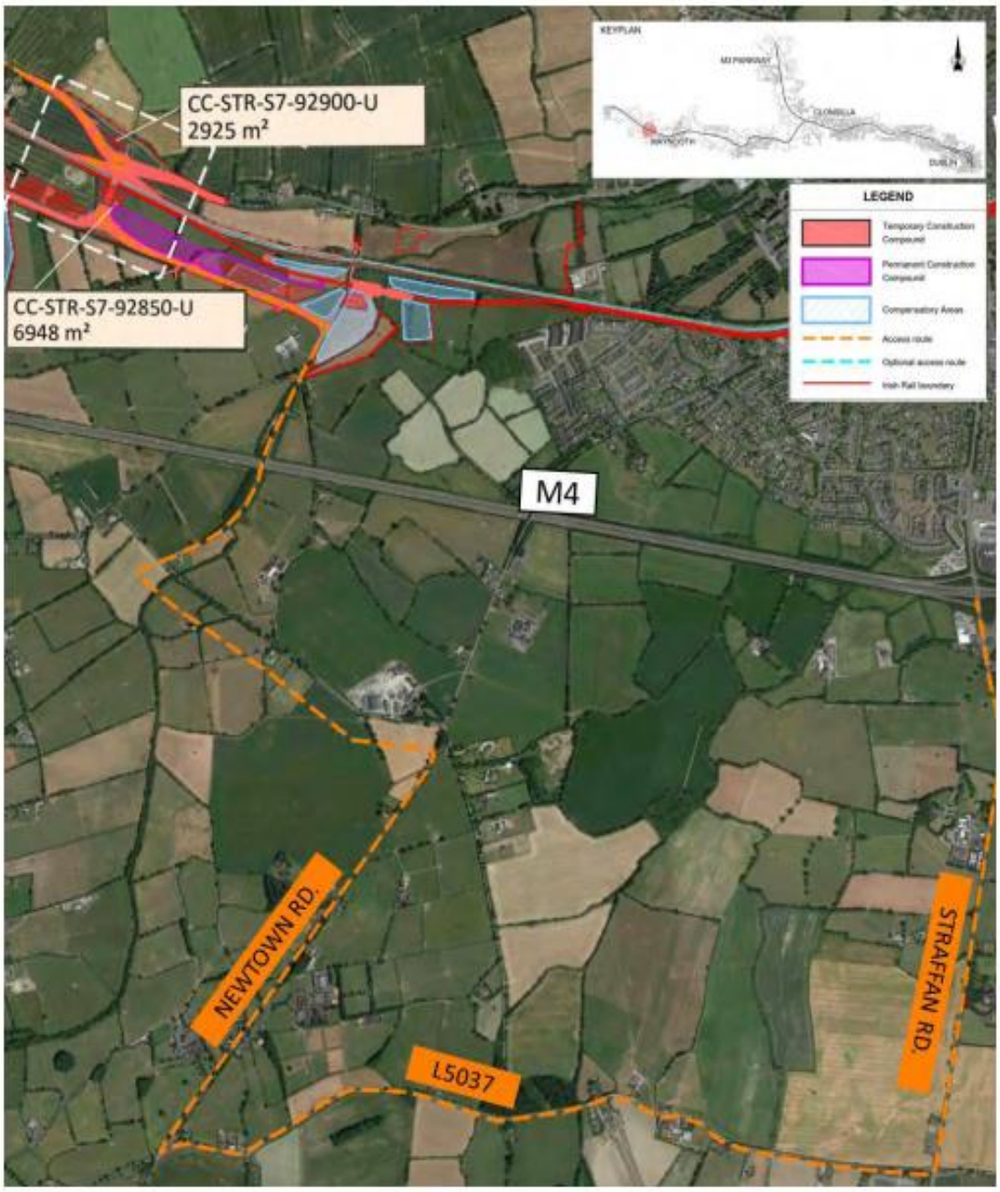


Figure 5-372 OBG23A Construction compounds and haulage routes

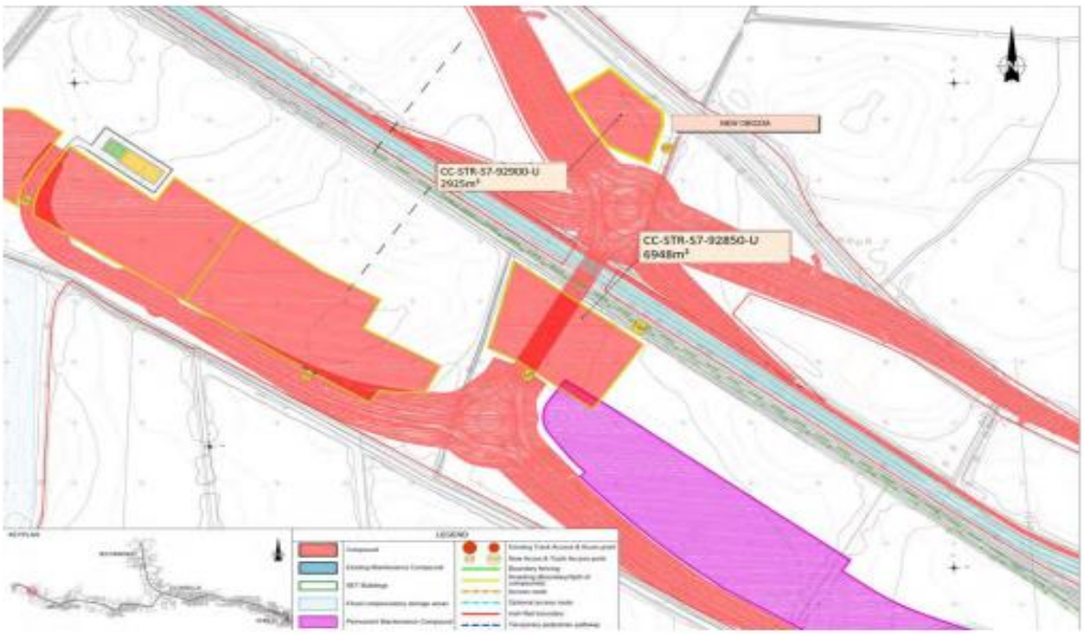


Figure 5-373 OBG23A construction compound

5.9.8 L5041 Road diversion

5.9.8.1 Overview of works required

L5041 will be diverted approximately 850 m to the west and onto the new OBG23A bridge to cross over tracks and the Royal Canal and connect to the R148 road.

Figure 5-374 Depot access route general layout

5.9.8.2 Construction methodology

The construction methodology for the access road at OBG23A is described as follows:

1. Utilities diversion (see Section 5.3.5).
2. Site clearance and excavation to remove vegetation and topsoil.

3. Soil compaction to the required level.
4. Fine grading.
5. Lay aggregate base for the road.
6. Lay the pavement and finishes.

The estimated duration for the access road construction works for OBG23A is 5 months and will be performed during daytime project construction working hours as set out in Section 5.2.1. During most of the works the existing R148 will remain operational, but there will be an impact during the connection with the new road. This can be done during a night or a weekend.

5.9.8.3 Construction compounds and haulage routes

L5041 road diversion compound will be the same as for the OBG23A construction since both works are part of the L5041 diversion task. Compounds (CC-STR-S7-92850-U and CC-STR-S7-92900) are located at both sides of the canal next to OBG23A. Vehicles needing to deliver material or access the compounds will use R148 road to connect the compound in north margin and Newtown Road to connect with the compound of the south margin.

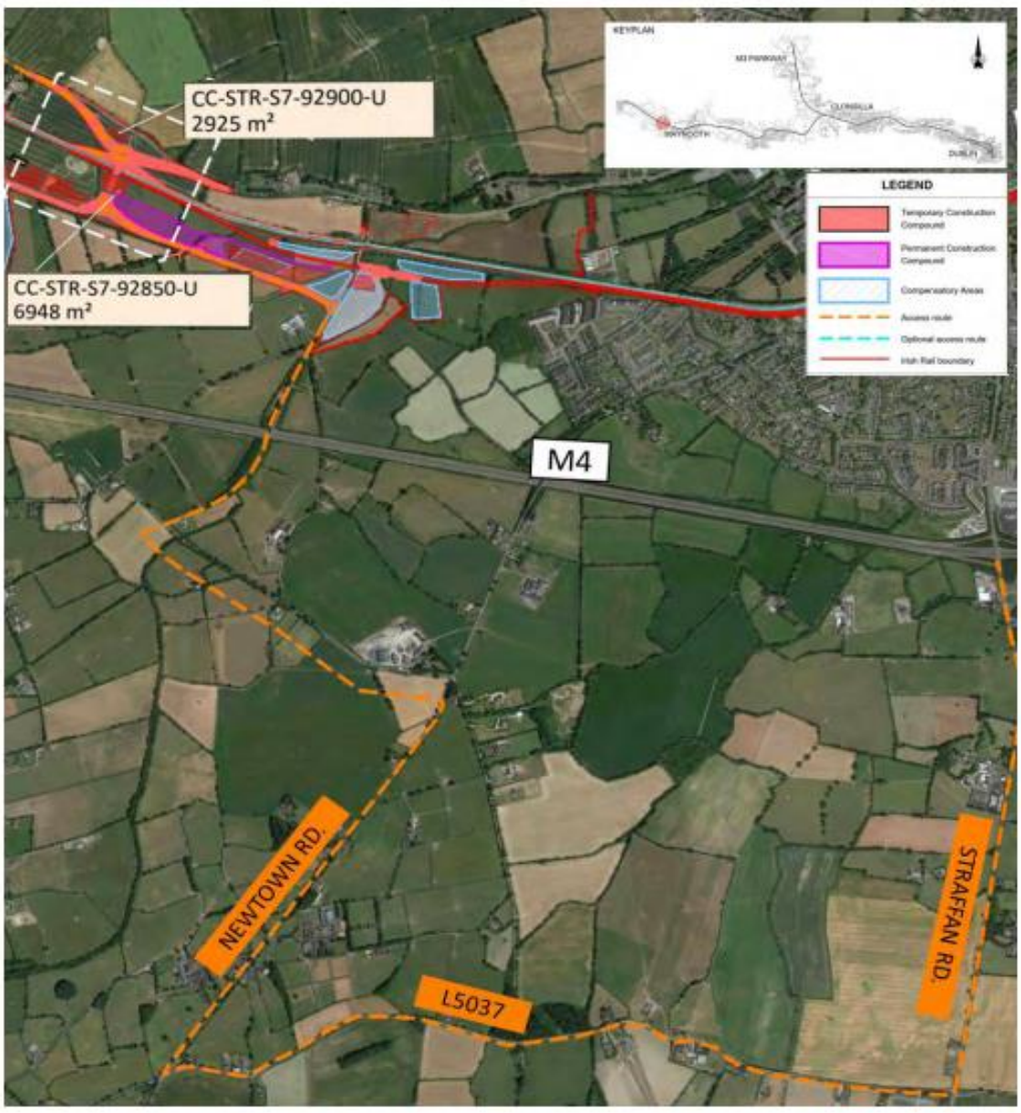


Figure 5-375 OBG23A construction compounds and haulage routes

5.9.9 Compensatory storage areas

5.9.9.1 Overview of works required

The proposed depot is located close to tributary watercourses of the Lyreen river and therefore a perimeter ditch at the southern boundary is needed to divert these elements. The hydraulic assessment has identified areas liable to flood in the vicinity of OBG23 and the depot lands. Development by the DART+ West project within these lands will displace flood waters which could potentially increase the severity of flooding in lands adjacent to the development including the M4 motorway if not mitigated. Compensatory storage in conjunction with flood relief culverts will be required to manage flood risk and maintain the existing flood regime.

Maximum depth of excavation is to be 3.4 m at OBG23 Jackson's Bridge while maximum depth of ~1 m is required at the depot lands. Embankments along the perimeter of the compensatory storage areas will be at a

Compensatory storage areas at Jacksons bridge requires an excavation depth of 3.4 meters while excavation depth at the depot are stated to be approximately 1 meter. This is contradicted on flood relief drawings which show depth of excavation at depot to be ranging from 1 meter to a maximum of 3.5 meters for compensatory storage areas. The Water table level in Ballycurraghan is approximately 1 m below ground level so any additional excavation will not provide surplus storage for flooding but will fill with ground water.

maximum of 1:1 slope. The provision of the compensatory storage will require excavation of ~123,000 m³ of overburden. W etland habitats will be incorporated into the design of the flood compensatory storage areas. The wetlands will not affect the primary flood storage function of these areas. F urther excavation below the 1 in 2 year flood level and the outlet levels will ensure that water is allowed to pool which will encourage wetland habitats to establish.

Flood conveyance culverts through the new road (L5041) and rail embankments (in the OBG23 area) are built according to the methodology described in 5.9.6.2. Maximum width of these elements is 6 metres, with heights ranging from 0.5 m to 2.7 m. Indicative location of these culverts is shown in Figure 5-376.

Figure 5-376 Indicative location of flood relief culverts (in red)

5.9.9.2 Construction methodology

The compensatory storage works are to be undertaken concurrently with depot and road/rail embankment earthworks. Works will consist of:

1. Site clearance.
2. Excavation of topsoil and removal to storage.
3. Excavation and removal of overburden to specified depth.
4. Reinstatement of topsoil material.
5. Re-grassing/re-vegetating.

The estimated duration for the compensatory storage area is 5 months and will be performed during daytime project construction working hours as set out in Section 5.2.1. Portions of the compensatory storage area are to be used for biodiversity enhancements and may comprise more intensive vegetative cover.

5.9.9.3 Construction compounds and haulage routes

The compound and the haulage routes are the same as those foreseen for the depot.

5.9.10 Depot

5.9.10.1 Overview of works required

The construction site for the depot will be located to the south of the existing rail mainline, that runs parallel to the Royal Canal and the R148 road, to the east of Kilcock, west of Maynooth and north of the M4 Motorway.

Most of the proposed land take area is currently farmland. The area occupied by the depot is 32.6 Ha, the length of which is 2.58 km and the maximum width is 260 m.

Figure 5-377 Depot general layout

Figure 5-378 Depot cross section

Depot construction will involve civil, SET and building works. The facilities and the main features of the depot have been described in Chapter 4 of this EIAR.

5.9.10.2 Construction methodology

An indicative sequence of major construction activities related to the main depot is as follows:

- Site clearance:
  - OBG24 demolition (see Section 5.9.11).
    - Site clearance during night-time possession (1 week).
    - Joint demolition (isolation of both decks) with a full 1weekend possession.
    - Deck and parapet removal.
    - Internal support demolition.
    - Abutment excavation and demolition.
- Utility diversions:
  - Relocation of ESB Aerial Power Lines.
- Earthworks for the depot embankment:
  Topsoil removal.
  - Removal of unsuitable material.
  - Backfill and compaction with an approved filling material.
- Track works in the yard:
  - In the yard there will be general construction which includes ballast and track installation, all shall be compatible and coordinated with the construction of the different utilities on site (drainage, electricity, etc.).
  - The construction will start with earthworks, by contouring the subbase followed by the first ballast layer.
  - The sleepers are laid, and the rails are fixed in their preliminary position.
  - The second ballast layer is poured, and the topographic alignment of the track is adjusted and fixed.
- Buildings construction:

- Excavation of foundations.
  - Foundations are foreseen to be shallow except at the interface with pit and underpass construction.
  - In the maintenance shed, pits and an underpass are to be constructed; temporary support measures will likely be required.
  - These first foundation activities will be compatible with some utility works for the different systems: electricity, water supply, drainage, sewage and lighting.
- Construction of foundations/construction of new buildings:
  - The construction of the foundations with the columns, frames, and intermediate slabs.
- The roof and façade, as well as the finishes, will be installed.
- Installation of services, MEP, ancillary equipment, finishes, etc.:
  - During these works all the MEP, electricity, water supply, drainage and telecoms works inside the buildings will be coordinated.
- Track works:
  - The construction of the tracks within the building must be compatible with the different elements of the building (structure, the pits, and MEP).
  - The building will have a slab track and tracks in the pit in the maintenance area: firstly, the construction of the pits during the building foundation stage will take place; lastly, the construction of the track will be compatible with the mat slab of the building.
- Equipment:
  - For the major pieces of equipment such as the wheel lathe, overhead platforms, and the underfloor lifting jacks set system, these must be installed and co-ordinated with the building construction.
  - The maintenance equipment required is: AVI system, bridge or monorail cranes, underframe wheel lathe (UWF), pit track equipment, lifting equipment: synchronised lifting jacks, storage equipment, sand filling and CET emptying equipment, automatic washing plant equipment, deep cleaning equipment and shunting vehicles, maintenance vehicles.

- Signalling, electricity, and telecom (SET):
  - The SET assets and infrastructures of the depot are to be coordinated with the rest of the construction elements of the depot project.
  - The cable routing, manholes, signals, OHLE, conduits, masts and poles, and the rest of the elements are dependent on the track works, road and landscaping works as well as the rest of the urban development work.
  - In order to avoid any clash, their construction must be coordinated with the other elements at the different stages of the construction; for example, earthing and bonding must be considered at the first stages, and the mast foundation needs to be compatible with the track works.
  - It is also important to integrate the SET elements properly with the buildings (service slab, washing plant, AVI building, and maintenance shed).
  - To take into consideration the new turnouts to access the depot are installed and blocked until commissioning of the depot.
  - For the Construction Phase 2 of the depot, which encompass the 50% of the stabling tracks, the CMS will be done as part of the civil works of those tracks, as the CMS needed in that area is only needed for the service of those new tracks.
  - For the depot CMS, the phase 2 works include the CMS (as part of civil works) + cabling specific for phase 2, as in phase 1 there is no need to do it in advance, because there is no transit cabling within the phase 2 areas, and the cabling is only needed to give service to the new north stabling area tracks that are part of phase 2.
- Landscaping works.
- Perimeter Security Purpose (SP) Fencing:
  - Excavation of foundations.
  - Concrete the foundations with the posts.
  - Install the SP fencing.

The construction works will commence after OBG23A is built, this way the impact on the local road network is mitigated. The likely construction sequence of the buildings and trackwork at the depot are broken down into

a number of key stages of construction as follows with a full description of the construction methodology outlined in the following figures (Figure 5-379 to Figure 5-384).

The first stage includes: the ESB aerial lines diversion, the perimeter ditch diversion, excavation of compensatory areas in the surroundings, OBG24 demolition, earthworks for the embankment in the western area and attenuation pond and outfall to the existing waterways to the south.

Figure 5-379 Layout of depot (stage 1)

The second stage includes: construction of the main building structure, earthworks in the eastern area and the second attenuation pond where the outfall was built previously under the new bridge OBG23A.

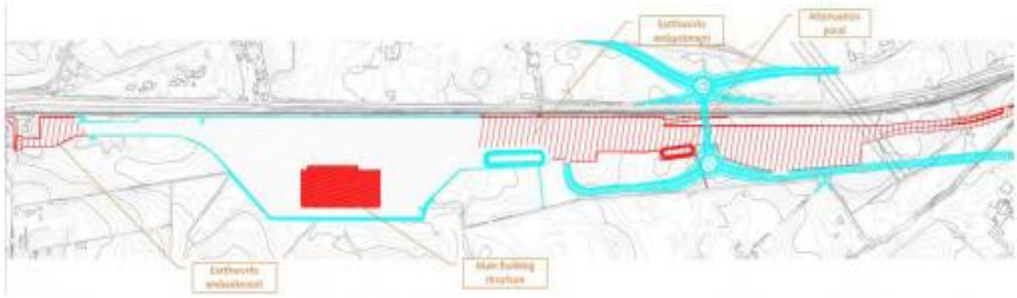


Figure 5-380 Layout of depot (stage 2)

The third stage includes: construction of the remaining buildings structures (service slab, substation, AWP, AVI, security access) and the mechanical, electrical and plumbing installations of the main building.

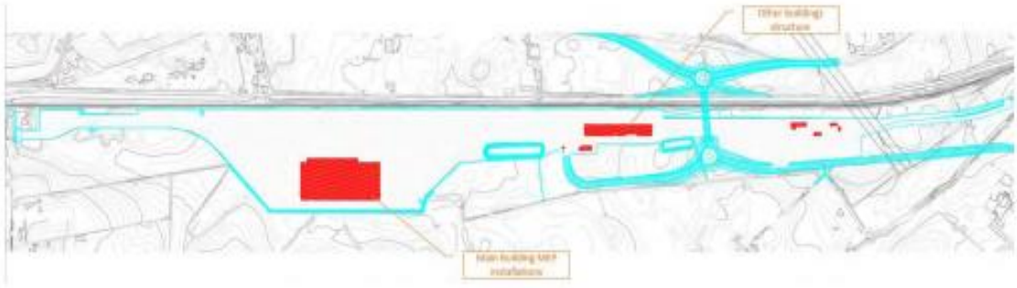


Figure 5-381 Layout of depot (stage 3)

The fourth stage includes: construction of other buildings, mechanical, electrical and plumbing installations, the equipment installation inside the main building and the new services.

Figure 5-382 Layout of depot (stage 4)

The fifth stage includes: civil, power and systems track works and for other equipment installations within other buildings.

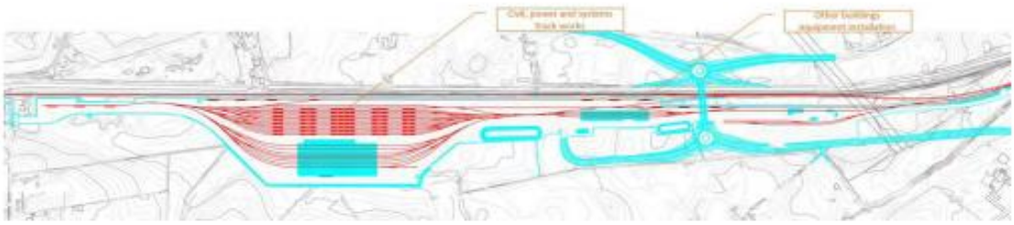


Figure 5-383 Layout of depot (stage 5)

Finally, the sixth stage includes: completion of the urban development and the boundary treatments.

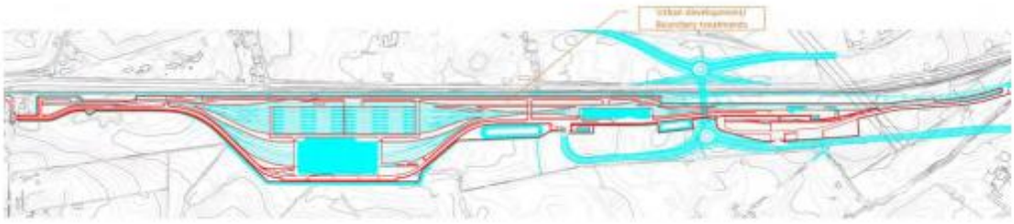


Figure 5-384 Layout of depot (stage 6)

The volume of material required for construction of the depot embankment is 280.000 m³. For this reason there are some excavation areas along the project where there could be suitable material for reuse and could be transported to this embankment.

The material is proposed to be transported by road from their respective sites to the depot (reference Section 5.5.3.5 for information on movement of material from Spencer Dock area to the depot, which is the bulk of the material that will be transported by road).

5.9.10.2.1 Construction duration

The duration for the principal construction elements at depot is **3 years**.

The key activities for this 120 week period are:

- Depot 30 months
- Depot PW Maintenance Compound 12 months
- Compensatory Storage areas 6 months

The depot is projected to take 30 months to complete with a further 12 months for the PW maintenance compound. 280,000 cubic meters required for the construction of the depot embankment. it would appear in essence there is going to be a Moat formed around the depot to prevent ingress of water

The possession strategy is to utilise daytime project construction working hours, as set out in Section 5.2.1, as much as possible because most of the activities are offline from the railway line. There is minimum impact on the railway where the connections to mainline are after the double tracking works are complete. For the OBG24 demolition a full weekend closure is needed.

It is important to note that the depot is phased in two construction stages. Phase 1 is where the depot will be built with the half of the stabling tracks considering an initial stage of 300 EMU. The final design stage considers 15 tracks for 30 FLU. Consequently, this first phase would consider 8 tracks for 16 FLU. In a future when the fleet increases its size, the phase 2 will consist of building the rest of the stabling tracks.

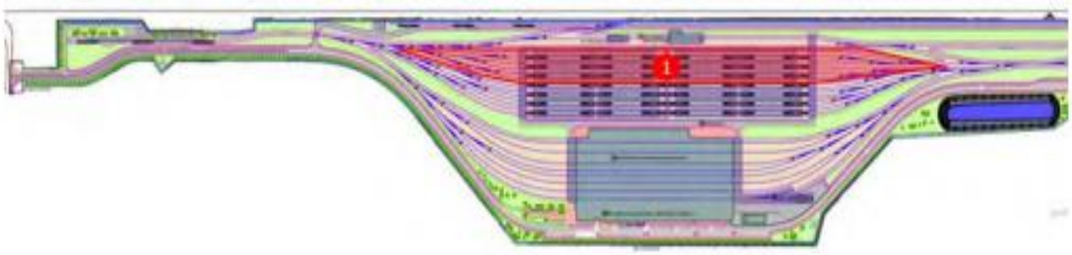


Figure 5-385 Depot stabling area to be constructed in Phase 2

5.9.10.3 Construction compounds and haulage routes

The depot's two main construction compounds are related to the Track compound (CC-DEP-S7-UP-93370-U) and SET compound (CC-DEP-S7-93060-D), which are located immediately adjacent to the depot's location. Vehicles delivering to the site are expected to access from R148 road from the M4 motorway.

The depot construction begins after new access road/OBG23A is completed. The access to local roads is from the new OBG23A and L5041 diversion, so no other alternative access is needed.

Figure 5-386 Depot siding construction compound and haulage route

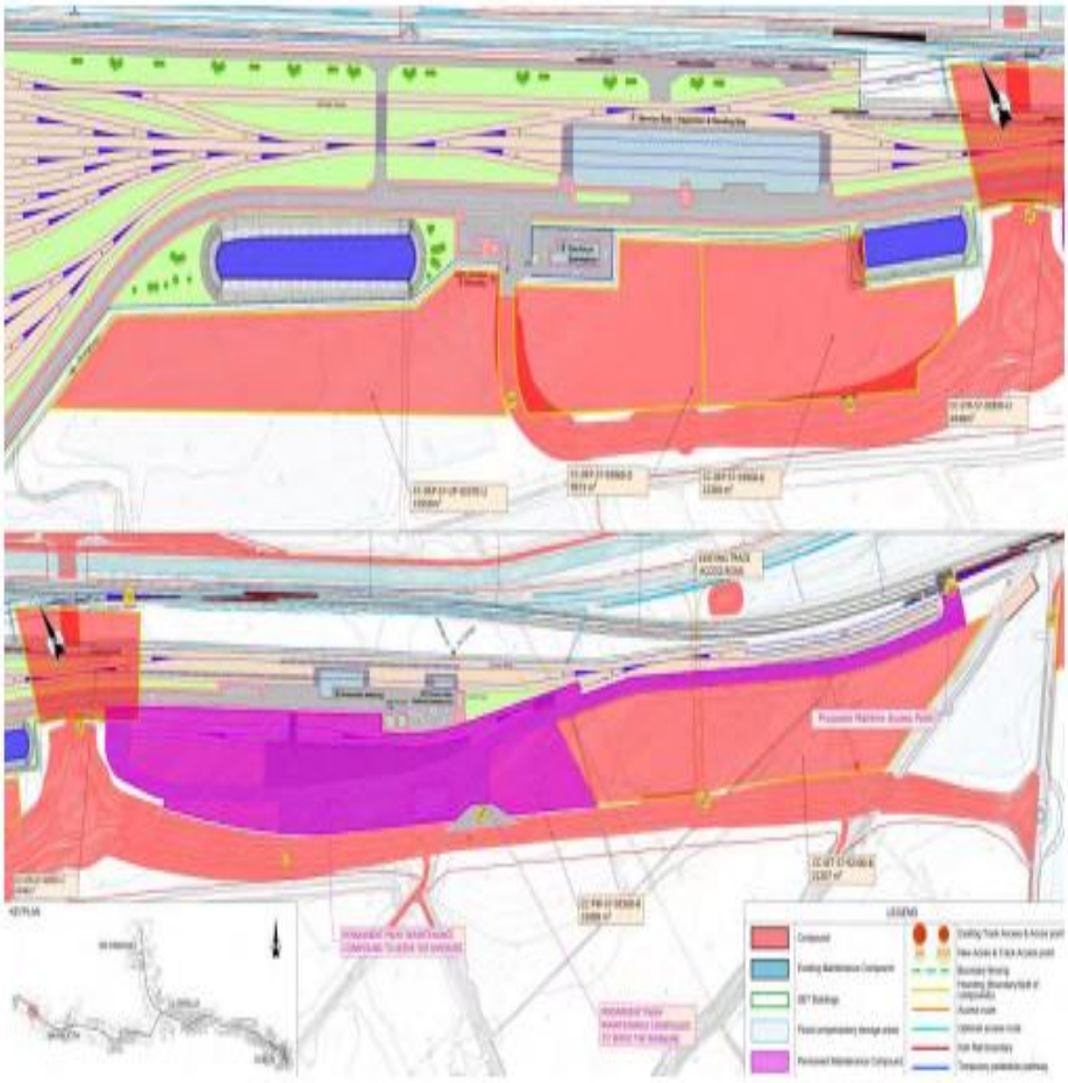


Figure 5-387 Depot construction compounds

5.9.11 OBG24 demolition

5.9.11.1 Overview of the works required

The demolition of the existing OBG24 that crosses the Royal Canal, and the railway line will be necessary for the construction of the new depot. In the figures below the layout and the elevation of the OBG24 are shown.

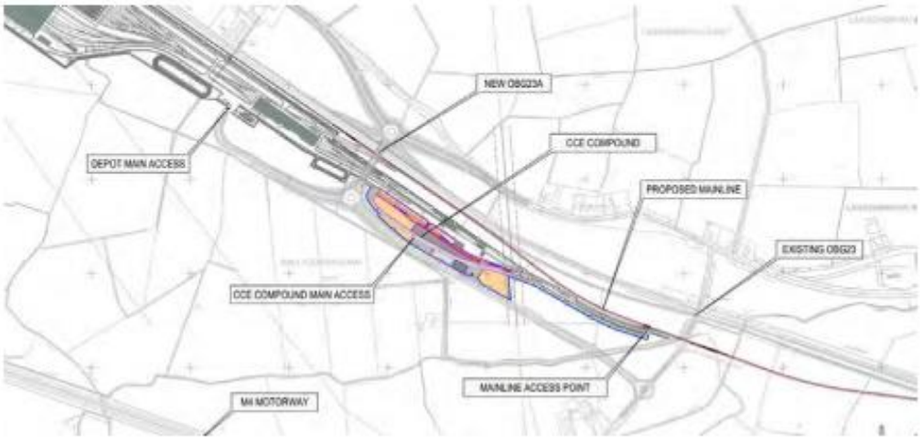


Figure 5-392 CCE compound

5.9.12.2 Construction methodology

The works can be carried out during daytime project construction working hours as set out in Section 5.2.1. The general construction methodology foreseen is as follows:

- Site clearance and enabling works.
- Earthworks.
- Foundations.
- Structure of the building.
- Utilities.
- MEP, architecture, façade and finishes.
- Urban development and landscaping (pedestrian pavements, road network, etc.).
- Fencing and gates.

The compound construction will take approximately 12 months and it will be constructed in parallel to the depot construction at its final stage so both facilities finish at the same time and there are no incompatibilities between them.

5.9.12.3 Construction compounds and haulage routes

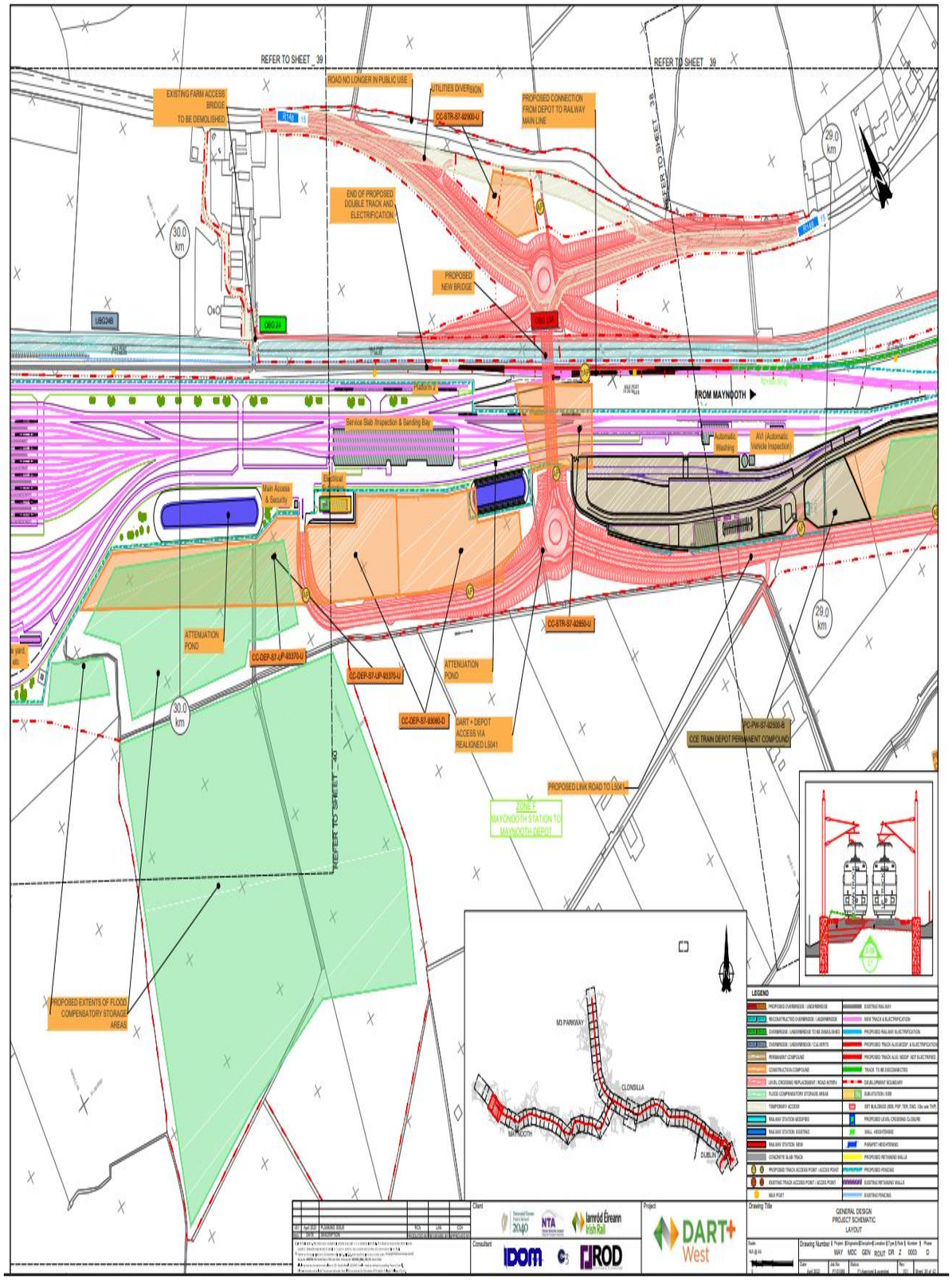
The construction compound and the haulage routes are those highlighted for the depot construction in Section 5.9.10.3.

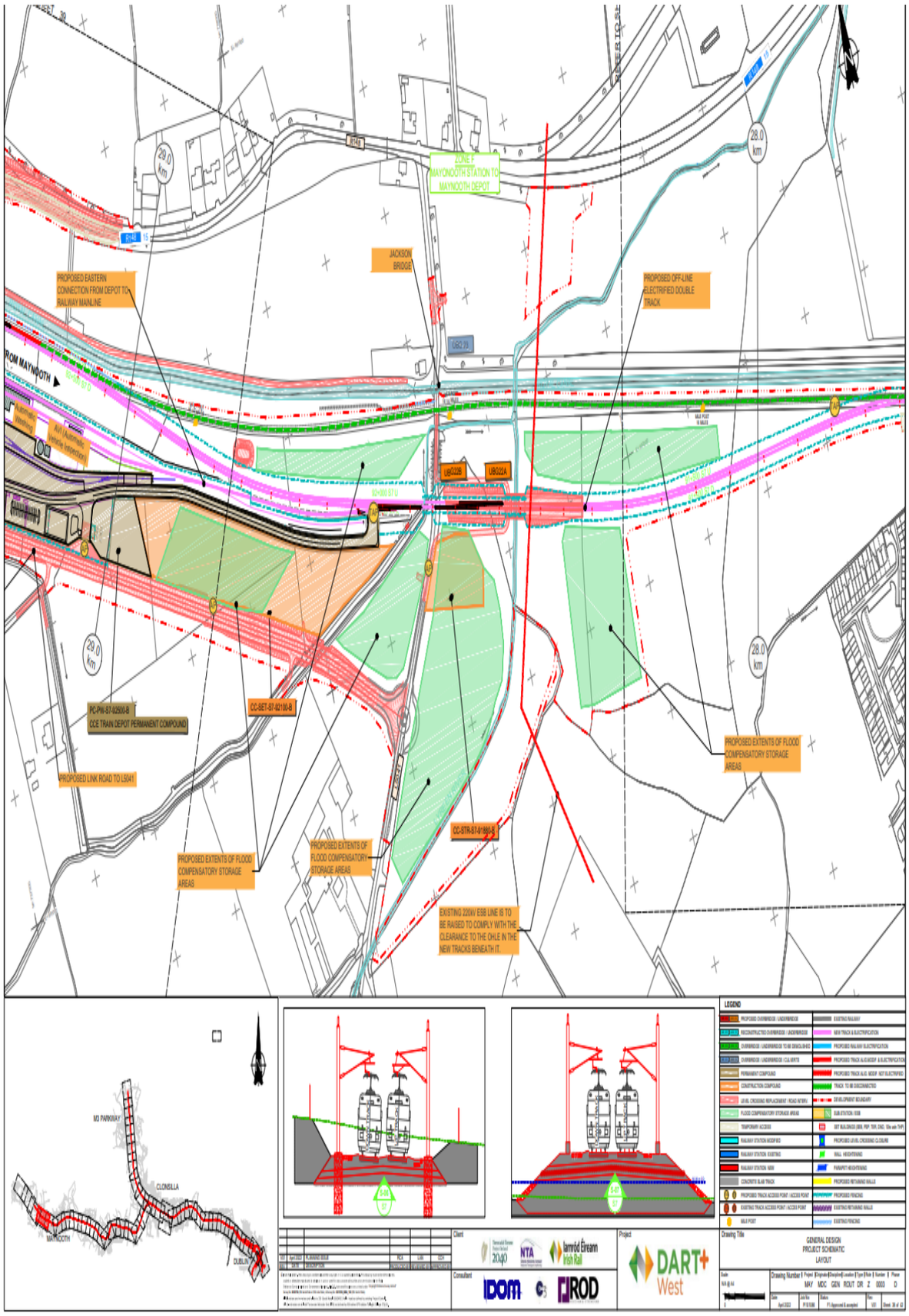
5.9.13 Other SET works

5.9.13.1 Signalling works

Apart from the general signalling works described in Section 5.3.9.4, the specific works in this area for signalling are the following:

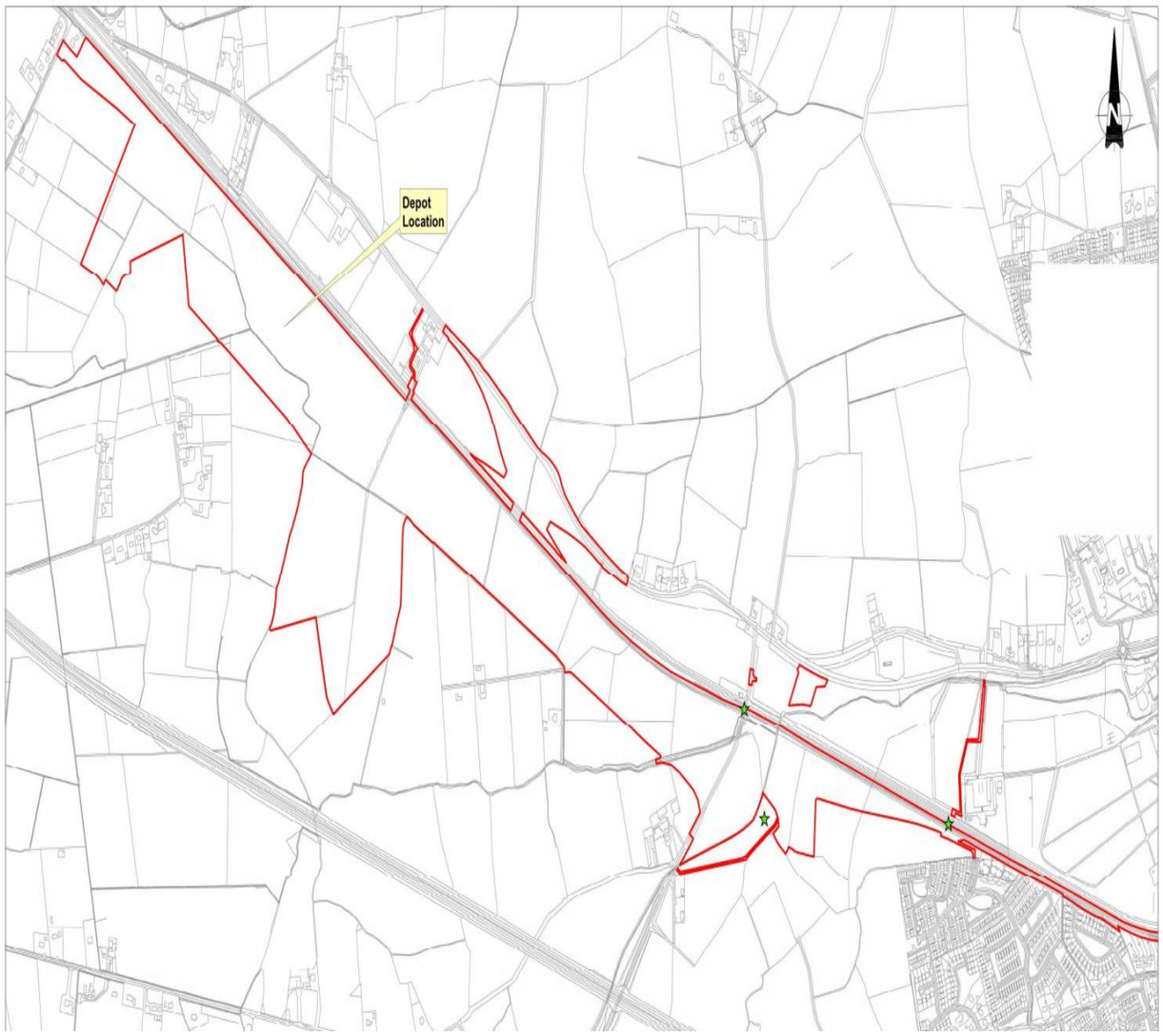
- The new crossover and siding west of Maynooth station will be installed modifying the existing signalling system.
- The new up and down tracks will be installed without the connections of the new tracks to the existing tracks, so trains will keep running through the single line. Once the new signalling system is commissioned with the trains still running in the single line, then the required track works for commissioning the double track will be executed along with the modifications of the new signalling system.


REFER TO SHEET 39
REFER TO SHEET 39
REFER TO SHEET 38
REFER TO SHEET 40
ROAD NO LONGER IN PUBLIC USE
UTILITIES DIVERSION
EXISTING FARM ACCESS BRIDGE TO BE DEMOLISHED
PROPOSED CONNECTION FROM DEPOT TO RAILWAY MAIN LINE
END OF PROPOSED DOUBLE TRACK AND ELECTRIFICATION
PROPOSED NEW BRIDGE
FROM MAYNOOTH
Service Slab Inspection & Banding Bay
Automatic Washing
AVI (Automatic Vehicle Inspection)
Electrical Substation
Main Access & Security
ATTENUATION POND
ATTENUATION POND
DART + DEPOT ACCESS VIA REALIGNED L5041
PROPOSED LINK ROAD TO L5041
ZONE F MAYNOOTH STATION TO MAYNOOTH DEPOT
CCE TRAIN DEPOT PERMANENT COMPOUND
PROPOSED EXTENTS OF FLOOD COMPENSATORY STORAGE AREAS
M3 PARKWAY
CLONSILLA
MAYNOOTH
DUBLIN
LEGEND
GENERAL DESIGN
PROJECT SCHEMATIC
LAYOUT
DART+ West

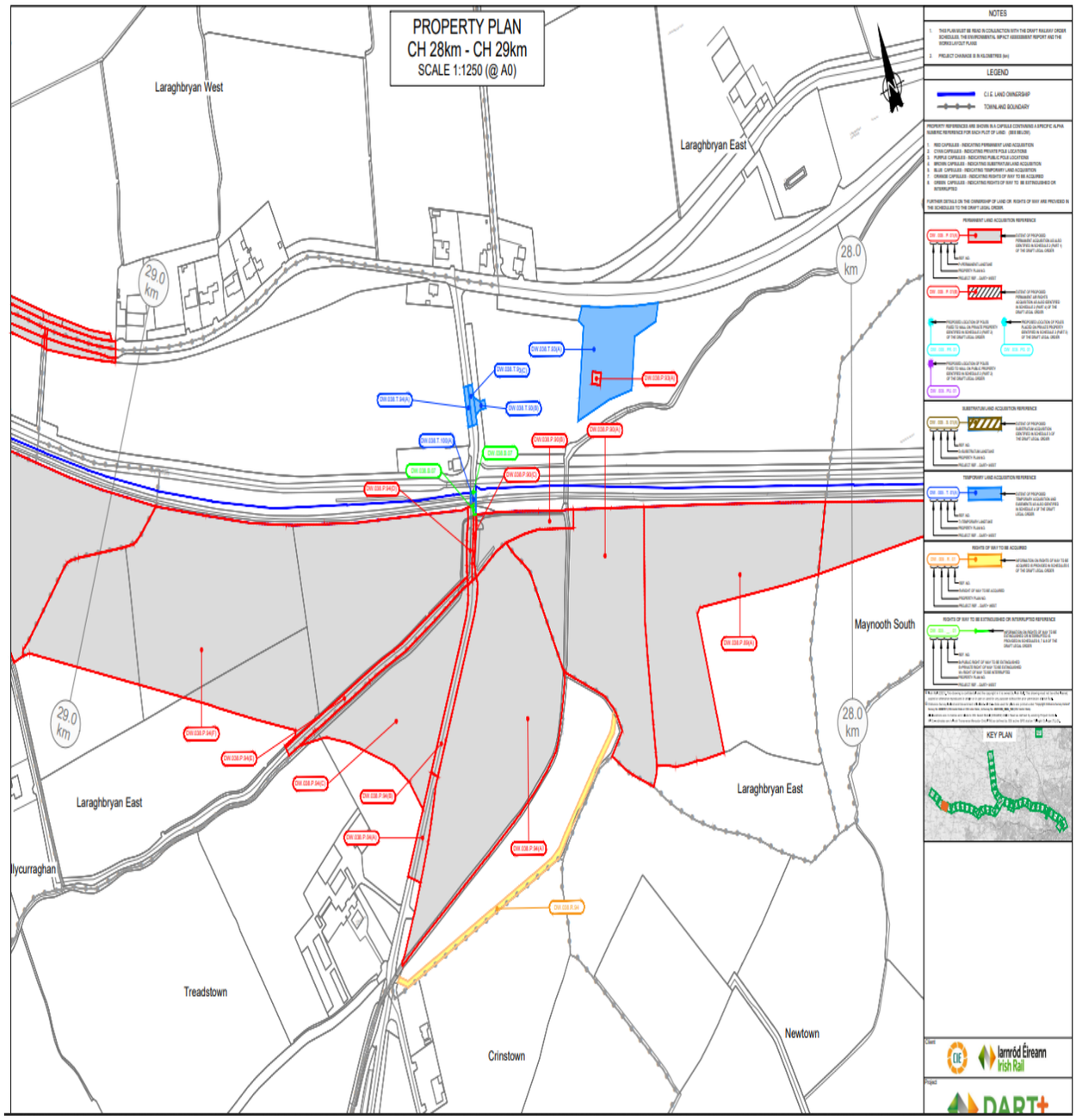

ZONE F
MAYNOOTH STATION TO MAYNOOTH DEPOT
JACKSON BRIDGE
PROPOSED EASTERN CONNECTION FROM DEPOT TO RAILWAY MAINLINE
PROPOSED OFF-LINE ELECTRIFIED DOUBLE TRACK
UBG02B
UBG02A
PC-PW-87-92500-B
CCE TRAIN DEPOT PERMANENT COMPOUND
CC-BET-87-92100-B
PROPOSED LINK ROAD TO L5041
PROPOSED EXTENTS OF FLOOD COMPENSATORY STORAGE AREAS
CC-STR-87-91900-B
EXISTING 220kV ESB LINE IS TO BE RAISED TO COMPLY WITH THE CLEARANCE TO THE OHLE IN THE NEW TRACKS BENEATH IT.
LEGEND
GENERAL DESIGN
PROJECT SCHEMATIC
LAYOUT
DART+ West

Natura Impact Statement

Property Plans

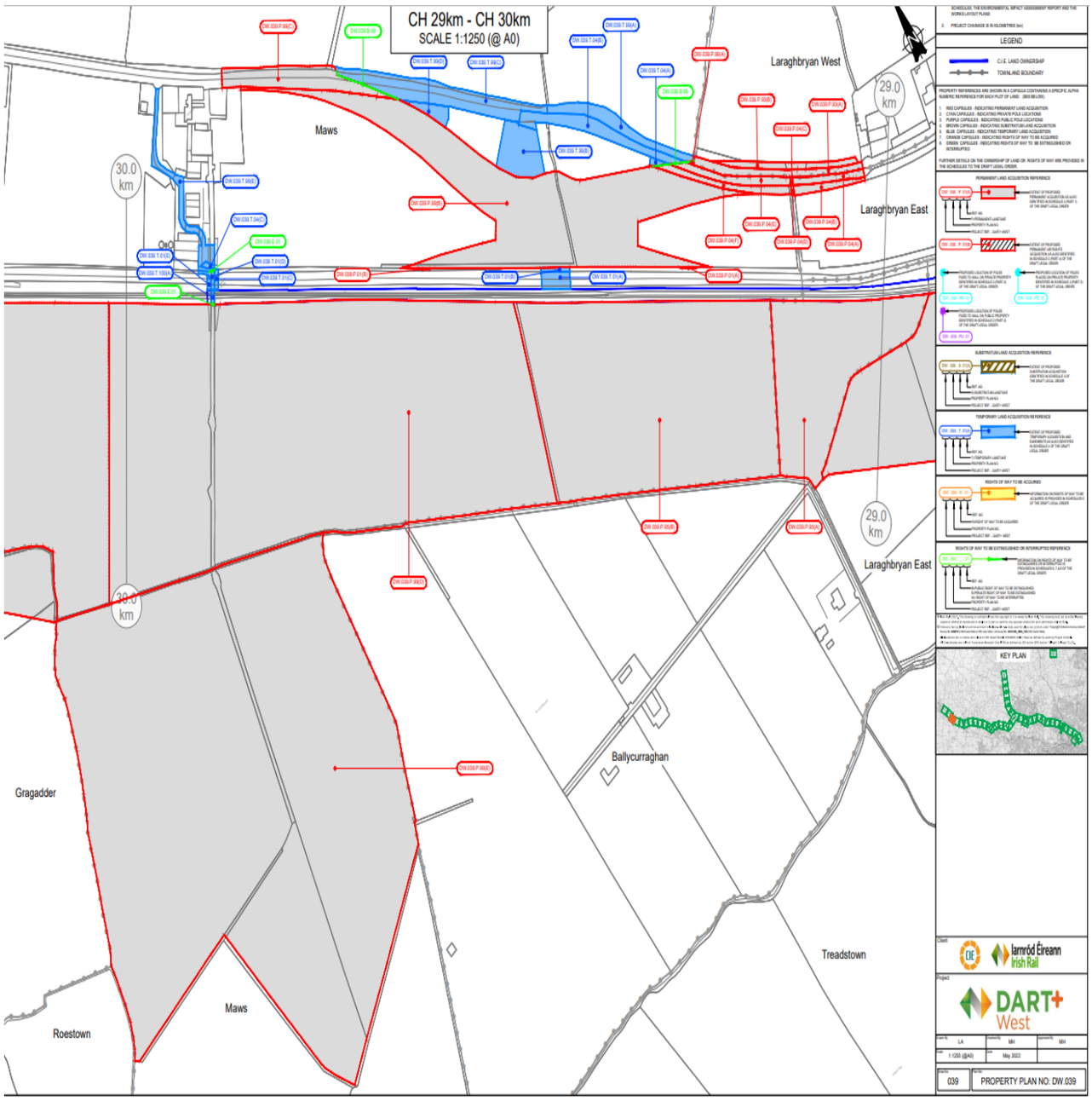


Property Plans CH 28 KM – CH 29 KM



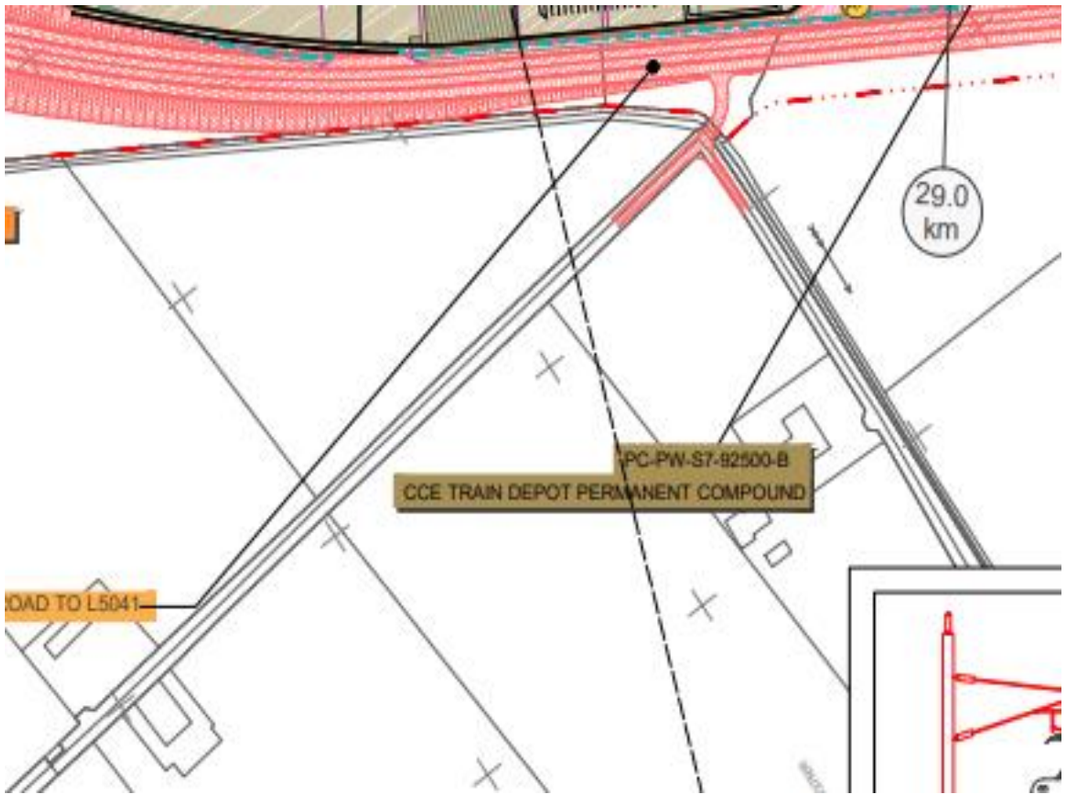
Property plans showing scale of land acquired by Dart West to Larabryan east and Larabryan West

Property Plans CH 29 KM – CH 30 KM



Property plans showing scale of land acquired by Dart West from Laraghbryan East to Gragadder in Kilcock

Alteration to Private Laneway Ballycurraghan



Proposed alteration to private lane at Ballycurraghan in contravention of proper procedure and railway orders

Part 5 View Locations 35-46

Elevation to Fields at Laraghbryan East and mature oaks in the background

Elevation from Laraghbryan East to proposed Depot showing buildings in distance and oak trees felled. Picture is not representative of the actual situation in that it does not include link road L5041, any proposed embankments or the removal of the ESB pylons.

Elevation from Jacksons bridge showing Ballycurraghan Road prior to any development

Elevation from Jacksons bridge showing proposed train line. This elevation is incomplete in so far as it does not include the link road and 5041 or does it include any of the flood containment ponds proposed as part of the planning application.

Appendix A8.1
Water Quality Report

Discussion and Conclusions

JBA consulting

4 Discussion and Conclusion

The water chemistry results indicated that the water quality of the River Lyreen system was generally Unsatisfactory, as the key parameters of BOD and Ammonia were all notably above their limits. Orthophosphate statuses ranged from Good to High across the sample sites. The remaining chemical parameters were all recorded at passable levels.

The water chemistry results are in concordance with the Q-value and SSRS invertebrate metrics, both which gained less than ideal scores. While each of the four kick-sampling points displayed some minor differences in species assemblages, all samples were dominated by pollution tolerant family/species groups such as Hydrobiidae and *Gammarus* spp.; as well as the notable presence of *Asellus aquaticus*, a species indicative of urban freshwater pollution (O'Callaghan et al., 2019). This ultimately resulted in Q3 values for all sites and SSRS metric indications that the River Lyreen and the tributary examined are 'At Risk'.

The freshwater invertebrate results are generally in line with 'Poor' Invertebrate Status / Potential given to this section (LYREEN_010) of the River Lyreen sub-catchment (LYREEN_SC_010) detailed in the WFD 2013-2018 Surface Water Monitoring programme (Catchments, 2021). Furthermore, the WFD Cycle 2 Catchment Liffey and Dublin Bay Sub-catchment Lyreen_SC_010 (2020) report states that Lyreen system suffers from both agricultural and urban (domestic and industrial) inputs/pressures, which would largely be in line with the water chemistry results recorded, with the exception of the Ammonia levels which appear well above the monitoring averages. Given this outlier, one must note the constraints of surface water grab sampling given their limitation to only give a snapshot of the water quality at any one point in time within a river system. These increased Ammonia levels may be result of a flush from an agricultural source, which releases sporadically into the Lyreen sub-catchment.

Given the results of the water chemistry samples; the Q-value (=3) and SSRS (At Risk) invertebrate metrics; and the previous monitoring data for the sub-catchment, it is clear that the River Lyreen and the examined tributary suffer from moderate levels of agricultural and urban pollution, which is characteristic of small-scale river networks in the area.

Appendix A14.1 Baseline Vibration Monitoring for DART+ West EIAR

APPENDIX A14.1 – BASELINE VIBRATION MONITORING REPORT FOR DART+ WEST EIAR

Executive Summary

Vibration monitoring has been conducted at 47 locations along the alignment of the DART+ West Project consisting of 37 long-term unattended surveys and 10 short-term attended surveys. The Proposed Project is split into six zones, A to F.

Within Zones A, B and C, the surrounding environment is urban. The vibration monitoring locations are adjacent to the railway line. At the vast majority of locations, the vibration meter was placed in the rear garden of the properties between 5 m and 20 m from the train line. The PPV results indicate a low vibration environment. The existing baseline VDVday and VDVnight values are below a value where a low probability of adverse comment would be expected within a building as defined within BS 6472-1 (2008).

Within Zones D, E and F, the surrounding environment is suburban. The vibration monitoring locations in these zones are also adjacent to the railway line and, similar to Zones A, B and C, at the majority of locations, the vibration meter was placed in the rear garden of the properties between 5 m and 20 m from the train line, however, in these zones, some meters were at a further distance from the train line, depending on the nearest secure location. The PPV results indicate a low vibration environment. The existing baseline VDVday and VDVnight values are below a value where a low probability of adverse comment would be expected within a building as defined within BS 6472-1 (2008).

Zone F

A total of 4 long-term unattended monitoring locations were surveyed within Zone F. The location reference and a description of the survey positions are included in Table 7. No attended monitoring locations were surveyed within this zone.

Table 7 Noise Monitoring Locations Zone F

Location	Description of Survey Location
Unattended (Long-term) Noise Survey Locations	
N42	Woodlands, Maynooth, County Kildare
N43	Braganstown, Kilcock, Co. Kildare
N44	Connaught Street, Kilcock, Co. Kildare
N45	Brayton Park, Kilcock, Co. Kildare

Survey Periods

Unattended noise surveys were undertaken between September 2020 and March 2021. The specific survey dates for each location are included in the survey results tables in Section 3.0.

Attended noise surveys were undertaken in April 2021 . The specific survey dates and times for each location are included in the survey results tables in Section 3.0.

Survey Equipment and Personnel

The survey was undertaken using Rion VM-56 vibration meters with PV-83D tri-axial accelerometer.

Calibration certificates of monitoring equipment are included within Appendix A.

The surveys were conducted by AWN Consulting.

Reference Guidance

BS 6472: (2008) Guide to evaluation of human exposure to vibration in buildings (2008): Part 1 - Vibration

The measured baseline VDV are discussed with reference to BS 6472 (2008) Part 1.

BS 6472 uses the Vibration Dose Value (VDV) which is measured or forecast over the day or night-time periods in terms of $m/s^{1.75}$. The VDV parameter takes into account how people respond to vibration in terms of frequency content, vibration magnitude and the number of vibration events during an assessment period.

The following table, as set out in the standard, details the values of VDV where various comments from occupiers are possible. The standard notes that the values are applicable for both vertical and horizontal vibration with the appropriate weighting applied.

Table 8 VDV ($m/s^{1.75}$) above which various degree of adverse comment may be expected in residential buildings

Building Type	Low probability of adverse comment	Adverse comment possible	Adverse comment probable
Residential building – Day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential building – Night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

BS 5228-2: 2009 + A1 2014: Code of practice for noise and vibration control on construction and open sites – Vibration

There are no current standards which provide guidance on typical ranges of human response to vibration in terms of PPV for continuous or intermittent vibration sources.

BS5228 (2009 + A1 2014) Part 2, provides a useful guide relating to the assessment of human response to vibration in terms of the PPV. Whilst the guide values are used to compare typical human response to construction works, they tend to relate closely to general levels of vibration perception from other general sources. Table 9 below summarises the range of vibration values and the associated potential effects on humans.

Table 9 Guidance on effects of human response to PPV magnitudes

Vibration Level, PPV	Effect
0.140 mm/s	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies. At lower frequencies people are less sensitive to vibration.
0.3 mm/s	Vibration might be just perceptible in residential environments.
1 mm/s	It is likely that a vibration level of this magnitude in residential environments will cause complaint.

Survey Results

At the vast majority of locations, the accelerometer was positioned within the rear garden of properties at distances between 5 m and 20 m from the train line. At some of the more rural locations, the accelerometer was positioned further from the train line, depending on the nearest secure location.

On review of the data recorded during the surveys, there are a number of significant outlier vibration values that are associated with the accelerometer being knocked, doors slamming or other events not related to the train line. These outliers have been carefully removed from the data as they do not represent the baseline vibration environment.

The following sections present the results of the attended and unattended vibration surveys in terms of PPV and VDV in the X, Y (horizontal) and Z (vertical) directions.

Unattended Survey Zone F Summary and Conclusions

Zone F

Unattended Surveys

The unattended noise survey results relating to Zone F are summarised in Table 20.

Table 20 Unattended vibration monitoring results in Zone F

Location	Date	Daytime VDV, 16hr			Night-time VDV, 8hr			Minimum PPV			Maximum PPV			Median PPV		
		X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
N42	12/01/2021	0.0008	0.0006	0.0082	0.0005	0.0005	0.0004	0.01	0.01	0.01	0.12	0.08	0.14	0.01	0.01	0.01
N43	09/12/2020	0.0015	0.0024	0.0023	0.0012	0.0012	0.0017	0.02	0.02	0.02	0.20	0.44	0.14	0.03	0.03	0.03
N44	09/12/2020	0.0006	0.0006	0.0025	0.0005	0.0005	0.0009	0.01	0.01	0.01	0.04	0.05	0.05	0.01	0.01	0.01

Location	Date	Daytime VDV, 16hr			Night-time VDV, 8hr			Minimum PPV			Maximum PPV			Median PPV		
		X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis	X-Axis	Y-Axis	Z-Axis
N45	10/12/2020	0.0055	0.0056	0.0230	0.0058	0.0060	0.0230	0.02	0.02	0.02	0.40	0.39	0.38	0.05	0.05	0.05

Summary and Conclusions

Baseline vibration monitoring has been undertaken at 47 monitoring locations as part of the baseline study for the noise and vibration chapter of the DART+ West EIAR.

Monitoring consisted of 37 long-term unattended surveys and 10 short-term attended surveys adjacent to existing rail lines.

The baseline vibration environment at all locations is low. Vibration levels associated with passing rail was detectable above the baseline environment at all locations. However, the overall range of vibration levels measured at all locations was low and would not give rise to levels of vibration typically perceptible to building occupants.

The existing baseline VDV_{day} and VDV_{night} values are below a threshold defined in BS 6472-1 (2008) such that a *low probability of adverse comment* would be expected within a building.

Appendix A14.2 Baseline Monitoring for Dart+ West EIAR

Appendix A14.2 Baseline Noise Monitoring for DART + West EIAR

Appendix A14.2 Baseline Noise Monitoring for DART+ West EIAR

Survey Methodology

Study Area

The Proposed Project covers an extensive linear study area between the Dublin Docklands and Clonsilla. At Clonsilla, the route splits in two and the study area proceeds linearly to Maynooth and M3 Parkway. The study area for the EIAR is split into six distinct zones, as described in Table 1.

Table 1 Geographical Split of Assessment Zones

Reference	Description
Zone A	Connolly to Glasnevin Junction (GSWR) approximately 2,530 m in length.
Zone B	Spencer Dock to Glasnevin Junction (MGWR) approximately 3,020 m in length.
Zone C	Glasnevin Junction to Clonsilla Station approximately 10,320 m in length.
Zone D	Clonsilla to M3 Parkway approximately 7,500 m in length.
Zone E	Clonsilla Station to Maynooth Station approximately 12,620 m in length.
Zone F	Maynooth Station to Depot approximately 5,000 m in length.

Survey Locations

Baseline vibration surveys have been conducted at locations representative of the nearest vibration sensitive areas which have the potential to be impacted by construction works and/or those likely to be impacted during the operational phase of the Proposed Project. Baseline vibration measurements were made over both long-term and short-term periods to inform the assessment.

- Long-term surveys (typically one day in duration) were made at a total of 37 locations.
- Short-term surveys (attended day-time measurements), made at a total of 10 locations along the length of the proposed Project were used to supplement the long-term surveys.

Survey Methodology

Study Area

The Proposed Project covers an extensive linear study area between the Dublin Docklands and Clonsilla. At Clonsilla, the route splits in two and the study area proceeds linearly to Maynooth and M3 Parkway. The study area for the EIAR is split into six distinct zones, as described in Table 1.

Table 1 Geographical Split of Assessment Zones

Reference	Description
Zone A	Connolly to Glasnevin Junction (GSWR) approximately 2,530 m in length.
Zone B	Spencer Dock to Glasnevin Junction (MGWR) approximately 3,020 m in length.
Zone C	Glasnevin Junction to Clonsilla Station approximately 10,320 m in length.
Zone D	Clonsilla to M3 Parkway approximately 7,500 m in length.
Zone E	Clonsilla Station to Maynooth Station approximately 12,620 m in length.
Zone F	Maynooth Station to Depot approximately 5,000 m in length.

Zone F

A total of 6 long-term unattended monitoring locations were surveyed within Zone F. The location reference and a description of the survey positions are included in Table 7. No attended monitoring locations were surveyed within this zone.

Table 7 Noise Monitoring Locations Zone F

Location	Description of Survey Location
Unattended (Long-term) Noise Survey Locations	
N42	Woodlands, Maynooth, County Kildare
N56	Treadstown House, Millfarm, Co. Kildare
N57	Gragadder, Kilcock, Co. Kildare
N43	Braganstown, Kilcock, Co. Kildare
N44	Connaught Street, Kilcock, Co. Kildare
N45	Brayton Park, Kilcock, Co. Kildare

Survey Periods

Unattended noise surveys were undertaken between September 2020 and July 2021. The specific survey dates for each location are included in the survey results tables in Section 3.0.

Attended noise surveys were undertaken between April 2021 and September 2021. The specific survey dates and times for each location are included in the survey results tables in Section 3.0.

Zone F

Unattended Surveys

The unattended noise survey results relating to Zone F are summarised in Table 19.

Within Zone F, trains are the dominant noise source at the monitoring positions in the vicinity of the Proposed Project with contribution also from varying levels of road traffic with the exceptions of the two Depot locations where the main noise sources were road traffic and low farming activity.

Ambient daytime noise levels were measured in the range of 48 to 57 dB $L_{Aeq,16hr}$. Background noise levels during daytime periods were measured in the range of 40 to 47 dB $L_{A90,16hr}$.

Ambient night-time noise levels were measured in the range of 43 to 49 dB $L_{Aeq,8hr}$. Background noise levels during night-time periods were measured in the range of 34 to 41 dB $L_{A90,8hr}$.

L_{den} values at this location were measured in the range of 52 to 59 dB L_{den}.

Table 19 Summary of unattended noise measurements in Zone F

Location	Date	Daytime				Evening	Night-time					L_{den}
		$L_{Aeq,16hr}$	L_{day}	$L_{A10,16hr}$	$L_{A90,16hr}$	$L_{evening}$	L_{night}	$L_{A10,8hr}$	$L_{A90,8hr}$	$L_{AFMax,\ 8hr,\ max}$	$L_{AFMax,\ 8hr,\ min}$	
N42	12/01/2021	52	54	51	46	50	46	47	41	67	53	55
N56	14/07/2021	48	49	50	45	47	44	46	37	70	49	52
N57	15/07/2021	50	46	49	40	52	48	44	34	81	53	55
N43	09/12/2020	53	55	55	46	51	45	45	35	70	62	55
N44	09/12/2020	57	57	60	47	56	49	47	36	80	63	59
N45	10/12/2020	50	52	51	46	48	43	44	38	67	52	52

DART+ West
RODIDOM FOUGHAN & O'DONOVAN C3 Projects

Summary and Conclusions

Baseline noise monitoring has been undertaken at 53 locations across the DART+ West study area to inform the baseline study for the noise and vibration chapter of the DART+ West EIAR.

The survey locations have been selected to gain a representative range of noise levels associated with the nearest noise sensitive areas which have the potential to be impacted by construction works and/or those likely to be impacted during the operational phase of the DART+ West Project.

Long-term surveys (typically 24hours in duration) were made at a total of 42 locations. Short-term surveys (attended measurements) were made at a total of 11 locations along the length of the Proposed Project to supplement the long-term surveys.

The majority of noise sensitive buildings and areas along the length of the Proposed Project are in urban and suburban areas, however, more rural locations were surveyed towards the western end of the scheme. Trains are the dominant source of noise at the vast majority of survey locations.

Northwest

Location N56	
Location N57	

N 56 Threadstown House.

Dart West wrote me and requested permission to locate a recording station on my property I replied and requested the most basic information in relation to this and they never replied.. I wrote to them again last year when representatives for DART West flew a drone over my house and property without permission and disturbed my animals and I was then informed that they did not wish to proceed with the baseline tests in Ballycurraghan. There are no baseline tests run or recordings taken from the residences in Ballycurraghan

Appendix A14.3 Construction Noise Source Data

Table 16 OBG23A Overbridge

Activity	Equipment	Data Source	Activity dB $L_{Aeq,T}$ at 10m
Advanced Enabling & Utility Works and traffic diversion	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
	Mini-Digger	BS 5228-1:2009 Table C.4:67	74
Foundation construction	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:2	78
	Micropiling Rig	BS 5228-1:2009 Table C.3:17	76
	Concrete mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Piers construction	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Abutments construction	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Deck construction	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69

Table 17 Depot Construction

Activity	Equipment	Data Source	Activity dB $L_{Aeq,T}$ at 10m
Advanced Enabling & Utility Works, Site Preparation Works	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
OBG24 Demo	Breaker mounted on Excavator	BS 5228-1:2009 Table C.1:9	90
	Dust Suppression	BS 5228-1:2009 Table C.4:91	78
	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
	Crane	BS 5228-1:2009 Table C.4:43	70

Activity	Equipment	Data Source	Activity dB $L_{Aeq,T}$ at 10m
EarthWorks	Bulldozer	BS 5228-1:2009 Table C.8:6	78
	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
Contouring the Subbase (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Medium Roller	BS 5228-1:2009 Table C.5:24	84
	Grader	BS 5228-1:2009 Table C.6:31	86
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
First Ballast Layer Extension (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Medium Roller	BS 5228-1:2009 Table C.5:24	84
	Grader	BS 5228-1:2009 Table C.6:31	86
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
Lay steepers, fix rails (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
Second ballast layer and topographic alignment (Outer Track)	Road-Rail Excavator	BS 5228-1:2009 Table C.2:14	79
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
	Tamper	Estimate	91
Excavation of foundations (Main Buildings)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
Construction of foundations (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Columns and Frames and intermediate slabs (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Installation of services (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Mini-Digger	BS 5228-1:2009 Table C.4:67	74
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
Roof, façades, finishes (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82

Installation of services (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Mini-Digger	BS 5228-1:2009 Table C.4:67	74
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
Roof, façades, finishes (Main Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
Excavation of foundations (Other Buildings)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
Construction of foundations (Other Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Columns and Frames and intermediate slabs (Other Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
Installation of services (Other Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	Mini-Digger	BS 5228-1:2009 Table C.4:67	74

Activity	Equipment	Data Source	Activity dB $L_{Aeq,T}$ at 10m
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
Roof, façades, finishes (Other Buildings)	Crane	BS 5228-1:2009 Table C.4:43	70
	HGV	Average of BS 5228-1:2009 Table C.11:4-20	82
Contouring the Subbase (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Medium Roller	BS 5228-1:2009 Table C.5:24	84
	Grader	BS 5228-1:2009 Table C.6:31	86
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
First Ballast Layer Extension (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Medium Roller	BS 5228-1:2009 Table C.5:24	84
	Grader	BS 5228-1:2009 Table C.6:31	86
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
Lay steepers, fix rails (Outer Track)	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
Second ballast layer and topographic alignment (Outer Track)	Road-Rail Excavator	BS 5228-1:2009 Table C.2:14	79
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
	Tamper	Estimate	91
SET	Pile Boring Rig	BS 5228-1:2009 Table C.3:14	83
	Concrete Pump	BS 5228-1:2009 Table C.4:25	82
	Concrete Mixer Truck	BS 5228-1:2009 Table C.4:20	80
	Concrete Vibrator	BS 5228-1:2009 Table C.4:34	69
	Articulated Dump Truck	BS 5228-1:2009 Table C.4:1	81
	360 Excavator (20t)	BS 5228-1:2009 Table C.2:21	71
	Crane on Truck	BS 5228-1:2009 Table C.4:53	77
	Mini-Digger	BS 5228-1:2009 Table C.4:67	74
	Welding Equipment	BS 5228-1:2009 Table C.3:31	73
	Saw	BS 5228-1:2009 Table C.4:73	84
	4 Wheel Platform	BS 5228-1:2009 Table C.4:59	78
Urban development	Mini-Digger	BS 5228-1:2009 Table C.4:67	74

The above table only serves to confirm the level of noise emanating from the depot and associated works will consistently be in excess of 80 decibels for any one machine. When all machineries included to reflect the scale of the works the noise pollution is going to be quite considerable.

Appendix A20.1 Recorded Archaeological Sites

AH No.	AH34
RMP No.	KD005-009001
Statutory protection	RMP
Townland	Laraghbryan East
Parish	Laraghbryan
Barony	North Salt
Classification	Ecclesiastical site
ITM Ref	692219/737732
Dist. from proposed development	c. 200m ENE
Description	The site was an early monastic foundation associated with St Senan (possibly of Scattery Island, Co Clare). The death of its abbot Glaindibur is recorded in AD 767 and its oratory was burnt and plundered by the 'men of Meath' in AD 1036 and again in AD 1040. (Gwynn and Hadcock 1970, 396). Because of it's location on a major route way, it was, according to McSweeney (1940, 125), a monastic rest house for pilgrims and clerics passing E and W. A medieval church (KD005-009002-) and graveyard (KD005-009002-) are likely to stand on, or close to, the early monastery, of which no visible surface trace survives; except for a small portion of a possibly associated enclosure (KD005-021----) c. 250m to the NE. According to the OSL (Herity 2002, 15-16) Archdall records the death of the First Earl of Kildare at Laraghbryan in AD 1316.
Source	SMR File

AH No.	AH35
RMP No.	KD005-009002
Statutory protection	RMP
Townland	Laraghbryan East
Parish	Laraghbryan
Barony	North Salt
Classification	Church
ITM Ref	692229/737743
Dist. from proposed development	c. 200m ENE
Description	The church is mentioned in Strongbow's confirmation of the Glendalough possessions as belonging to Glendalough in 1173, and was later subservient to St. Mary's Maynooth

	(KD005-016----) with which it was united in 1518. According to the OSL (Herity 2002, 15-16) Archdall records the death of the First Earl of Kildare at Laraghbryan in AD 1316. It was in good condition in 1615, and in 1630, although by the latter date the chancel was 'uncovered' (IHR 1941a, 47-8; IHS, 98). Stands to SW of centre of a graveyard (KD005-009003-). A fairly well-preserved, but completely ivy-clad, rectangular structure (int. dims. L 24.9m E-W; Wth 5.9m) built of coursed, limestone blocks (walls av. T 0.8m) with roughly dressed quoins, comprises a nave (int. dims. L 14m; Wth 5.9m) and slightly narrower chancel (int. dims. L 10.9m; Wth 5.35m), with a later, three-storied, rectangular tower (int. dims. L 3.5m E-W ; Wth 2.5m: wall T 0.6m) abutting the W gable wall. The nave can be entered through either of two, almost opposing, opes near the W ends of the N (Wth 3.5m) and S walls (Wth 3.3m), which are probably enlarged original doorways. The nave is lit by one window in the N wall and two in the S wall; all tall, pointed-arched and set in broadly splaying, round-arched embrasures and probably 14thC in date, and plaster survives on the wall faces. The slightly narrower chancel has a modern burial vault inserted into its E end where the original E window is robbed-out. It is lit by one window in the N wall and three in the S, one of which is now blocked-up, all similar to those in the nave. There are two doorways in the N wall. The more easterly one (Wth 1.5m) appears to be a later insertion into an older window ope opposite a similar ope in the S wall, while the more westerly one (Wth 1.8m) is almost opposite a third doorway (Wth 1.3m) which also appears to be a later insertion into an older window ope into which a single light, cusped ogee-headed window head with hood-moulding, and concave jambs (15thC?) was previously inserted, in the S wall. The later tower is entered from the nave through a low, narrow (Wth 0.87m) round-headed doorway. The ground-floor is lit by a loop in the SW angle from where a lintelled intramural stairs leads to first-floor level which is lit by a loop in the N and S walls and contains a wall-cupboard in the N wall. A spiral stairs in the NW angle leads to second-floor level which is lit by a loop in the SW angle.
Source	SMR File

AH No.	AH36
RMP No.	KD005-009003
Statutory protection	RMP
Townland	Laraghbryan East
Parish	Laraghbryan
Barony	North Salt
Classification	Graveyard
ITM Ref	692240/737748
Dist. from proposed development	c. 200m ENE
Description	On level, improved pasture c. 50m N of the Lyreen River, possibly on the site of an Early Christian monastery (KD005-009001-), with traces of a possibly associated enclosure (KD005-021-) c. 250m to the NE, and c. 200m S of a possible castle site (KD005-008----). A large, sub-rectangular roadside graveyard (dims. L c. 90m E-W; Wth c. 80m N-S) is enclosed by a well-built mortared stone wall. It contains a medieval church (KD005-009002-) to SW of centre. Legible burial markers date from the 18th century to the present-day. Archaeological monitoring (Licence no. 97E0390) of the excavation of a gas pipeline trench along the road verge immediately S of the graveyard revealed previously disturbed ground but no archaeological deposits. (www.excavations.ie)
Source	SMR File

AH No.	AH37
RMP No.	KD005-033
Statutory protection	No
Townland	Maws
Parish	Laraghbryan
Barony	North Salt

Appendix A20.2 Legislative Framework Protecting the Archaeological Resource

Kildare County Development Plan 2017-2023

It is the policy of the Council to:

- **AH 1**
  - Manage development in a manner that protects and conserves the archaeological heritage of the county, avoids adverse impacts on sites, monuments, features or objects of significant historical or archaeological interest and secures the preservation in-situ or by record of all sites and features of historical and archaeological interest. The Council will favour preservation in – situ in accordance with the recommendation of the Framework and Principals for the Protection of Archaeological Heritage (1999) or any superseding national policy.

- **AH 2**
  - Have regard to the Record of Monuments and Places (RMP), the Urban Archaeological Survey and archaeological sites identified subsequent to the publication of the RMP when assessing planning applications for development. No development shall be permitted in the vicinity of a recorded feature, where it detracts from the setting of the feature or which is injurious to its cultural or educational value.

- **AH 3**
  - Secure the preservation (in-situ or by record) of all sites, monuments and features of significant historical or archaeological interest, included in the Record of Monuments and Places and their settings, in accordance with the recommendations of the Framework and Principles for the Protection of Archaeological Heritage, DAHG (1999), or any superseding national policy document.

- **AH 4**
  - Ensure that development in the vicinity of a site of archaeological interest is not detrimental to the character of the archaeological site or its setting by reason of its location, scale, bulk or detailing and to ensure that such proposed developments are subject to an archaeological

assessment. Such an assessment will seek to ensure that the development can be sited and designed in such a way as to avoid impacting on archaeological heritage that is of significant interest including previously unknown sites, features and objects.

- **AH 5**
  - Contribute towards the protection and preservation of the archaeological value of underwater or archaeological sites associated with rivers and associated features.

- **AH 6**
  - Contribute towards the protection of historic burial grounds within the county and encourage their maintenance in accordance with conservation principles in co-operation with the Historic Monuments Advisory Committee and National Monuments Section of Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA).

- **AH 7**
  - Promote and support in partnership with the National Monuments Section of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs (DAHRRGA), the concept of Archaeological Landscapes where areas contain several Recorded Monuments.

- **AH 8**
  - Encourage, where practicable, the provision of public access to sites identified in the Record of Monuments and Places under the direct ownership, guardianship or control of the Council and/or the State.

- **AH 9**
  - Encourage the provision of signage to publicly accessible recorded monuments.

Appendix A20.3
Site Inspection Report

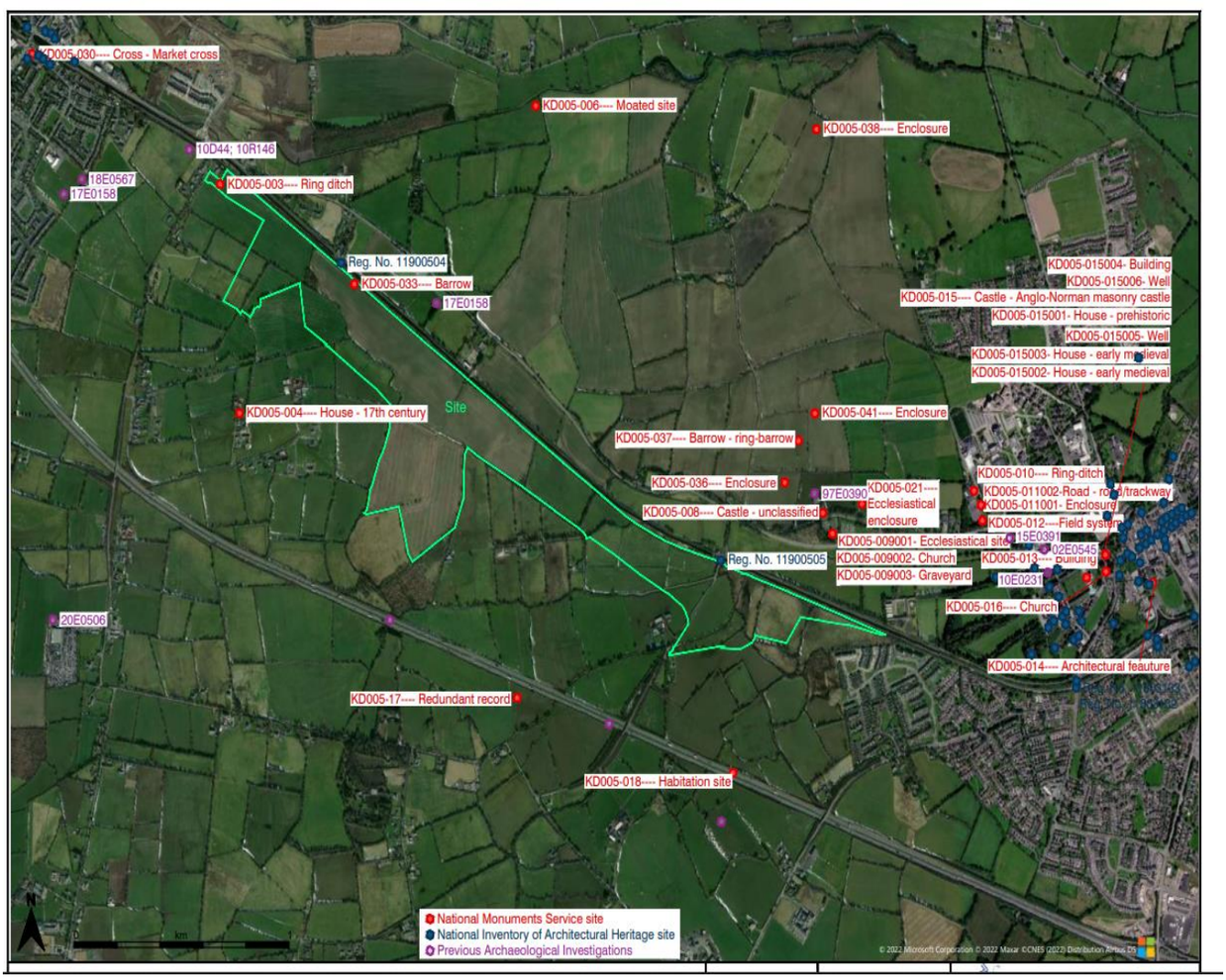
From AAP26, the proposed development continues in a westerly directly along the path of the existing railway, where is passes through Maynooth. To the west of Maynooth is the large greenfield area (AAP27), which is required for the proposed depot and compensatory flood measures. It should be noted that a large portion of AAP27 have been subject to geophysicial survey.

AAP27 comprises all, or parts, of 23 fields under a mixture of arable and pasture (Figure 0-13 and Figure 0-14). The landscape, overall is level and is bounded to the northeast, for the most part, by the existing railway line. A portion of the proposed development does extend to the northeast of the railway line where it is bordered by a regional road. Neither CH086 or AH37 possess upstanding remains, having been identified from aerial photographs as crop marks. This is also the case with regards to CH088 or AH39 , which were also identified from aerial photographic coverage. The geophysical survey and field inspection indicates that there are no large-scale previously unrecorded archaeological sites within AAP27. Some of the identified responses may be of archaeological significance and represent smaller scale or more emphemeral sites, which do not possess surface expression. It is also clear that the area has been subject to intensive farming in more recent years.

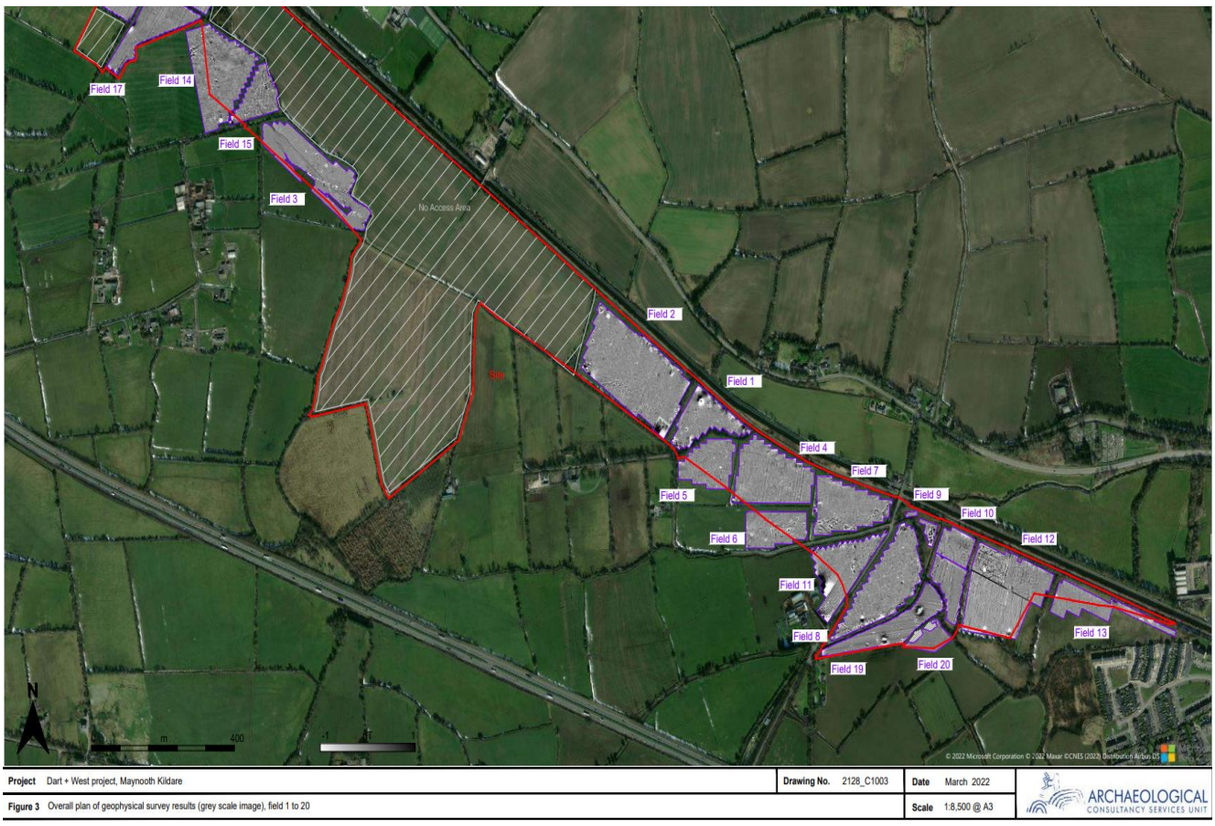
AAP29 is located to the north of AAP26, and is bordered to the south by the Lyereen River and to the north by a regional road. The land is level and under pasture and is crossed by a significant amount of overhead wires (Figure 0-15). No previously unrecorded archaeological features were noted, but the presence of the river to the south increases the overall general archaeological potential.

Figure 0-13 View of the southern portion of AAP28, facing southwest

Appendix A20.4 Geophysical Survey Report



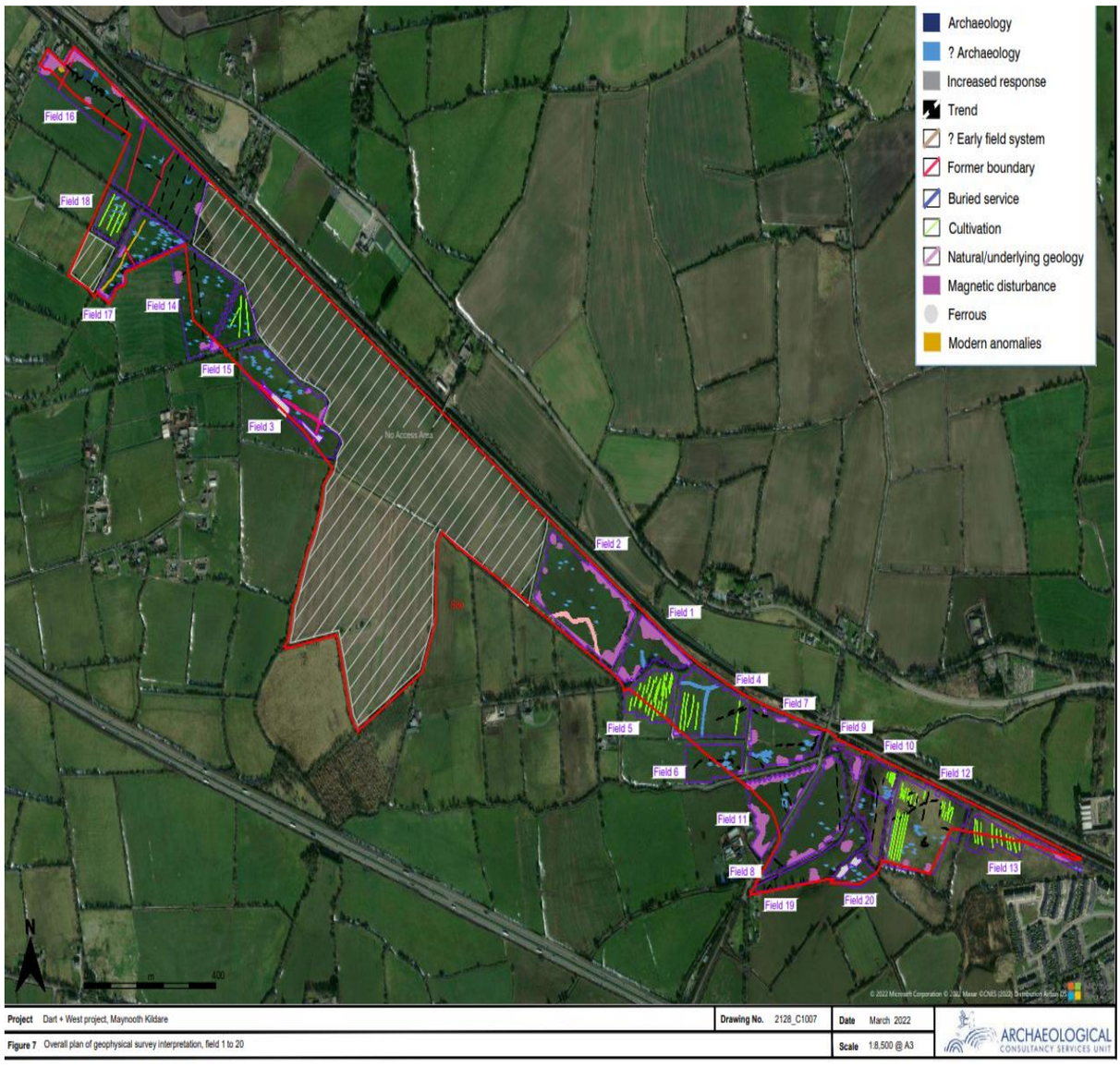
It's important to note here that the proposed Entrance to Ballycurraghan from link road L 5041 has not identified the cut-stone bridge and large tracts of the proposed depot site have not been investigated at all.



Project Dart + West project, Maynooth Kildare	**Drawing No.** 2128_C1003	**Date** March 2022	ARCHAEOLOGICAL CONSULTANCY SERVICES UNIT
Figure 3 Overall plan of geophysical survey results (grey scale image), field 1 to 20		**Scale** 1:8,500 @ A3	

Again, it's important to note here that the cold stone bridge mentioned above has been surveyed but not included as part of this report. I believe this breach dates back to construction of Jacksons bridge which is a protected structure

This plan shows the significant area around the depot which has not been investigated at all quoting reason for saying has no access.



Here we can clearly see almost 100 acres of the proposed site has not been inspected or investigated

Appendix A21.4
Conservation Report

28. JACKSON BRIDGE (OBG23)

Built heritage reference in EIAR: BH-195

ITM grid reference: 691728, 737647

28.1 Historical summary

At the time of the construction of the Royal Canal in the late eighteenth century a local road, now designated the L5041, ran northward across the line of the proposed canal. This road was an amalgamation of two road, one running northward and the other eastward, the latter joining the northbound road at a T-junction to the south of the proposed line of the canal. The combined roads ran northward, crossing a stream by means of a ford, before joining the main road running between Maynooth and Kilcock, which was then the main road between Dublin and Sligo. The Royal Canal Company built a bridge to carry this local road over the canal and named it Jackson Bridge in honour of Henry Jackson, one of the original shareholders in the company and a director of the company between 1793 and 1798. His directorship came to a sudden end when his membership of the United Irishmen was discovered, and he fled the country to Pennsylvania to avoid being arrested.

By the time of the publication of the first Ordnance Survey map of the area in 1837 the alignment of the northbound local road had been changed and it now turned north-westward to join the eastbound road, leaving the original junction as a tight bend in the road. The stream was now crossed by a bridge and this may have been built by the Royal Canal Company to facilitate the ramp up to the canal bridge. At the top of the ramp the road turned to cross the canal bridge, to ensure that the bridge crossed the canal at right angles so as to simplify construction.

With the coming of the Midland Great Western Railway, it was necessary to build a bridge to carry the local road over the new railway line and the crown of this bridge needed to be higher than that of the canal bridge. This necessitated changes in the ramp leading to the bridge on either side and while this was straight forward to the north of the bridge, the alignment of the road to the south of the canal created problems for the construction of the ramp. It was probably for this reason that the road to the south of Jackson Bridge was realigned to run more directly to the bridge, eliminating the tight bend and shortening the route. Certainly, this realignment had taken place by the time that the second-edition Ordnance Survey map was published in 1870. The railway company realigned the stream to run northward alongside the southern approach ramp and to turn beneath an arch in the new bridge that was provided for it. An additional arch at the southern end of the bridge is likely to have been built as an accommodation arch to connect the farmland on either side of the road.

The original alignments of both local roads were subsequently cut by the M4 motorway and replaced by a new road crossing the motorway, though this has not had any impact on Jackson Bridge or the road in its vicinity.

28.5 Predicted impacts

Predicted direct construction impacts:

None.

Predicted indirect construction impacts:

The setting of the bridge will be affected by the works to construct the new railway alignment and the new depot.

Predicted operational impacts:

The presence of the new depot will have a negative effect on the setting of the bridge and lock.

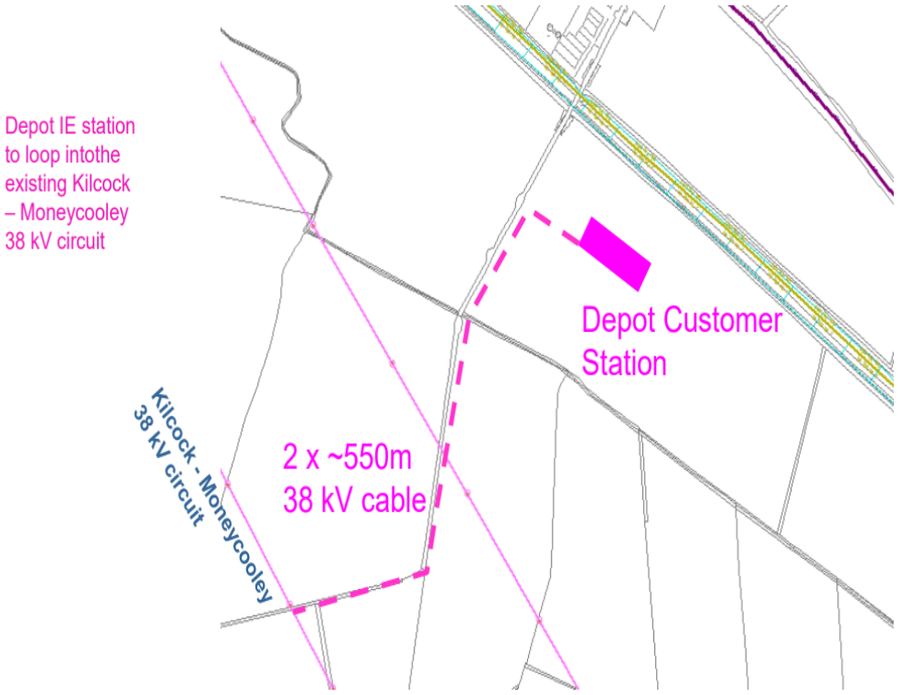
28.6 Mitigation

There is no opportunity for mitigating the impact on the setting of the bridge during construction and screen planting in the vicinity of the depot will reduce the impact on the setting of the bridge at operation phase.

Appendix A22.1
Site Survey Plots

Appendix A26.1
ESB Networks –
Substation Connections

Depot rail station connection



15

esbnetworks.ie

Site Specific Floor Risk Assessment July 2022

Jacksons Bridge

4.2.4.2 Jackson Bridge - Rail Track

The area directly south of the royal canal between Maynooth and Kilcock has a history of flooding and has been subject to CFRAMS hydraulic assessment reflecting the same. The Lyreen River flows under the canal and railway via an inverted syphon (UBG22) ~100 m south east of Jacksons Bridge (OBG23). UBG22 appears to have insufficient capacity and causes flooding upstream, inundating the tracks and area proposed for the depot. This appears to occur in relatively frequent events (<=10% AEP). Jacksons bridge is a local low point and according to the CFRAMS, floodwaters are likely to reach track level in a 10% AEP event and reach ~400 mm in depth in a 0.1% event. CFRAMS flood levels including an allowance for climate change are not publicly available at this location but it is anticipated that these would increase significantly. The sites at Jackson Bridge are considered to require a stage 3 detailed flood risk assessment with respect to fluvial flooding.

4.4 Conclusion of Stage 2 SFRA

The available sources consulted above indicate that discreet sections of the development lands are liable to flood in extreme events. Existing available information is not sufficient to provide a quantitative appraisal of flood risk to the proposed development at these locations. As per the OPW Guidelines, a Stage 3 detailed flood risk assessment is required to be undertaken to confirm flood risk (water levels and flood extents) to the proposed development. Further assessment is required at:

- Barberstown (XG012) Level Crossing.
- Between Maynooth and Kilcock.

5. STAGE 3 – DETAILED SITE-SPECIFIC FLOOD RISK ASSESSMENT

5.1 Introduction

Stages 1 and 2 of the flood risk assessment for the proposed development have indicated that a series of discrete sections of the scheme are subject to flooding in high probability exceedance events from fluvial sources. Hydraulic models have been prepared to ascertain the effects of extreme fluvial flood events at these locations. This section outlines the hydrological and hydraulic analysis undertaken.

5.6 Hydraulic Modelling Summary

OBG23 Jacksons Bridge - The findings from the hydraulic analysis indicate that the area surrounding the OBG23 Jackson's bridge is low lying and flow is significantly constrained by the canal culvert UDG22. Extreme fluvial events result in considerable flooding in lands south of the canal and subsequent inundation of the rail line. The model indicates that a large portion of the subject area including lands within the footprint of the proposed rail embankment and access road are within Flood Zone A.

The post development model shows flood pathways are maintained by the provision of flood conveyance culverts while displaced volumes are accommodated in the compensatory storage areas. The development results in a minor increase in flood levels south of the proposed embankments though these are seen as negligible overall.

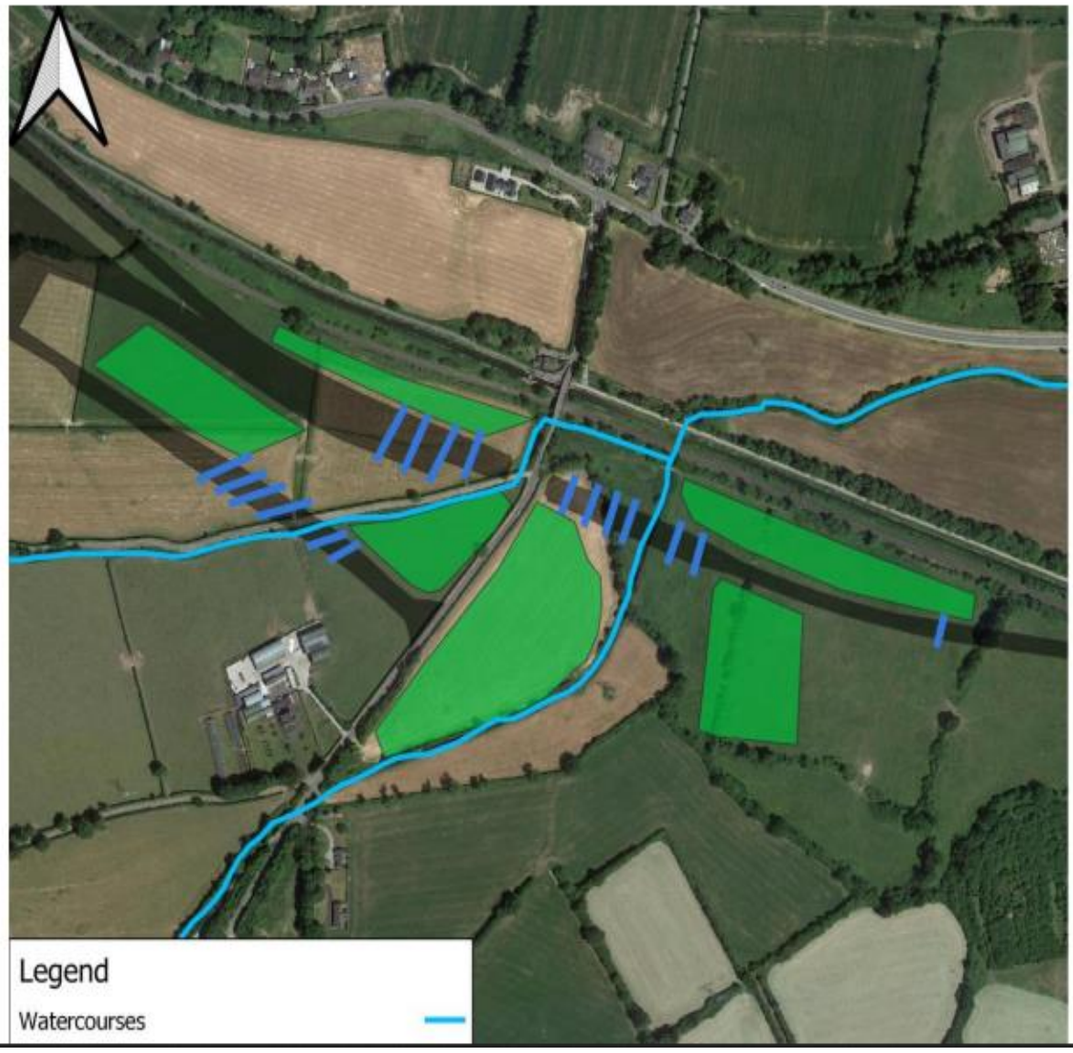
Depot Site – The hydraulic model indicates that out of bank flow paths flow through the Depot site in multiple locations. Flooding is generally shallow with localised areas of ponding. The model indicates that the proposed Depot is within Flood Zone A. The post development model shows flood pathways are maintained by the realigned channel around the proposed Depot. Displaced volumes are accommodated in the compensatory storage areas. The development results in a minor increase in flood levels to the west of the Depot though these are seen as negligible overall.

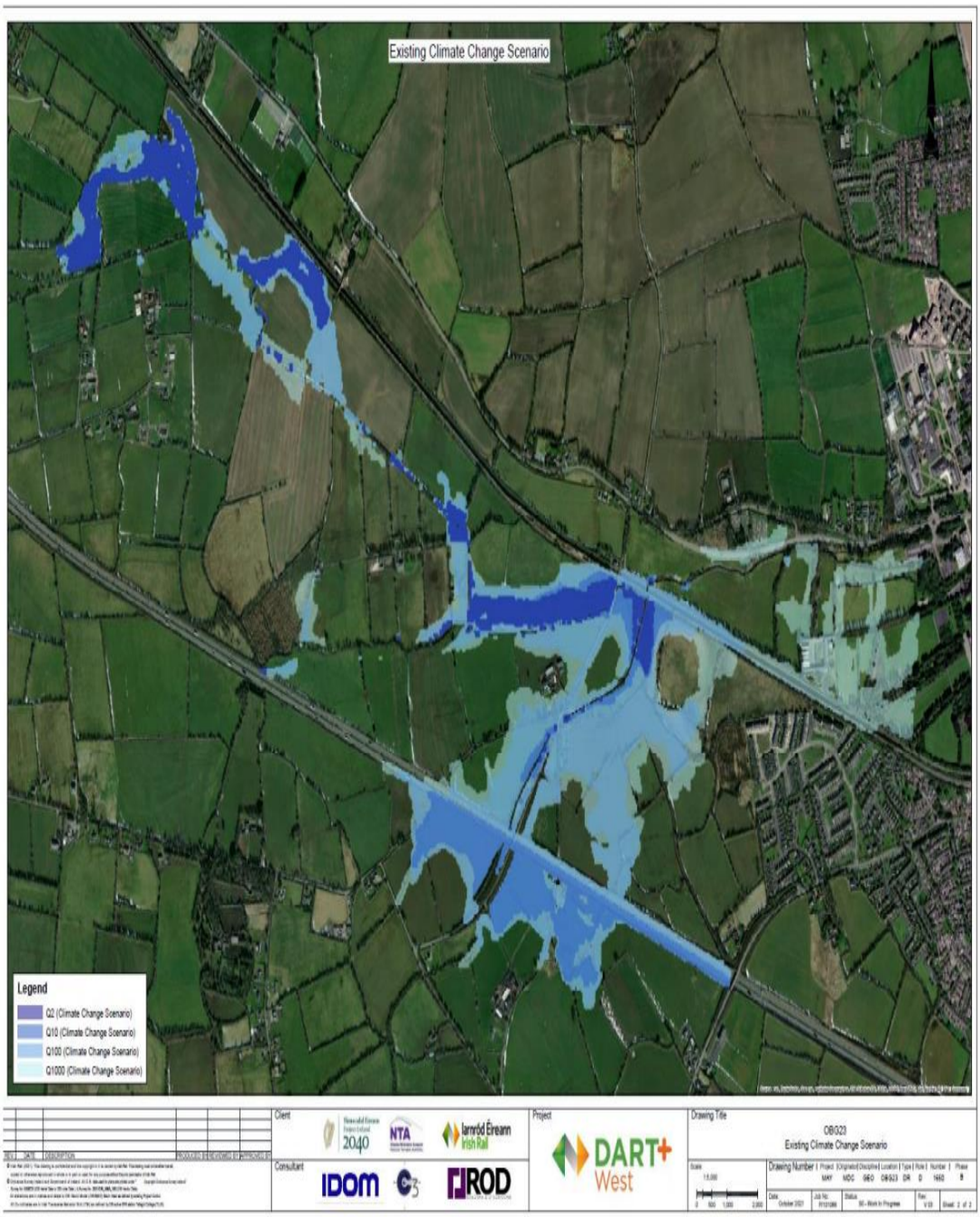
Although great care and modern widely-accepted methods have been used in the preparation and interpretation of the hydraulic model, there is inevitably a range of inherent uncertainties and assumptions made during the estimation of design flows and the construction of flood models. The inherent uncertainty necessitates a precautionary approach when interpreting the flood extent and flood depth mapping.

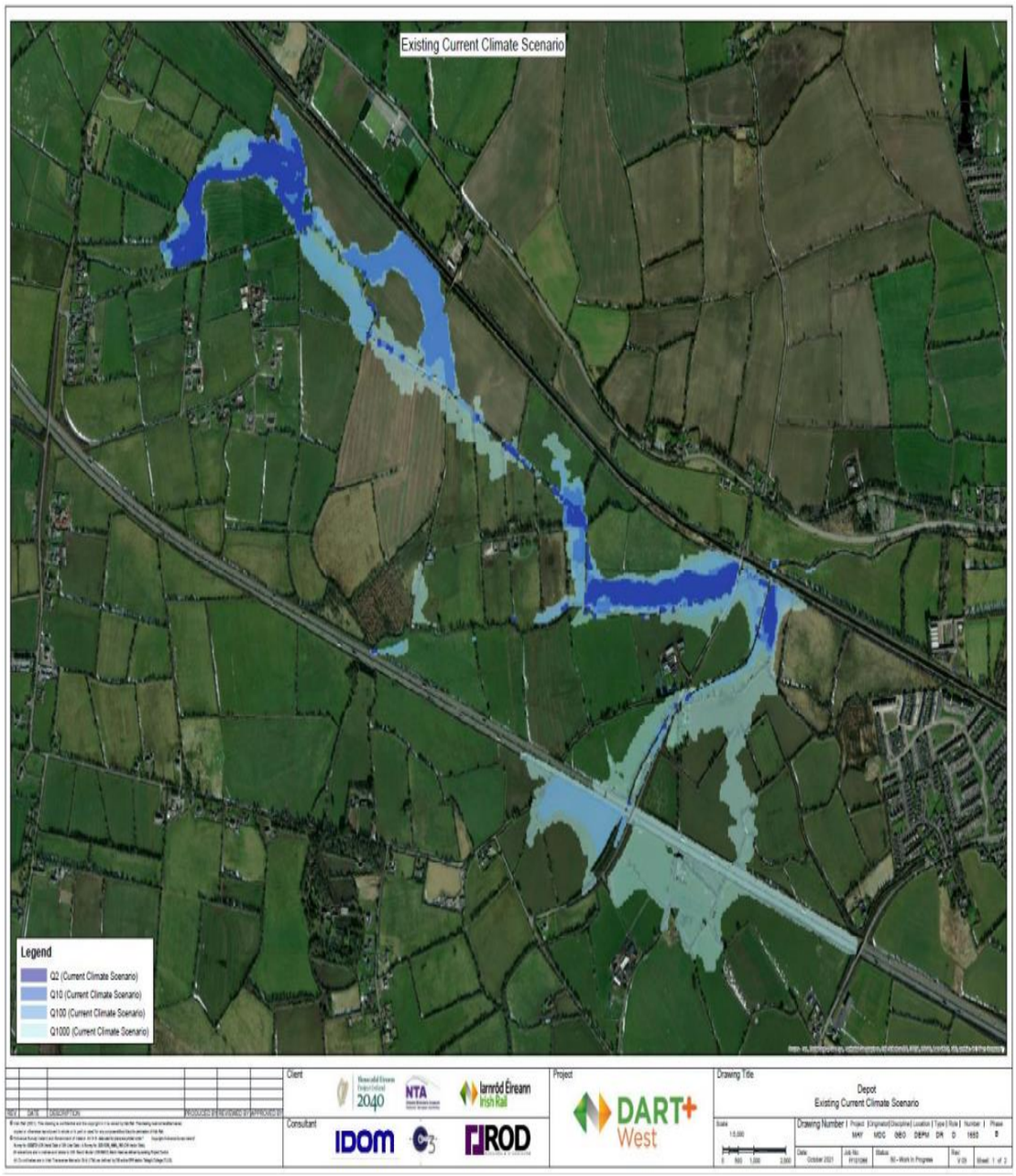
6.4.1 OBG23 Jackson Bridge - Rail Track

The hydraulic modelling undertaken as part of this assessment has identified significant flooding in the vicinity of Jackson's Bridge. The track at this location cannot be raised due to potential conflicts with preserving heritage aspects of Jackson's Bridge. In order to provide a sufficient level of protection to the

line, the development has been moved offline on a raised embankment over the floodplain. Proposed crossings have been sized as to maintain existing flood levels. Bridges soffits are to maintain a freeboard of >300 mm above the 1% AEP (+ climate change) flood level while the minimum rail level will maintain a freeboard of >500 mm above the 0.1% AEP (+ climate change) events. A schematic showing proposed measures is presented in Figure 6-1 below. Detailed plan layout and cross sections though compensatory storage areas are presented in Appendix 13.

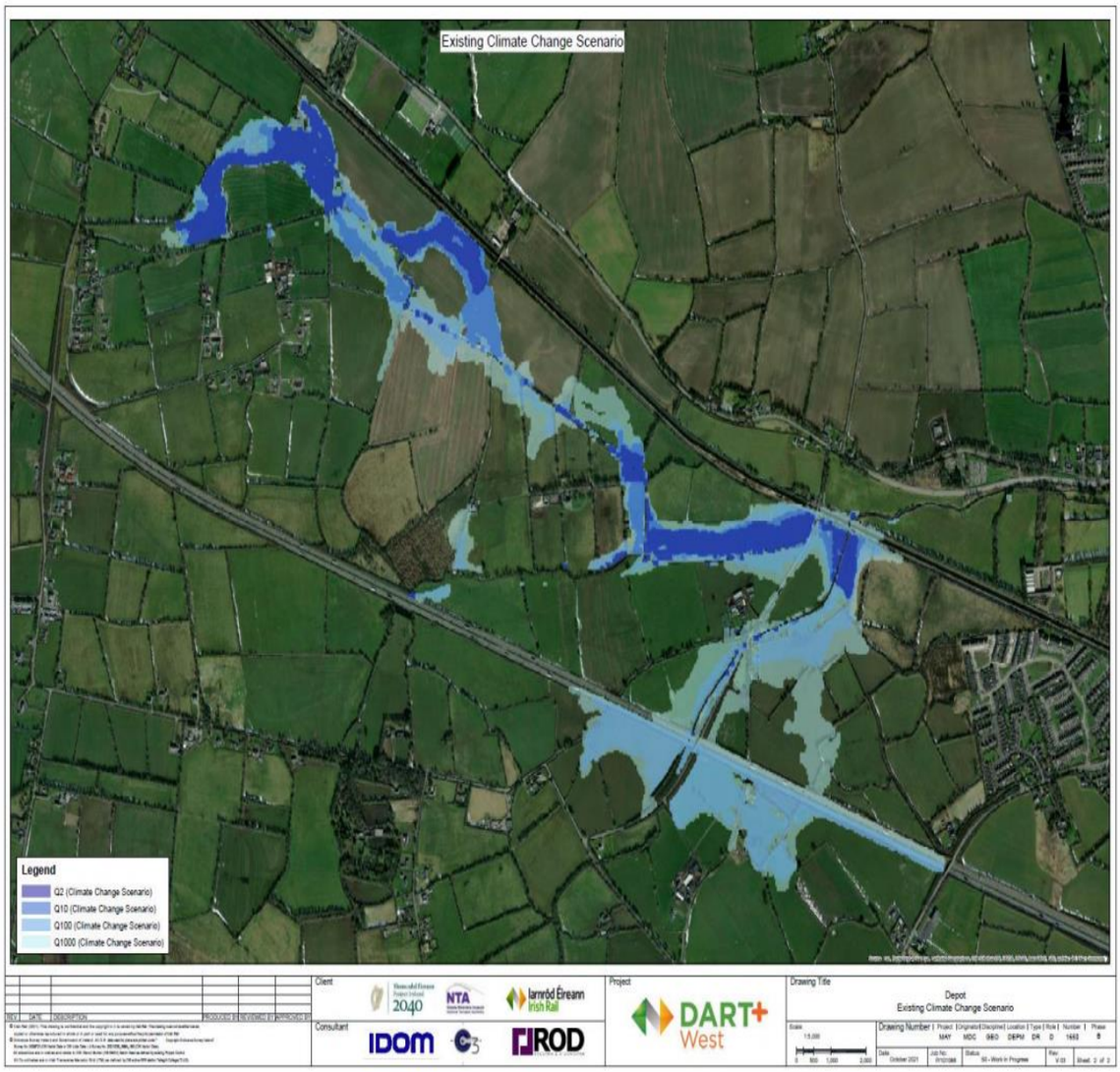



Existing Climate Change Scenario
Legend
Q2 (Climate Change Scenario)
Q10 (Climate Change Scenario)
Q100 (Climate Change Scenario)
Q1000 (Climate Change Scenario)
Client
Consultant
Project
Drawing Title
OBG23
Existing Climate Change Scenario

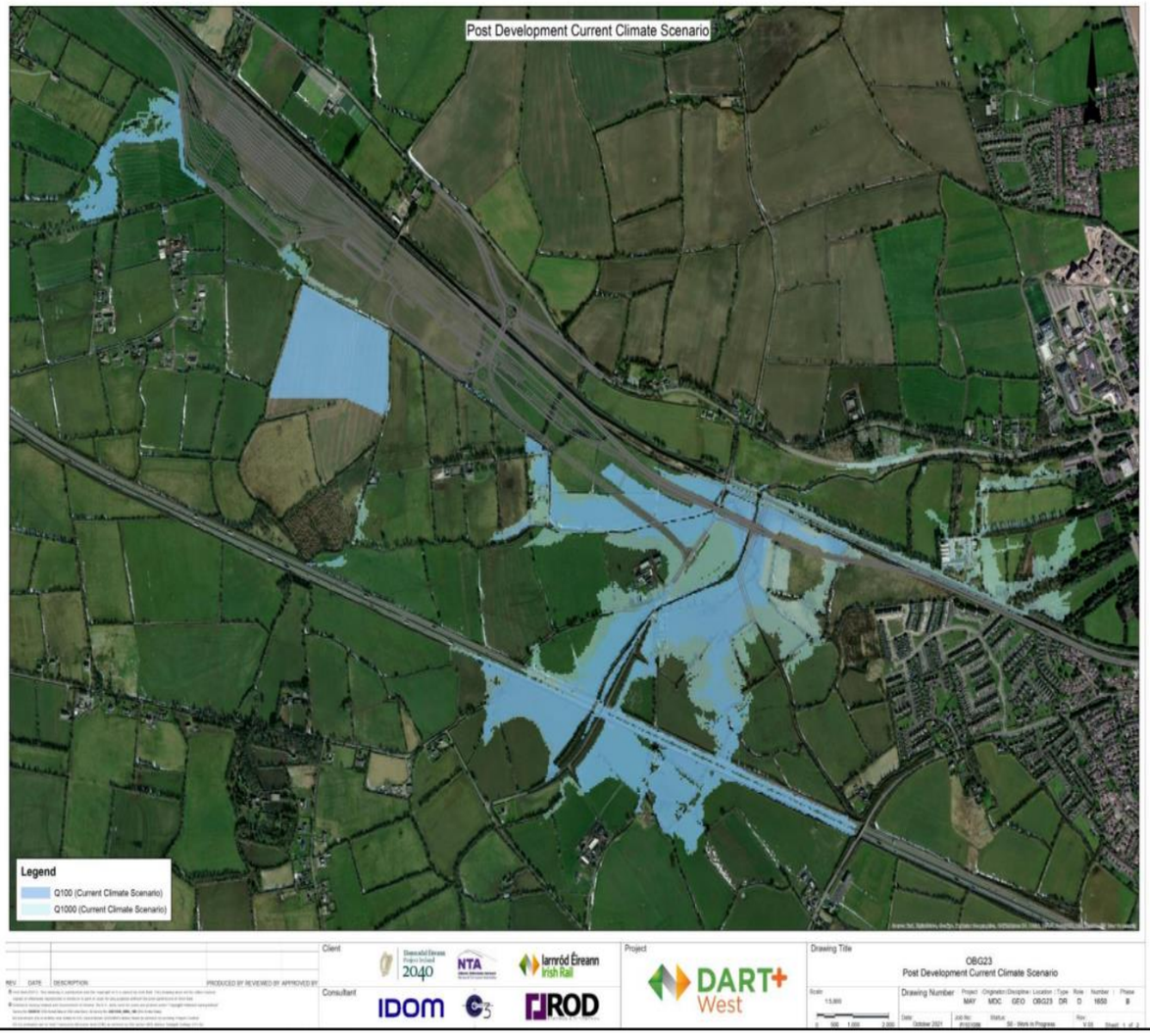


Flood maps showing extent to flooding to Ballycurraghan and surrounding areas.

Existing Climate Change Scenario Depot

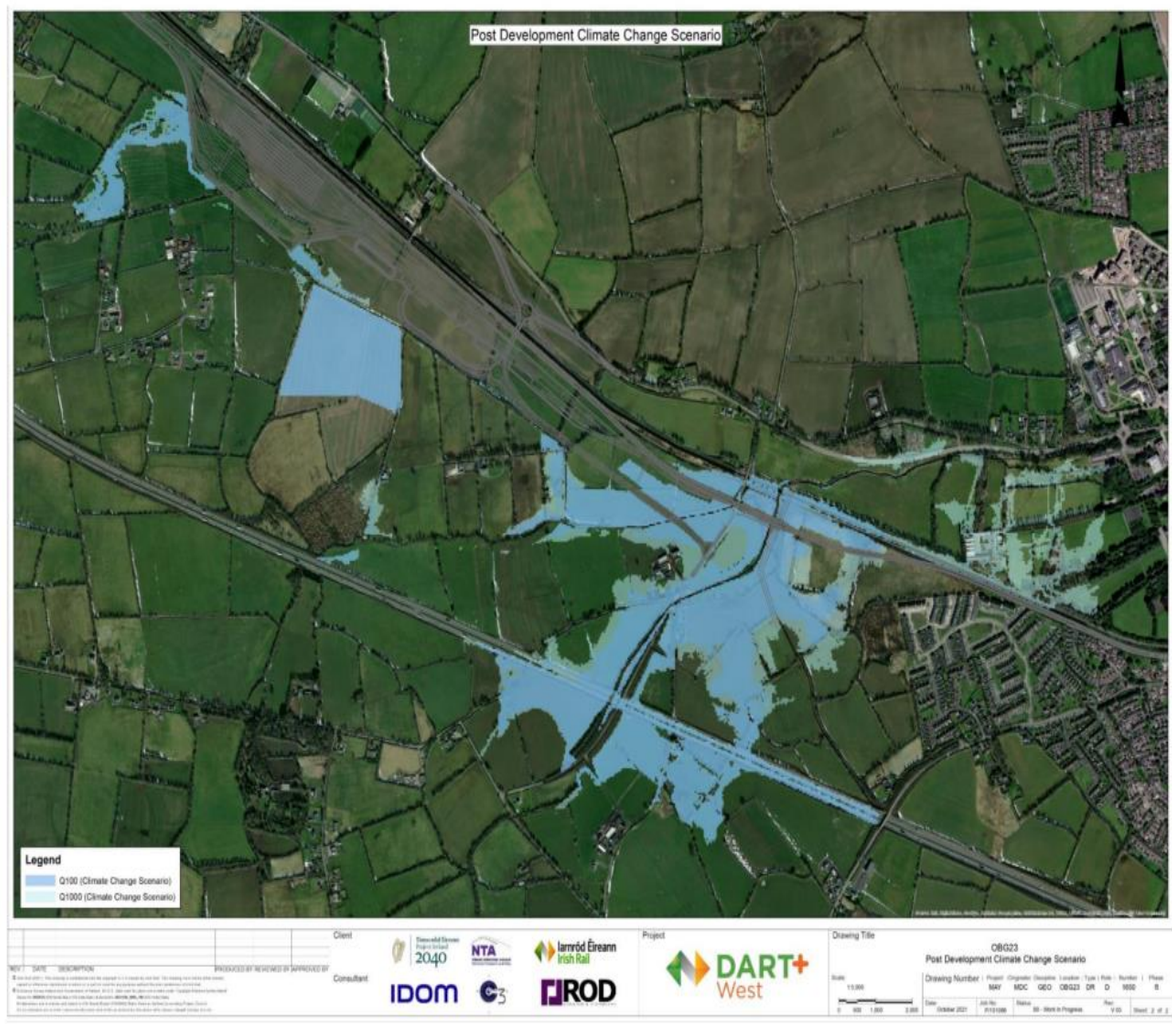


Existing Climate change scenario shows M4 and Gheel Autism flooding

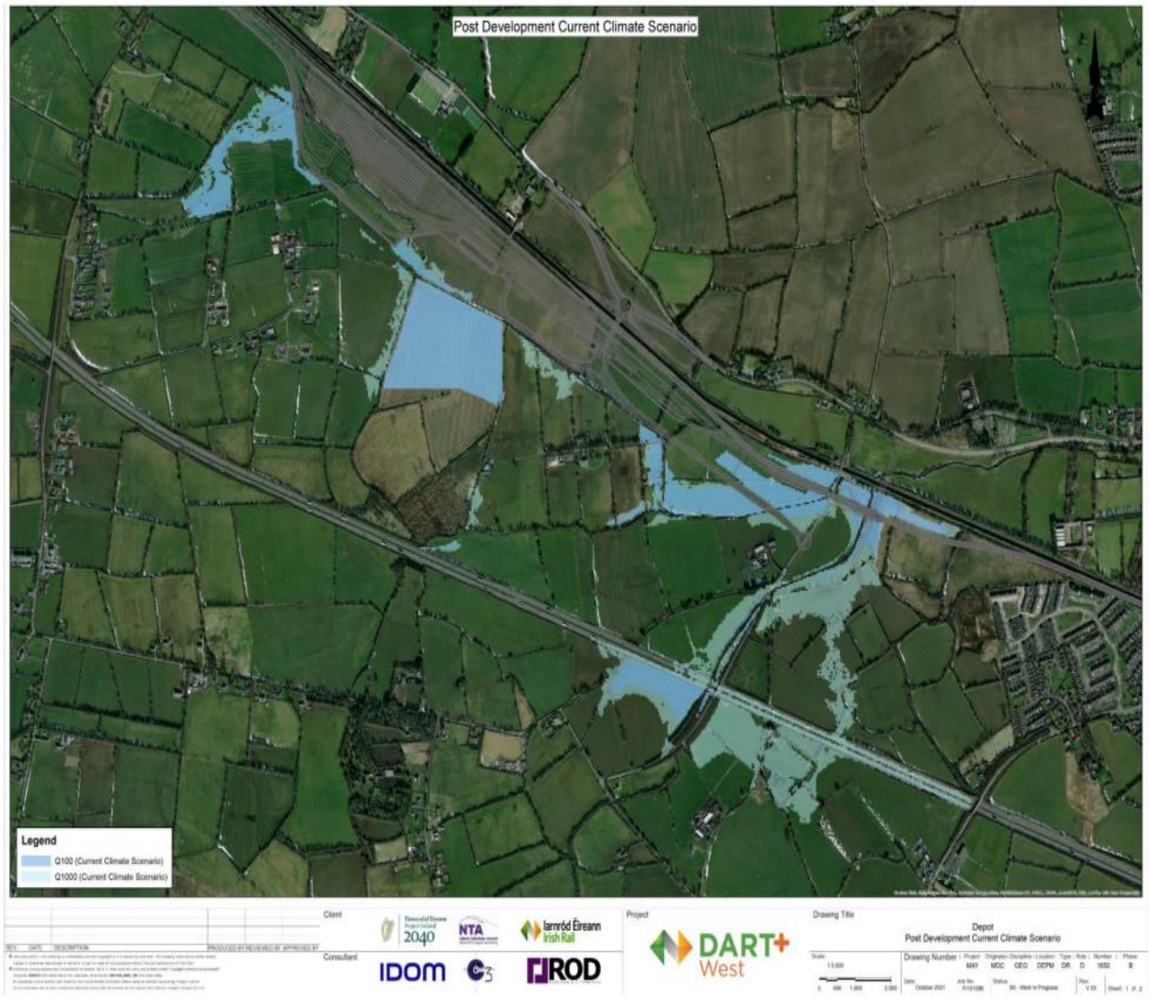


Post development current climate scenario showing projected extent of flooding with M4 Flooding and Gheel Autism Flooded.

Post Development Climate Change Scenario Depot

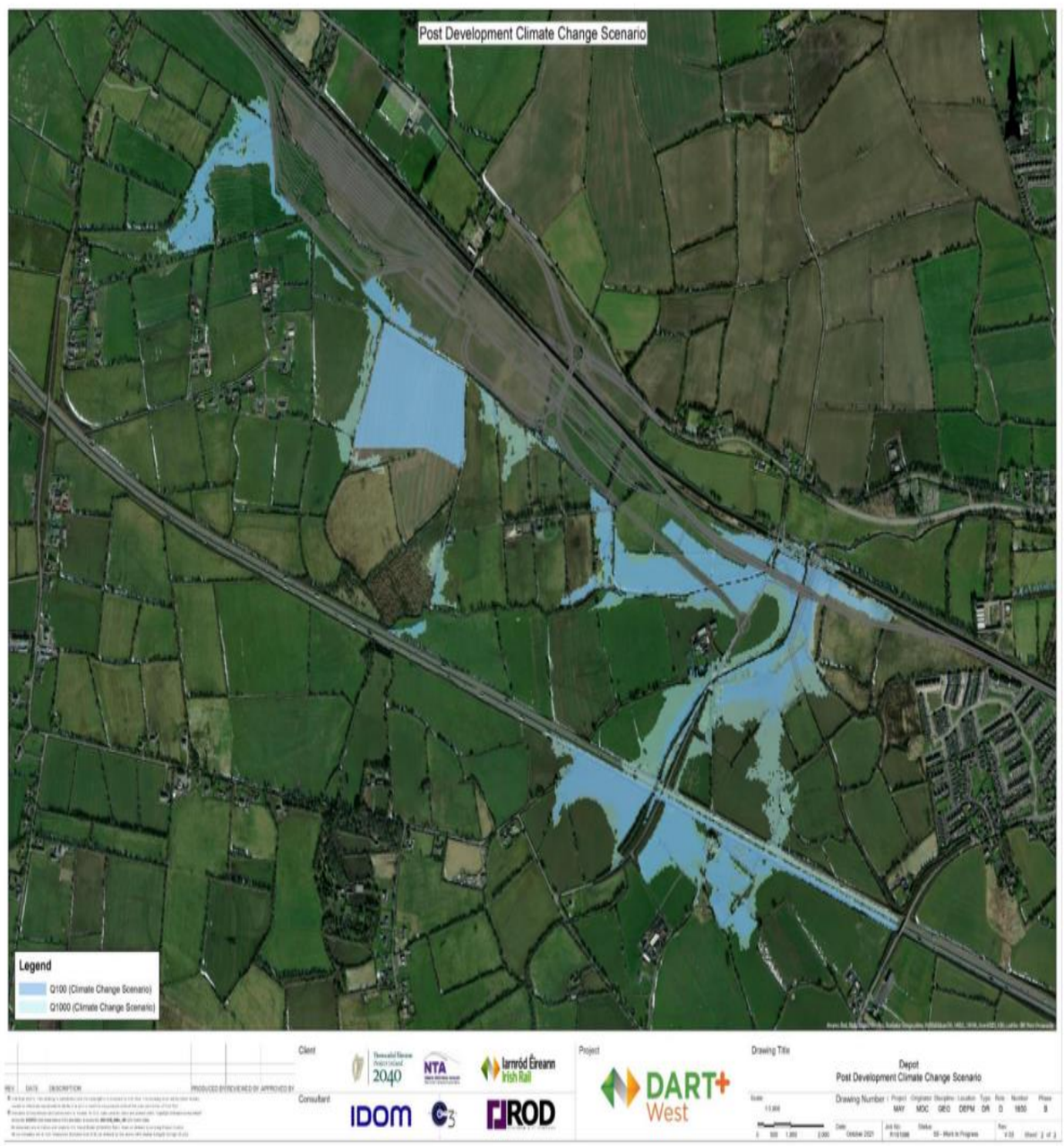


Post development climate change scenario showing projected extent of flooding with M4 Flooding and Gheel Autism Flooded.



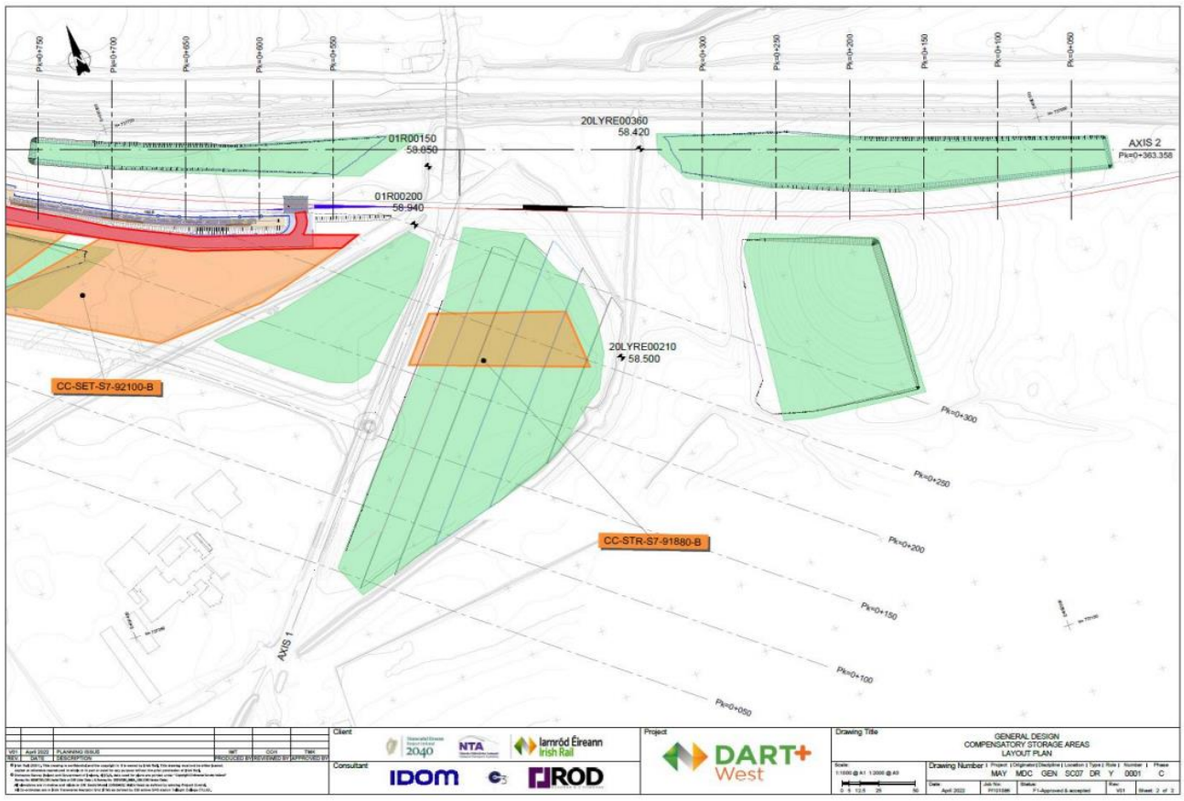
Post development current climate scenario showing projected extent of flooding with M4 Flooding and Gheel Autism Flooded.

Post Development Climate Change Scenario OGB23



Post development climate change scenario showing projected extent of flooding with M4 Flooding and Gheel Autism Flooded.

General Design Compensatory Storage Area Jacksons Bridge



Jackson Bridge - rail track

The Lyreen River has been subject to relatively significant modifications in the vicinity of OBG23 Jackson's Bridge. These are primarily as a result of the rail, canal and motorway crossings. Consultations with landowners have also indicated that the Lyreen was dredged during the course of the motorway construction. It should also be noted that lands directly downstream of the canal culvert appear to have been a deposition area during the motorway construction, resulting in increased levels and removal of floodplain area. The aforementioned existing crossings and topography have been represented in the model.

In the current climate scenario the lands directly upstream of UBG22 flood first with flood waters spreading upstream. The culvert under the M4 also exhibits out of bank flooding that builds up south of the M4 before overtopping the road and flowing both north towards the railway and east along the motorway. Having overtopped the M4 flood waters flow overland parallel to the Lyreen. Flood waters overtop the existing rail line in ~10% AEP event and flow east along the canal. In the 0.1% AEP event, flood depths upstream of UBG22 are in excess of 1.5 m. The model indicates that a large portion of the subject area including lands within the footprint of the proposed road and rail embankments are within Flood Zone A. In the MRFS climate change scenario the flood sources, pathways and receptors are very similar to those seen in the current climate scenario with an overall increase of flood extents in all directions.

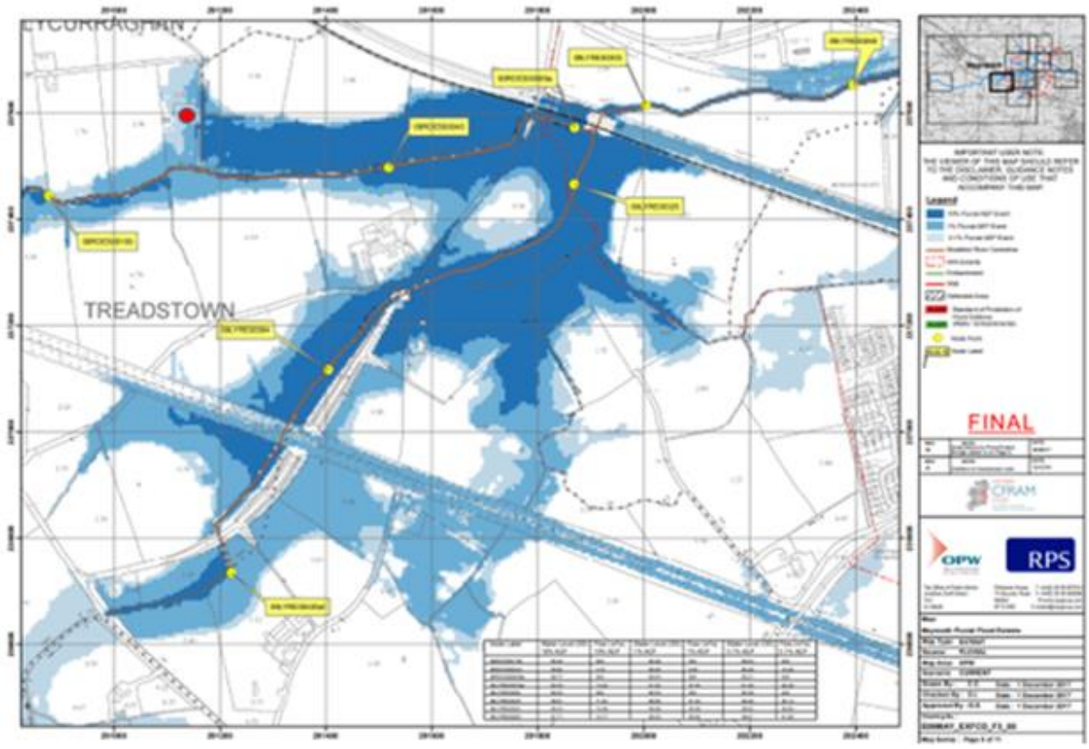
Extent of compensatory water storage area at Jacksons bridge be insufficient as existing area floods extensively already thus no additional compensatory water storage is actually being provided.

Table 10-4 Water Framework Directive Assessment Summary - Rivers and Canals

Water body affected (WFD Code)	Ecological Status Or Potential	Driving element for status classification	Significant Pressures	River Basin Management Plan (RBMP) Measures	Does the proposed DART+ West development prevent the achievement of the subject watercourses WFD Objectives?
LIFFEY_160 (IE_EA_09L012040)	Poor	Extrapolated from Powerstown (Dublin)_010 (IE_EA_09P210700)	Agricultural	Actions to address Agricultural pressures are set out in Section 7.1.6 of the 2nd Cycle RBMP.	The existing rail line crosses the Sillechain stream on the northern periphery of Leixlip. No works are required to the existing culvert crossing. Works will be limited to the provision of OHLE, and associated works required for electrification. Track lowering in the vicinity of OBG13 will require amendments to the existing drainage network. A new outfall is proposed to a drainage ditch that flows through St. Catherine's Park prior to discharging to the River Liffey. Increases to flow rate and volume are envisaged to be negligible. The design of the outfall (including rip rap and check dams) will mitigate erosion within the minor channel. The proposed development will not hinder implementation of measures outlined in the 2nd Cycle RBMP. The proposed development will not hinder implementation of measures outlined in the 2nd Cycle RBMP. The proposed works will have a negligible effect on the subject waterbodies significant pressures and will not prevent the attainment of Good Status.
LIFFEY_180 (IE_EA_09L012350)	Moderate	Extrapolated from MORELL_040 (IE_EA_09M010300)	Urban Run Off, Urban Waste Water	Actions to address pollution from urban waste-water and urban runoff are set out in Section 7.2.3 of the 2nd Cycle RBMP.	The existing rail line crosses the Westmanstown stream ~600m south of Hansfield. No works are required to the existing culvert crossing. The adjacent Barberstown level crossing is to be closed and replaced by a bridge over the railway and Royal Canal. The site specific flood risk assessment for the proposed development has indicated that the proposed works are outside the floodplain of the adjacent Westmanstown Stream.The proposed bridge road network will drain to the Westmanstown Stream. Prior to discharge flows will be attenuated within SuDS measures. Although within the catchment of the subject waterbody, works between Coolmine and Hansfield have been reviewed and are not considered likely to have a perceptible impact on Liffey_180 given the nature of the works and limited hydrological connectivity. The proposed development will not hinder implementation of measures outlined in the 2nd Cycle RBMP. The proposed works will have a negligible effect on the subject waterbodies significant pressures, existing drainage paths and discharge rates / volumes. The proposed development will not prevent Liffey_180 from attaining Good Status.
LYREEN_010 (IE_EA_09L020035)	Poor	Invertebrate Status or Potential	Agricultural, Domestic Waste Water, Hydromorphology, Industry - Nutrient & Organic	Actions to address Agricultural pressures are set out in section 7.1.6 of the 2nd Cycle RBMP. Actions to address Domestic Waste Water pressures are set out in Section 7.1.2 of the 2nd Cycle RBMP. Actions to address	Lyreen_10 is located upstream of the proposed works at OBG23 Jacksons Bridge. No works are proposed within the catchment of Lyreen_10. However, the area including the Lyreen south of the M4 is prone to flooding due to the existing culvert conveying the River Lyreen under the Royal Canal which has been identified as acting as a restriction to flow. The proposed works at this location consist of a new rail embankment and bridge spanning the Lyreen to provide sufficient protection to the proposed rail infrastructure in flood events. A detailed site specific flood risk assessment has been carried out for the proposed development which assessed the propose works at this location (see Supporting Documents prepared for this RO application). The assessment indicated that with the provision of compensatory

Water body affected (WFD Code)	Ecological Status Or Potential	Driving element for status classification	Significant Pressures	River Basin Management Plan (RBMP) Measures	Does the proposed DART+ West development prevent the achievement of the subject watercourses WFD Objectives?
				hydromorphology are set out in Section 7.6.2 of the 2nd Cycle RBMP.Actions to address industrial pressures are set out in Section 7.7 and 7.8 of the 2nd Cycle RBMP.	storage and flood relief culverts there would result in a negligible effect on the flood regime overall.The proposed development will not hinder implementation of measures outlined in the 2nd Cycle RBMP. The proposed works will have a negligible effect on the subject waterbodies significant pressures, due to the limited nature of interventions within the catchment. The proposed development will not prevent Lyreen_010 from attaining of Good Status.
LYREEN_020 (IE_EA_09L020100)	Poor	Invertebrate Status or Potential	Agricultural, Urban Run Off	Actions to address Agricultural pressures are set out in Section 7.1.6 of the 2nd Cycle RBMP. Actions to address pollution from urban waste-water and urban runoff are set out in Section 7.2.3 of the 2nd Cycle RBMP.	Lyreen_20 comprises stretches of the Lyreen River and its tributaries such as the Ballycaghan Stream and Meadowbrook Stream in the vicinity of Maynooth town. The Rye Water Valley/Carton SAC is located immediately downstream of the Lyreen_20 east of Maynooth. The area has been identified as liable to flood as part of the site specific flood risk assessment (SSFRA), see Supporting Documents prepared for this RO application. The provision of a sufficient standard of flood protection for the proposed development requires the creation of a new offline alignment and bridge crossings of the Lyreen River and the Ballycaghan stream. The offline alignment will be on an earthen embankment raising the rail line above the Lyreen floodplain. A diverted L5041 local access road will also require a separate embankment. Flood waters displaced as part of the works will require the implementation of compensatory storage adjacent to the Lyreen River. The proposed depot is also located within the catchment of Lyreen_20. The area has been identified as liable to flood as part of the SSFRA and will require the implementation of compensatory storage adjacent to the Ballycaghan Stream. The depot construction will require 400m of Ballycaghan Stream to be realigned. A review of historic mapping and various geological data sets indicate that the stream has been subject to significant historic alterations (straightening). Currently there is minimal riparian vegetation present. The realignment of the Ballycaghan stream will be designed to closely match existing channel characteristics and includes an appropriately sized vegetated buffer. The SSFRA carried out for the proposed development assessed the impact of the proposed works on the existing flood regime at this location. The assessment indicated that with the provision of compensatory storage, flood relief culverts and appropriate bridge spans, there would be a negligible effect on the flood regime overall. During the construction phase significant earthworks will be required to construct the depot, Ballycaghan Stream diversion, embankments through the lyreen floodplain and compensatory storage areas with potential impacts to the sediment regime of adjacent and downstream watercourses. Following the implementation of the mitigation measures outlined in the Environmental Operating Plan in Appendix D of Appendix A5.1 in Volume 4 of this EIAR, there will be a negative, slight, temporary residual impact on water quality during the construction phase of the proposed development. The proposed drainage network for the depot will include SuDS measures to treat runoff quality (in addition to hydro-carbon interceptors) and manage runoff rates/volumes. The provision of compensatory storage will include the creation

The Flood Management Guidelines firstly states that no development should occur within Flood Zone A which is represented on the OWP modelled flood map for this area by the medium blue colour extents.i.e. the 100 year event. The dark blue is the 1 in 10-year event and more frequent chance of occurring and the lighter blue the 1 in 1000-year event, less chance of occurring each year. I have shown the Gheel service site location with a red dot, currently inside the less frequent 1 in 1000-year event with the more frequent 1 in 100 year flood extent at its boundaries. Original pdf attached for clarity.



The flood management guidelines state that one should not build inside these flood areas because it will displace the flood water and change the shape of the flood. Now Irish Rail are proposing compensatory storage, which means the flood volume they are displacing can be catered for within specifically engineered locations as shown on Irish Rail map extract from their flood risk assessment below represented by green areas. However, upon review, it is clear that some of the proposed areas for compensation lie within existing flood zones and this is not good practice.

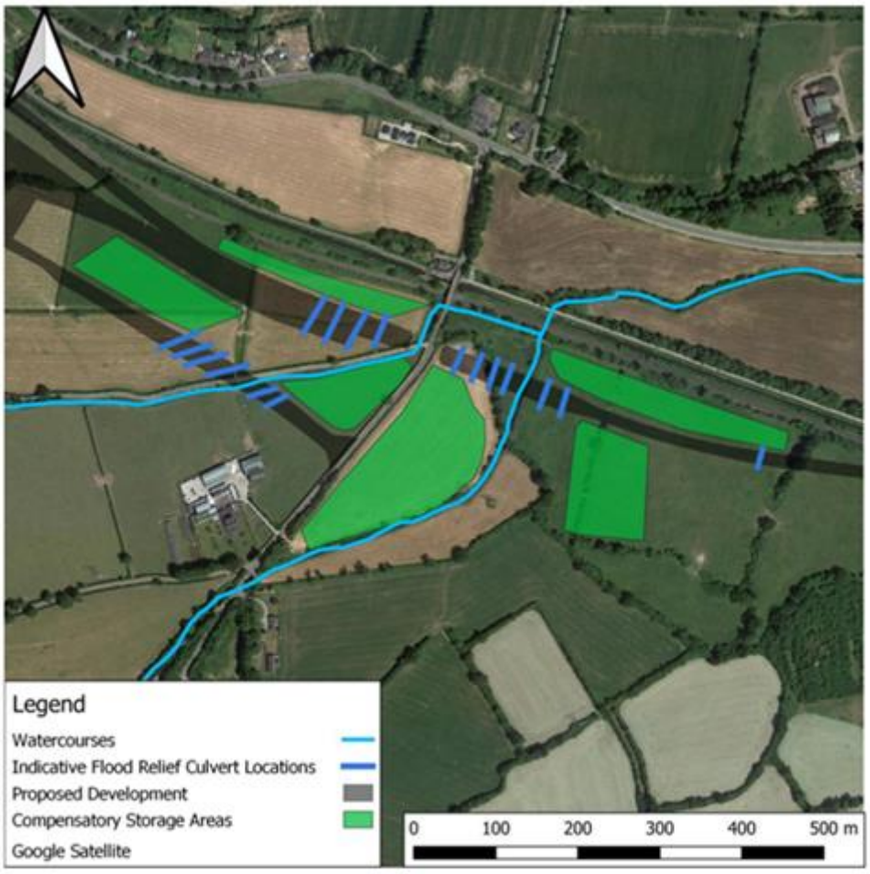


Figure 6-1 Proposed Compensatory Storage Area - Jacksons Bridge

In this regard, the proposed works could impact on the existing "shape/extents" of the current modelled flood, causing locations to perhaps flood that never flooded before and indeed, as in the case of the Gheel service which is currently in a less frequent 1 in 1000-year flood zone, pushing flood waters further west and rendering the Gheel service within the more frequent flood zone A, 1 in 100-year event. This, in accordance with the Flood Management Guidelines and planning policy is not acceptable.

The Flood Management Guidelines firstly states that no development should occur within Flood Zone A which is represented on the OWP modelled flood map for this area by the medium blue colour extents.i.e. the 100 year event. The dark blue is the 1 in 10-year event and more frequent chance of occurring and the lighter blue the 1 in 1000-year event, less chance of occurring each year. I have shown the Gheel service site location with a red dot, currently inside the less frequent 1 in 1000-year event with the more frequent 1 in 100 year flood extent at its boundaries. Original pdf attached for clarity.

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Appendix 50

Oak lined Road in Ballycurraghan Picture 1

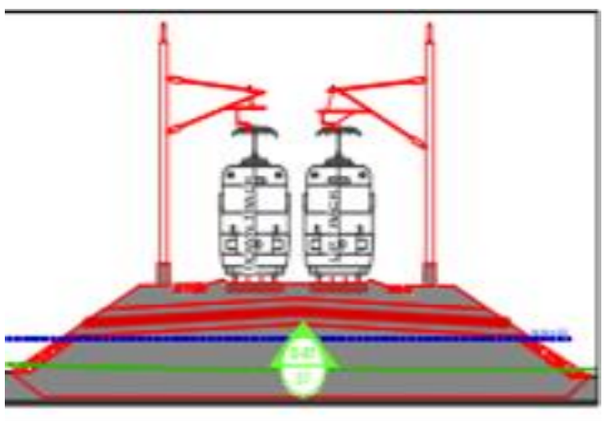
Picture 2 Oak lined Road in Ballycurraghan

Picture 3 Oak lined Road in Ballycurraghan

Appendix 51

Picture of Junction for Ballycurraghan Road and Jacksons Bridge

Levels at Jacksons Bridge and Train Levels Showing train line actual train level 1.4 m above flood plain average.



Blue line in picture above represents 60.36 which 1.40 above Ballycurraghan Lane level.

Extent of flooding at Jacksons bridge prepared by author

Picture No 3 showing farmgate, field and hedge.

Picture No 4 showing projected train level and of existing flood levels every three years

Picture showing extent to flooding blue line and projected height of embankment for train red line. it would appear there is going to be a significant embankment both to the train track and the L 5041 in order to prevent flooding Which visually is going to have a very negative on the area

Picture 5 . Receeding Floodwaters at Jacksons Bridge / Basllycurraghan November 2017

Picture showing receding floods from 2017 and giving an indication of the extent of the flooding.

Picture 5 showing elevation of existing oak trees

Picture 6 showing oaks to be felled to make way for permanent compound and link road.

Picture 7 & showing existing oak hedge row

Picture 8 Showing Oak trees to be felled to make way for compound and link road.