

Appendix A.7.4

Galway Racecourse Tunnel

Constructability Report

A.7.4

Galway County Council
N6 Galway City Ring Road
Galway Racecourse Tunnel
Constructability Report

GCOB-4.03-20-6-001

Issue 1 | 6 April 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 233985-00



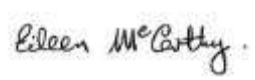
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Appendix A

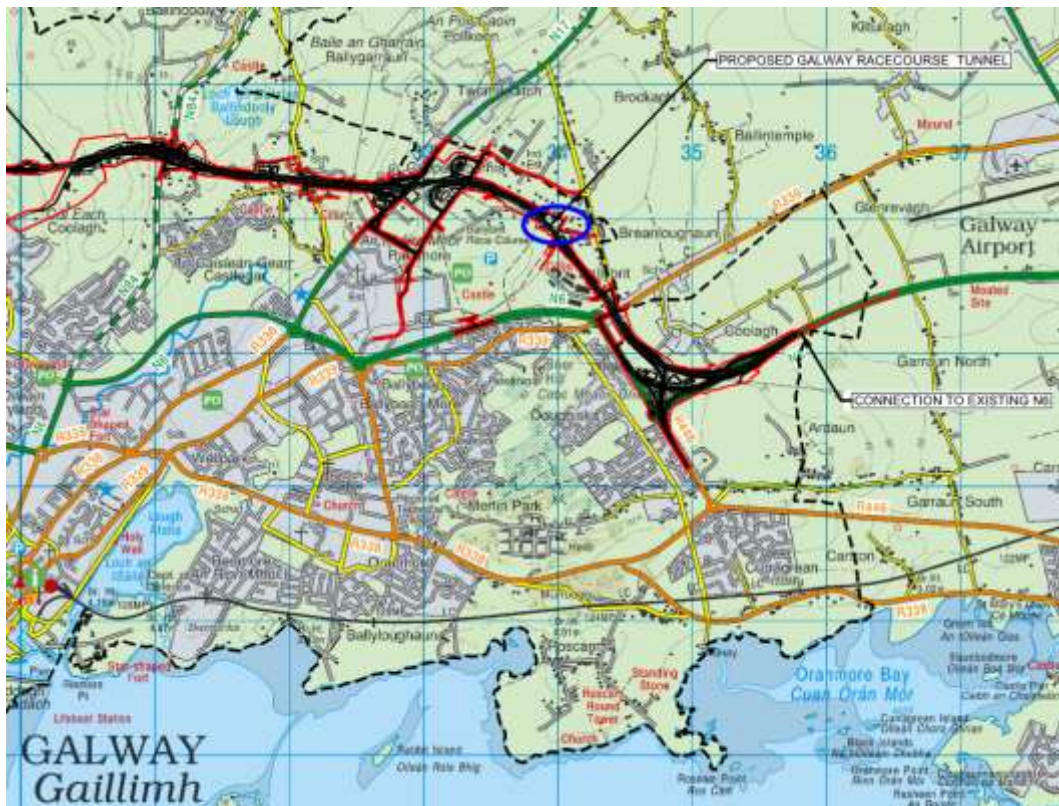
Drawings

1 Introduction

1.1 Site Location

The N6 Galway City Ring Road (GCRR), hereafter referred to as proposed road development, incorporates the design of a cut and cover tunnel structure, known as the Galway Racecourse Tunnel in the townland of Ballybrit and to the east of Galway city as shown in **Figure 1** below. The structure is located to the North East of Galway Racecourse Facilities between the N83 Tuam Road and R339 Monivea Road at Briarhill.

Figure 1: Site Location – River Corrib Bridge



1.2 Function of the structure

The purpose of the Galway Racecourse Tunnel is as follows:

- Mitigate adverse impacts, namely disruption to operations and functioning on the Galway Racecourse

The proposed mainline passes through the north-eastern corner of Galway Racecourse property and necessitates a cut and cover tunnel at circa Ch. 14+950m, resulting in a tunnel length of approximately 240m.

Within the racecourse landholding the area to the west is not currently highly developed. However, this land is used on race days as car parking, as approximately 150,000 patrons visit the summer festival alone. The open cut is located to the north

of the existing racecourse facilities e.g. Grand Stands, Tote Building and entrance buildings. At the eastern side of the landholding, the proposed tunnel is located below the existing stables and horsebox car park. A plan view of the proposed tunnel is shown on **Figure 2** and elevation is shown on **Figure 3** below.

Figure 2: Plan of Galway Racecourse Tunnel

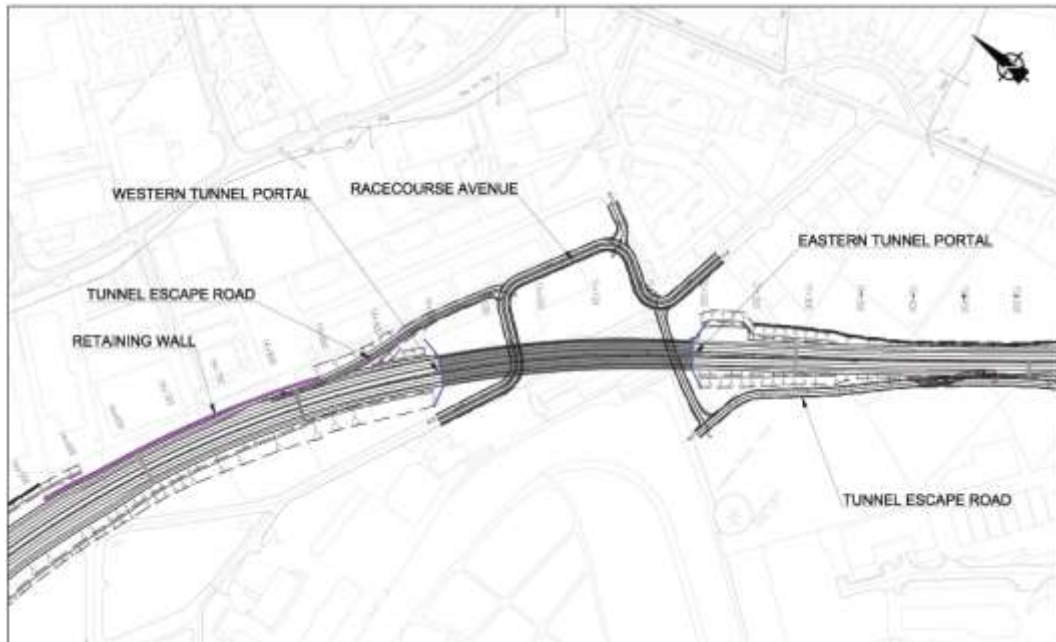
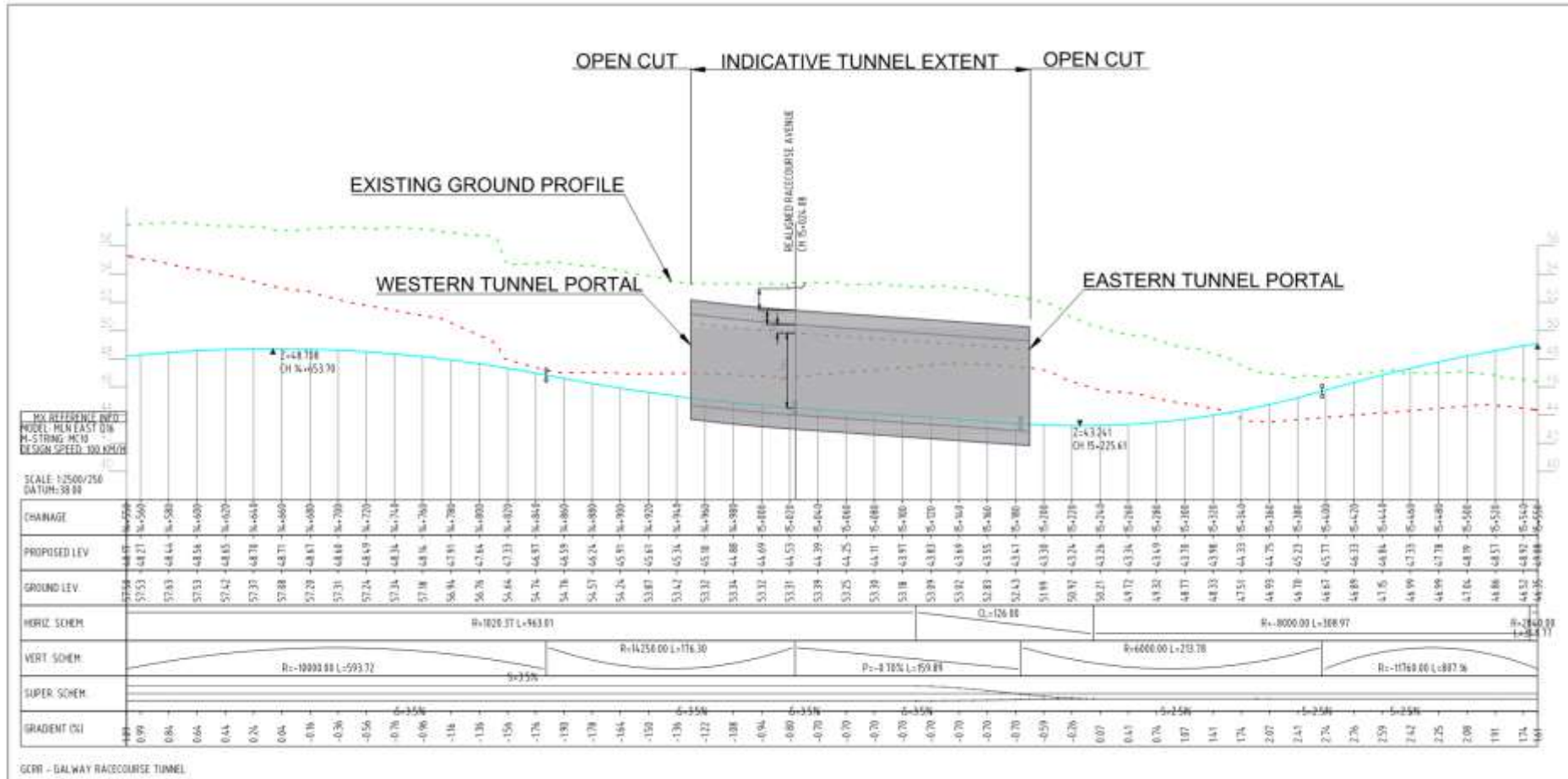


Figure 3: Elevation of Galway Racecourse Tunnel



1.3 Scope

Given the location of the structure, its setting and general accessibility to the site, the construction methods are an important aspect to be considered at this stage. The purpose of this report is to describe the proposed method of construction for the tunnel and the measures taken to protect and maintain the accessibility to the Racecourse and its racing facilities (**Section 2**) and a construction sequence for these works (**Section 3**). A summary of the findings of this report are outlined in (**Section 4**).

2 Proposed Construction of Galway Racecourse Tunnel

2.1 General description of proposed structure

The proposed Galway Racecourse Tunnel consists of a 240m twin tube reinforced concrete cut and cover tunnel with central wall. There are two construction methods for this tunnel:

- Twin box construction with all elements constructed using cast in-situ reinforced concrete, as indicated in **Figure 4**
- Precast concrete box units, which are assembled longitudinally and transversely from discrete precast elements, as shown in **Figure 5**

For the span lengths at the typical cross-section, reinforced concrete is an efficient solution with low to medium ground cover, which is the case at this structure.

Figure 4: In-situ reinforced concrete box typical cross-section

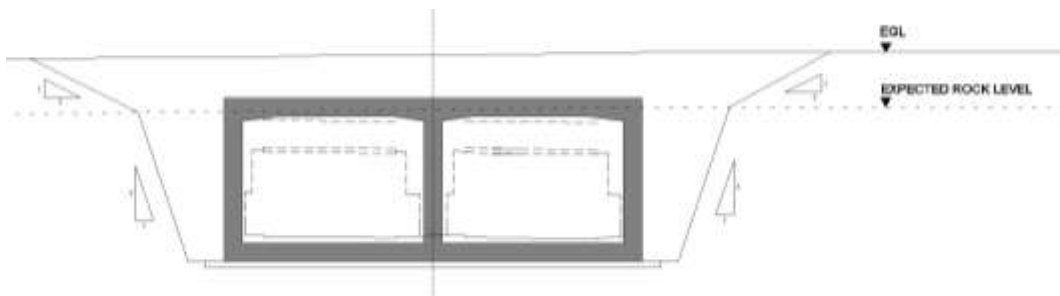
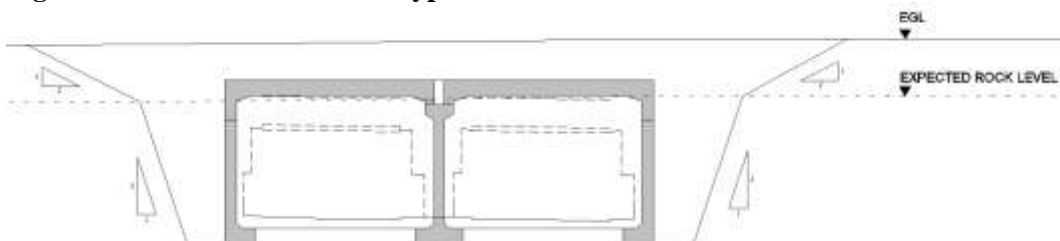


Figure 5: Precast concrete box typical cross-section



It is envisaged that the proposed future developments in the immediate vicinity of the Galway Racecourse Tunnel will be relatively low-lying, consisting of buildings such as welfare facilities, parking areas, boundary walls and amenity spaces.

2.2 Ground Conditions

The general ground conditions consist of areas of soft to very stiff cohesive glacial till underlain by limestone. The rock is strong with medium to closely spaced discontinuities and non-intact zones.

The general ground conditions consist of areas of soft to very stiff cohesive glacial till underlain by limestone. The rock is strong with medium to closely spaced discontinuities and non-intact zones.

The construction of the tunnel for both options will require surface excavation of up to 11.3m below existing ground level. The overburden material is anticipated to be very stiff from 3.0m below existing ground level, while rock is anticipated from 5.0m below existing ground level. It is estimated that approximately 25,000m³ of rock will be excavated. Rock strength testing and fracture index indicate that the rock will require blasting to loosen and extract.

Based on available ground investigation data, rock is anticipated to be above the tunnel formation level for the entire footprint of the tunnel section, thus resulting in rock being the founding strata for the box units.

In the operation stage of the proposed tunnel there are no exposed soil or rock slopes as they are fully enclosed however during construction, soil and rock slopes are exposed in order to construct the tunnel. All permanent soil cuttings shall have a maximum gradient of 1 vertical to 2 horizontal. The acceptable temporary rock slopes will be evaluated based on supplementary ground investigation information prior to construction. Permanent rock cut slopes of 1V:1.5H and 1V:1H are achievable where intact rock with minor discontinuities are encountered.

The excavation process may expose karst features within the construction footprint. As features can extend both vertically and laterally into the surrounding region, any feature encountered shall be fully assessed and isolated prior and during the construction process.

A methodology for the evaluation and treatment of karst features shall be conducted in accordance with the Construction Environmental Management Plan (CEMP) contained in Appendix A.7.5 of the EIA Report.

Material selected for backfilling and the compaction procedure required for the box units shall be conducted in accordance with guidelines provided in this document and the TII SRW Series 600 Earthworks.

Uncontaminated soil and stone materials which are not suitable for re-use will be disposed of to an appropriate site which is permitted under the Waste Management (Facility Permit and Registration) Regulations 2007 and (Amendment) Regulations 2008, 2014, 2015 to accept soil and stone.

2.3 Waterproofing and Durability

A dense concrete mix will be provided with a low permeability. All in-situ and precast concrete elements shall contain at least 50% Ground-granulated blast-furnace slag (GGBS). All exposed concrete shall be impregnated with hydrophobic pore liner in accordance with the TII Specification for Works.

The structural concrete of the tunnel will be designed to be watertight without the benefit of waterproofing systems.

Waterproofing provisions will be provided to the tunnel structure. Bridge deck waterproofing is required to the roof slab and the top of the base slab. All buried concrete less than 2m above the design high ground water level will be waterproofed with a proprietary tunnel waterproofing system. Two coats of epoxy resin waterproofing shall be applied on all other buried concrete surfaces not requiring a proprietary bridge deck/tunnel waterproofing.

Figure 6 and **7** below present typical details of tunnel waterproofing systems applicable to both in-situ and precast options.

Figure 6: In-situ concrete tunnel waterproofing

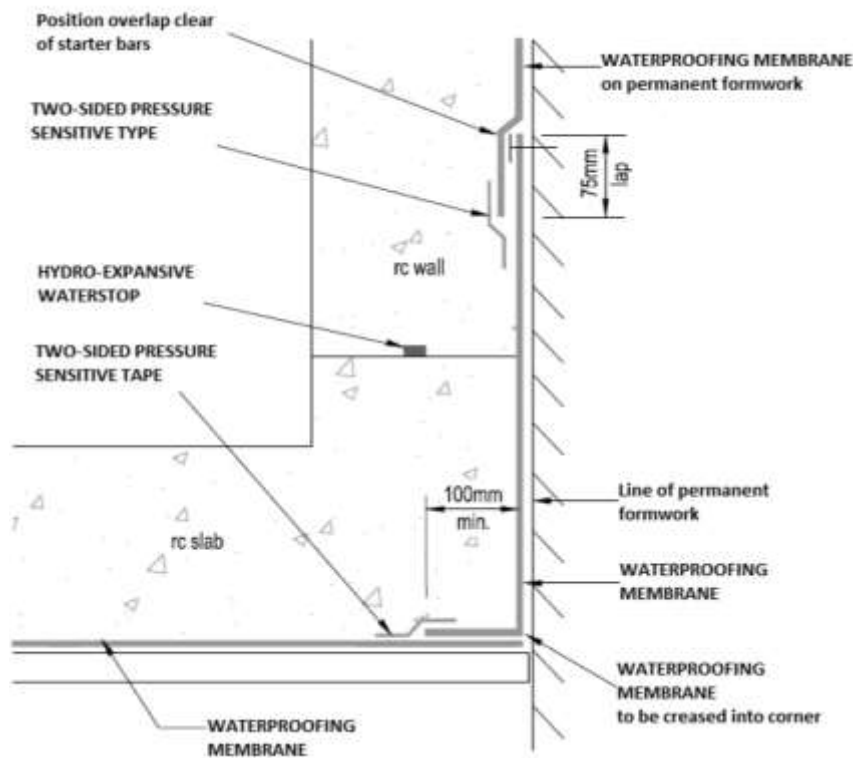
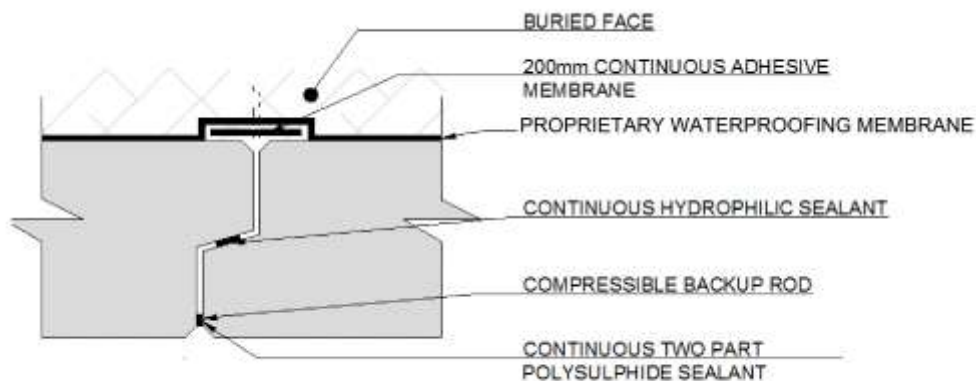
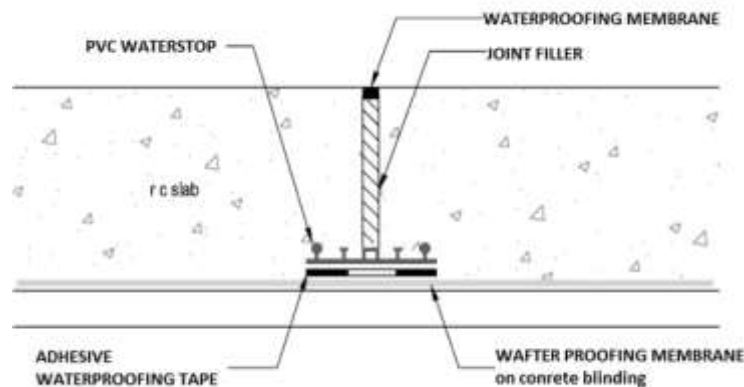


Figure 7: Precast concrete tunnel waterproofing.

Two coats of epoxy resin waterproofing shall be applied on all other buried concrete surfaces not requiring a proprietary bridge deck / tunnel waterproofing. Where the tunnel is located below the design groundwater level, the structure will be sealed using a proprietary below ground waterproofing system.

At movement joints within in-situ construction concrete, waterstops are provided, as indicated in **Figure 8**. In precast construction the detailing is given on **Figure 7**.

Figure 8: In-situ concrete slab movement joint

2.4 Inspection and maintenance

The headwalls and wing walls will be inspected from the mainline or the proposed road development or from the access road above. The underside of the roof and the exposed portions of the walls can be inspected from beneath.

Waterproofing systems, joints, parapets etc. shall be designed for Working Life Category 2 (replaceable structural parts, up to 50 years design working life).

All other elements of the structure shall be designed for Working Life Category 5 (≥ 120 years design working life).

2.5 Hydrogeological compatibility with proposed foundation design

The elevated groundwater table in the Briarhill area requires that the base and sides of the tunnel will require waterproofing to a minimum of 2m above the maximum recorded groundwater levels.

Dewatering will be required for the length of the tunnel and also the cuttings on approaches to the portals for both construction options. The initial stages of the construction will require the construction of a carrier drain that links to an infiltration basin to east of the R339 Monivea Road so that any groundwater intersected during construction of the proposed road development and runoff from the proposed road development during operation can be collected and discharged appropriately.

2.6 Safety during construction

The main traffic access to Galway Racecourse is from Ballybrit Crescent to the north east of the racetrack along Racecourse Avenue. Temporary accesses to racecourse lands are established during race festivals from both the N83 Tuam Road on the west and the existing N6 to the south of the racetrack. During the construction works for the proposed road development there will be access and working restrictions throughout some of the racecourse events which are detailed further in **Section 2.8**.

Risks associated during the excavation stage are similar for each tunnel construction option. These will require careful consideration during finalisation of the construction programme by the Contractor.

Construction of the in-situ option requires significant amounts of formwork and temporary works during construction, which increases the risk of collapse and risk to site personnel. However, the in-situ option can be constructed safely.

For the installation of precast units/beams, there are a reduced number of operations which can be isolated and easier to identify the locations of workers as units are being put in place. The main risk associated with this will be the positioning of cranes and the large number of movements required for continuous installation of units. However, the in-situ option can be constructed safely.

From a health and safety during construction perspective there is no appreciable preference between the various options. All options can be built in a safe manner with the implementation of the appropriate health and safety measures.

3 Proposed Construction Sequencing

This section of the report outlines the proposed construction sequencing of the Galway Racecourse Tunnel and the measures taken to protect and maintain the accessibility to the Racecourse and its racing facilities, including the construction of temporary and permanent stables and the diversion of existing roads and utilities.

3.1 Main Criteria

Following extensive consultation with the key stakeholder in this area, the Galway Racecourse Committee (GRC), the following are the main criteria considered in the development of the proposed construction sequence and associated programme of works for construction of the proposed Galway Racecourse Tunnel and apply to both construction options:

- An overall scheme construction period of three years is assumed
- The baseline form of construction is a cut and cover tunnel, which is achieved by excavating from ground level to formation level, constructing reinforced concrete box sections and backfilling to current ground level
- There are currently four race meetings per year at Galway Racecourse, one in July/August, one in September and two in October. No construction activity is permitted during any of the race meetings. To accommodate preparations for the main Galway Summer Race Festival the racecourse lands are to be fully available to GRC for the months of June and July during construction. GRC advised that the Summer Race Festival starts on the last Monday in July every year and in some cases can run up to the 6 August therefore, no construction is permitted on any event which runs into August. For the smaller race meets in September and October the interface with the construction activities and programming are specified below in **Section 3.2**
- It is assumed full handover of site for recommencing construction will not begin until after the Summer Race Festival. For the September and October Race Festivals, access to stables, racecourse buildings and parking will be maintained. The day to day access to the racecourse is maintained throughout the construction period by means of existing, new or temporary access provisions
- All temporary access provisions or diversions are to be constructed to the same standard of existing access roads to ensure equivalent level of service is provided
- Water quality from new wells will be monitored and assessed on an ongoing basis for 12 months prior to, throughout, and for 12 months after the construction period to ensure adequate standards are maintained
- A secure racecourse boundary is to be maintained at all times both during and after daily construction activity through the provision of temporary or permanent gated access
- Access for GRC will be maintained via the existing N83 Tuam Road entrance until such time as Parkmore Link Road is in place
- The successful operation of Galway Racing festivals and day to day business operation is imperative in the view of GRC. Therefore any potential risk of impediment to racecourse business operations must be mitigated. The construction programme as outlined in **Section 3.2** below aims to mitigate this risk
- Racecourse avenue is to be used for delivery of material only, all haulage of excavated material is to be along the designated haul routes identified in

Chapter 7, Construction Activities of the EIA Report and shown on Figures 7.001 to 7.002

- The relocation of the existing stable and other buildings is based on masterplan drawing **GRS-COA-00-ZZ-DR-A-0501** contained in **Appendix A**.

3.2 Construction Stages

A series of drawings detailing the indicative sequence of construction is contained in **Appendix A** (Ref. **GCOB-3000-D-300** to **315**). A summarised commentary of the sequence, to be read in conjunction with the drawings, is as follows:

Advance Works Year (Y) 0 Stage 0.1 to 0.3 – All works to cease one month before and during summer festival

Stage 0.1

- Lands to be fenced off permanently and temporarily as shown. Areas not fenced off within Galway Racecourse landholding remain available to Galway Racecourse unless shown otherwise
- The proposed City North Business Park Link Road between existing N83 Tuam Road and the proposed Parkmore Link Road is to be constructed in advance of removing the existing private access road to the N83 Tuam Road
- New access points from the Parkmore Link Road to Galway Racecourse will be developed to provide connection and access for parking during festival time. Temporary traffic lights to be installed at the proposed main entrance of the racecourse is to be used during festival time
- Any reconfiguration of the taxi and internal access roads are to be developed as part of Galway Racecourse accommodation works and do not form part of works for the proposed road development
- The demolition and site clearance of the existing Brooks hardware building, adjacent partially completed industrial buildings and office blocks will form part of the advance works. A secure permanent boundary wall will be constructed around the new site to tie-in with existing racecourse boundary. Footpaths and lighting to be constructed on realigned Racecourse Avenue road
- A precondition survey of the road pavement on Racecourse Avenue Road will be carried out and a structural overlay will be constructed where necessary to cater for increased HGV usage during construction. Access is to be maintained for GRC throughout the works using temporary traffic management
- Watermain, ESB, E-Net and Eircom utilities running along existing Racecourse Avenue Road is to be diverted through the proposed realigned road around the Brooks site. This allows utilities to be accessed for future maintenance as well as creating one crossing point of utilities perpendicular to the tunnel. All realigned services will connect back to existing supply within Galway Racecourse landholding. Note, the electricity supply to the existing office buildings is connected from the toilet block adjacent to entrance building A

- The existing loop road at Ch. 14+550 is to be diverted south and the ESB substation is to be relocated to adjacent field to power relocated telecoms mast
- Two new wells to the east of Galway Racecourse stable yard are to be drilled in the horsebox carpark and temporary horsebox loading bays are to be constructed to the north to replace existing as shown (exact location to be determined with GRC)
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until Phase 1.3 of the proposed works is completed
- All replacement wells are to be tested to ensure adequate yield and water quality are achieved

Stage 0.2

- Construct new permanent Racecourse Avenue and temporary extension for construction access to edge of excavation face. Extend the access road for diversion during construction as excavation allows and provide for temporary diversion of utilities
- Install pipework (watermain and drainage) and service ducting (ESB, telecoms) along route of new permanent Racecourse Avenue
- Excavate to tunnel formation level from the western portal. Extent of excavation is to be limited by proximity to Racecourse Avenue without undermining it. A retaining structure is to be installed to achieve this
- Fit out and completion of temporary stable yard to include 160 stables, and additional facilities as required: security office, grooms canteen toilet, vet boxes and washdown area
- Construct new 100,000gallon water storage tank and connect new wells to existing watermain. A pump house to contain well infrastructure is to be constructed adjacent to the new storage tank and wells. Watermain connection to existing track watering facility is to be installed with booster pump provided if required
- Existing access along racecourse avenue is to be maintained throughout this phase
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until Phase 1.3 of the proposed works is completed
- Commence construction of new permanent stables along northern line

Stage 0.3

- Tunnel excavation to extend eastwards towards existing Racecourse Avenue

- Construct and install tunnel segments working from west to east
- Install temporary pipework and service ducting above tunnel structure
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until Phase 1.3 of the proposed works is completed
- Existing access maintained

Stage 1.1 – Construction Sequence – Y1 August to March

- Continuing tunnel excavation eastwards. Backfill tunnel segments pipework and utility ducts once constructed. Construct and connect temporary diversion of Racecourse Avenue above tunnel and divert racecourse traffic along this route. The temporary access road is to be of a permanent standard and be the full width as per the existing avenue
- Connect temporary diversion of services over tunnel along temporary access road (watermains, drainage, ESB and telecoms)
- Continue tunnel construction and excavation working eastwards. The excavation width on the southern face will be limited by proximity to the existing stables, exact limit to be determined on site to ensure no structural undermining of existing buildings. A retaining structure is to be installed on southern excavation face to avoid encroaching on the existing stable yard. All existing stables will be unaffected by works during this phase
- Finalise construction of western portal and associated earthworks
- Construction access to the new stable yard as shown along the existing Racecourse Avenue to the north of the existing stable yard
- Commission water storage tank and pipework to existing track watering system
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until Phase 1.3 of the proposed works is completed
- Existing stable yard and horsebox carpark with temporary loading bays are to be in operation for September and October Festivals

Stage 1.2 – Construction Sequence – Y1 March to May

- Backfill and finalise construction of tunnel boxes
- Area above tunnel to be backfilled as construction allows
- Excavated area to be fenced off and access prohibited for Summer festival
- Continue permanent stable construction as backfilling permits. Construct covered machinery shed
- Fence off exclusion zone from western tunnel portal c.50m

- Temporary diversion of Racecourse Avenue will be in service for public traffic access during Summer Festival Year 1
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until Phase 1.3 of the proposed works is completed

Stage 1.3 – Construction Sequence – Y1 Summer Festival July/August

- Existing stables and horsebox car park are to be in operation for Summer Festival Year 1
- Excavated area to be fenced off and construction access and traffic prohibited for duration of Summer festival
- Temporary diversion of Racecourse Avenue to be in service for public traffic access Summer Festival Year 1
- Temporary horsebox carpark to be made available if required for stewards parking
- The Contractor shall facilitate access to and from the existing horsebox carpark via the temporary proposed gate to the south, to the remaining portion of CPO No. 716's lands to the south of the development boundary, in order to facilitate parking and land usage agreements up until the completion of this Phase

Stage 2.1 – Construction Sequence – Y2 August to Nov

- Existing stable yard to be demolished once temporary stable yard is approved by Irish Horse Racing Board (IHRB)
- Excavation and tunnel construction to recommence from west to east
- Commence eastern tunnel portal excavation
- Maintenance shed to be constructed at proposed permanent location with access provided for GRC use. The new machinery shed located in the permanent stable yard is to be commissioned and made available for use by GRC prior to existing shed being demolished
- Temporary stable yard, carpark and associated facilities are to be used for September and October Festivals. The ambulance turn table is to be maintained for September and October festivals
- Temporary horsewalk to parade ring is to be provided with gated barrier at crossover point on Racecourse Avenue
- Temporary access to water tank and wells is provided from racetrack as shown. There will be no access from Racecourse Avenue to tanks and wells in this phase

Stage 2.2 – Construction Sequence – Y2 Nov to Jan

- Continue excavation eastwards and tunnel construction
- Continue excavation at eastern portal and working westwards and eastwards

- Construct new permanent Racecourse Avenue and install permanent service pipework and ducting. Commission permanent service diversions
- Decommission temporary access road and temporary service connections once permanent Racecourse Avenue and services are in place
- Construct diversion of IDA sewers and public watermain near eastern portal
- Temporary access to water tank and wells are to be provided from the racetrack as shown. There will be no access from Racecourse Avenue to the tanks and wells during this phase

Stage 2.3 – Construction Sequence – Y2 Jan to April

- Continue excavation and tunnel construction. Protect and maintain the existing private racecourse foul sewer diversion pipework during excavation for the tunnel.
- Continue permanent stable construction as backfilling allows. Construct permanent vet buildings and grooms pavilion facilities.

Stage 2.4 – Construction Sequence – Y2 April to May

- Backfill and reinstate over completed tunnel sections as construction allows
- Excavation area to be temporarily fenced off for the summer festival. The ambulance turntable is to be reinstated
- Temporary access to the water tank and wells is to be provided from the racetrack as shown. There will be no access from Racecourse Avenue to the tanks and wells during this phase

Stage 2.5 – Summer Festival Y2 July/August

- Temporary approved stable yard and horsebox carpark in operation
- Temporary horsewalk to parade ring provided with gated barrier at crossover point on Racecourse Avenue
- Excavation area to be temporarily fenced off for the Summer festival and construction access and traffic prohibited for the duration of the Summer festival
- Area above the tunnel will be potentially suitable for temporary parking if required
- Temporary access to the water tank and wells will be provided from racetrack as shown

Stage 3.1 – Construction Sequence –Y3 September to March

- Approved temporary stable yard and associated facilities are to be used for September and October festivals. The ambulance turntable is to be maintained for the September and October festivals
- Continue tunnel construction and excavation

- Continue the construction of the permanent stables and buildings as backfilling permits
- Construct new permanent vet office and boxes

Stage 3.2 – Construction Sequence –Y3 March to May

- Backfill tunnel and reinstate ground for permanent horsebox car park overlay and landscaping
- Construct remaining final permanent stable and racecourse buildings
- Construct and commission parking areas, access roads and landscaping
- Temporary stable yard and associated facilities will be removed on approval of IHRB of permanent stable yard or used as alternative for Summer Festival Y3 in absence of approval
- Permanent access to water tank and wells to be constructed and commissioned over tunnel
- Complete tunnel portal and associated earthworks and tie-in with the construction of the mainline of the proposed road development

Stage 3.3 – Construction Sequence –Y3 Summer Festival

- New permanent stable yard will be in operation for the Summer Festival. Temporary stable yard is to be used in the absence of IHRB approval for the summer festival

Stage 4.1 – Construction Sequence –Y4 August

- Temporary stable yard is to be demolished and removed if retained for Y3 Summer Festival
- All agreed permanent fencing and boundaries walls to be constructed as part of accommodation works. This will include a secure palisade fence along the northern boundary and the proposed stone wall along western boundary adjacent to the Parkmore Link Road

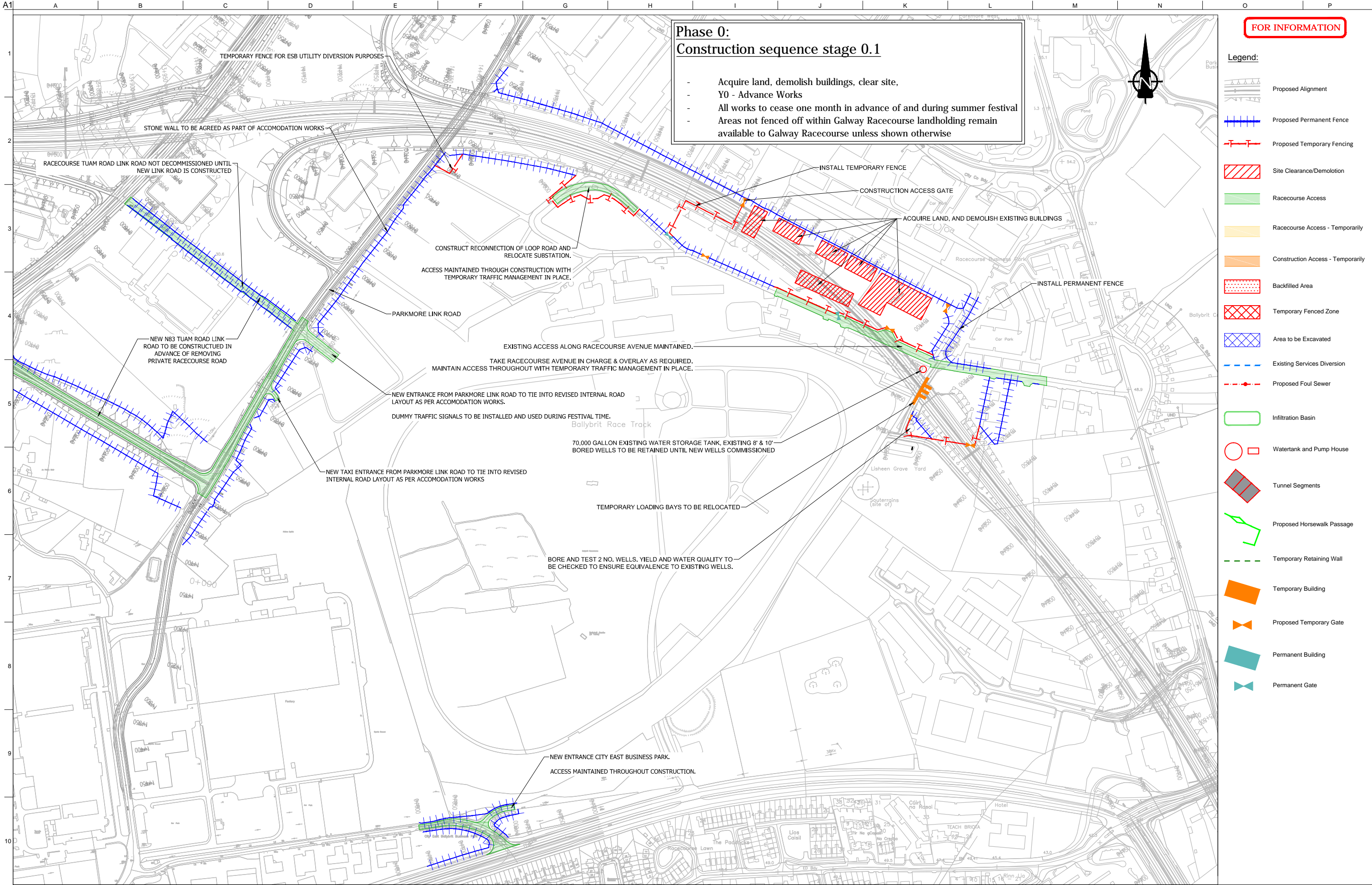
4 Summary and Conclusions

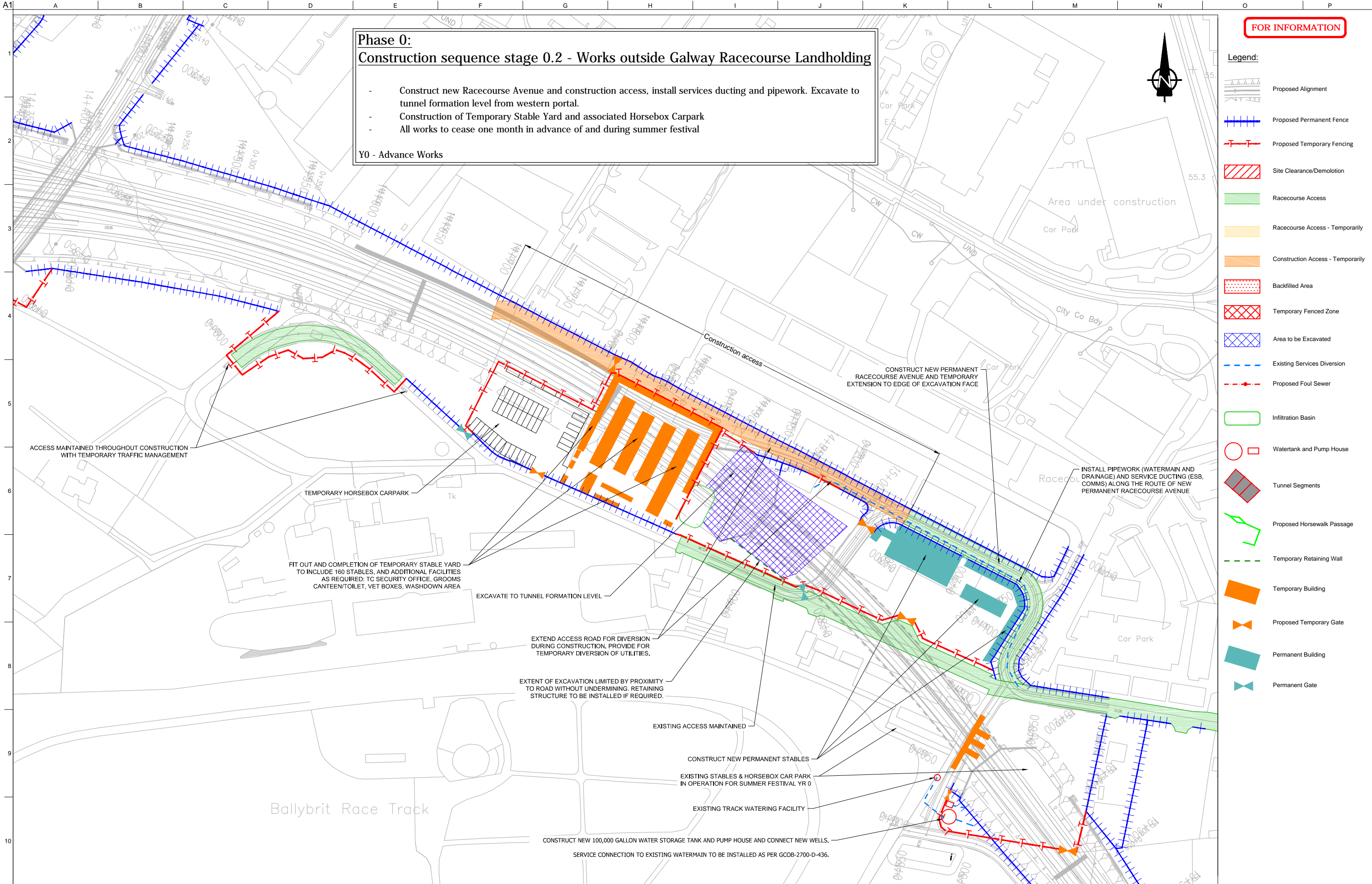
Given the location and complexity of the proposed Galway Racecourse Tunnel, considerable planning and consultation has been undertaken between the design team and various stakeholders such as the Galway Racecourse Committee to devise an achievable and realistic programme of construction over a three-year period. An advance works programme forms part of this construction sequence which includes, demolition works, utility and road diversions (both temporary and permanent) and temporary stables construction. A temporary stable yard and horsebox carpark will be required for a two-year period to facilitate the construction of the tunnel whilst maintaining operations at Galway Racecourse throughout. Consideration has been given to maximising the progress of construction at each stage whilst maintaining safe access and facilitating ongoing operations at Galway Racecourse throughout, including the summer festivals which cater for up to 150,000 patrons each year.

Appendix A

Drawings

A1





Phase 0:
Construction sequence stage 0.2 - Works outside Galway Racecourse Landholding

- Construct new Racecourse Avenue and construction access, install services ducting and pipework. Excavate to tunnel formation level from western portal.
- Construction of Temporary Stable Yard and associated Horsebox Carpark
- All works to cease one month in advance of and during summer festival

Y0 - Advance Works

FOR INFORMATION

Legend:

Proposed Alignment

Proposed Permanent Fence

Proposed Temporary Fencing

Site Clearance/Demolition

Racecourse Access

Racecourse Access - Temporarily

Construction Access - Temporarily

Backfilled Area

Temporary Fenced Zone

Area to be Excavated

Existing Services Diversion

Proposed Foul Sewer

Infiltration Basin

Watertank and Pump House

Tunnel Segments

Proposed Horsewalk Passage

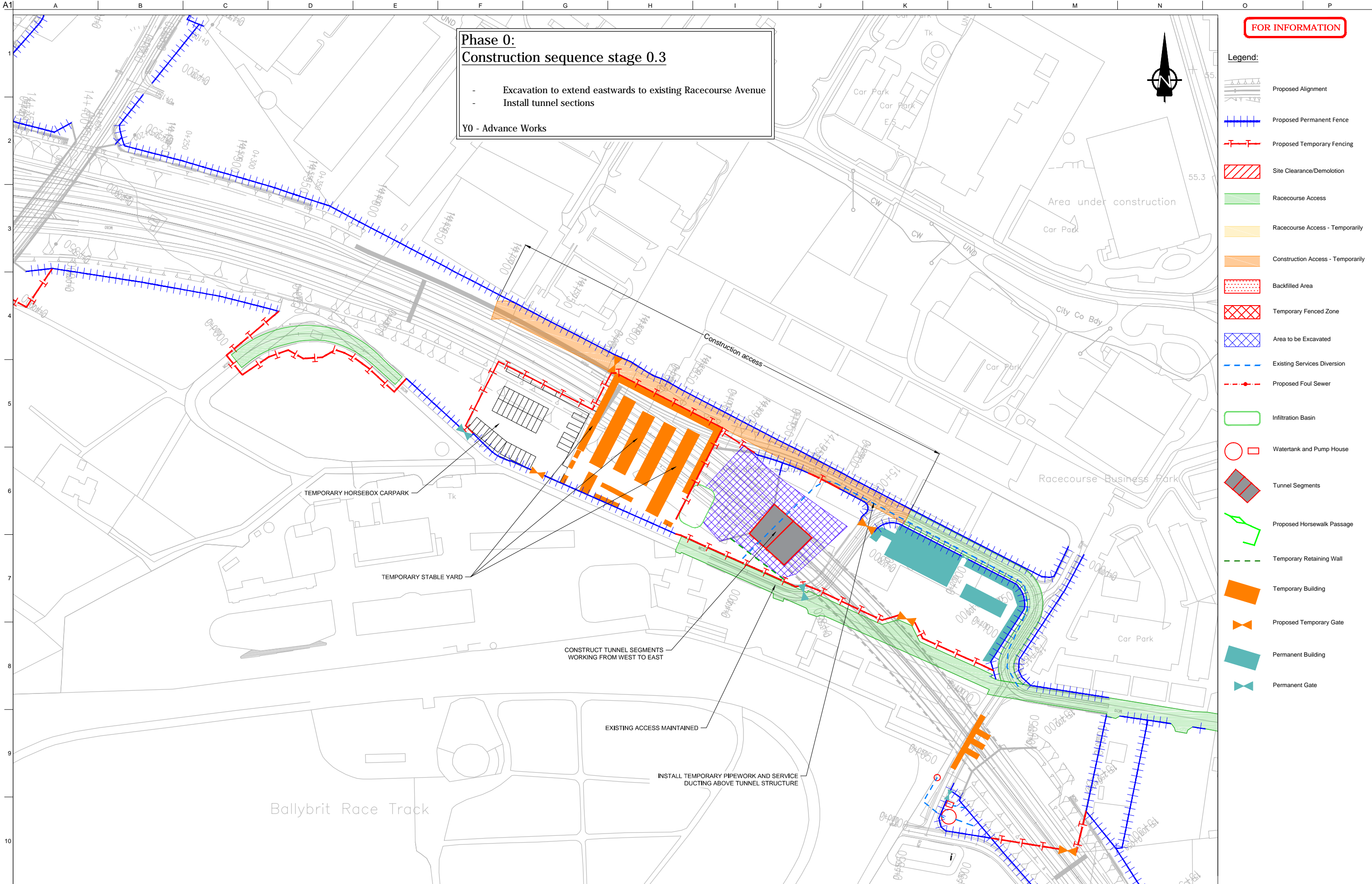
Temporary Retaining Wall

Temporary Building

Proposed Temporary Gate

Permanent Building

Permanent Gate



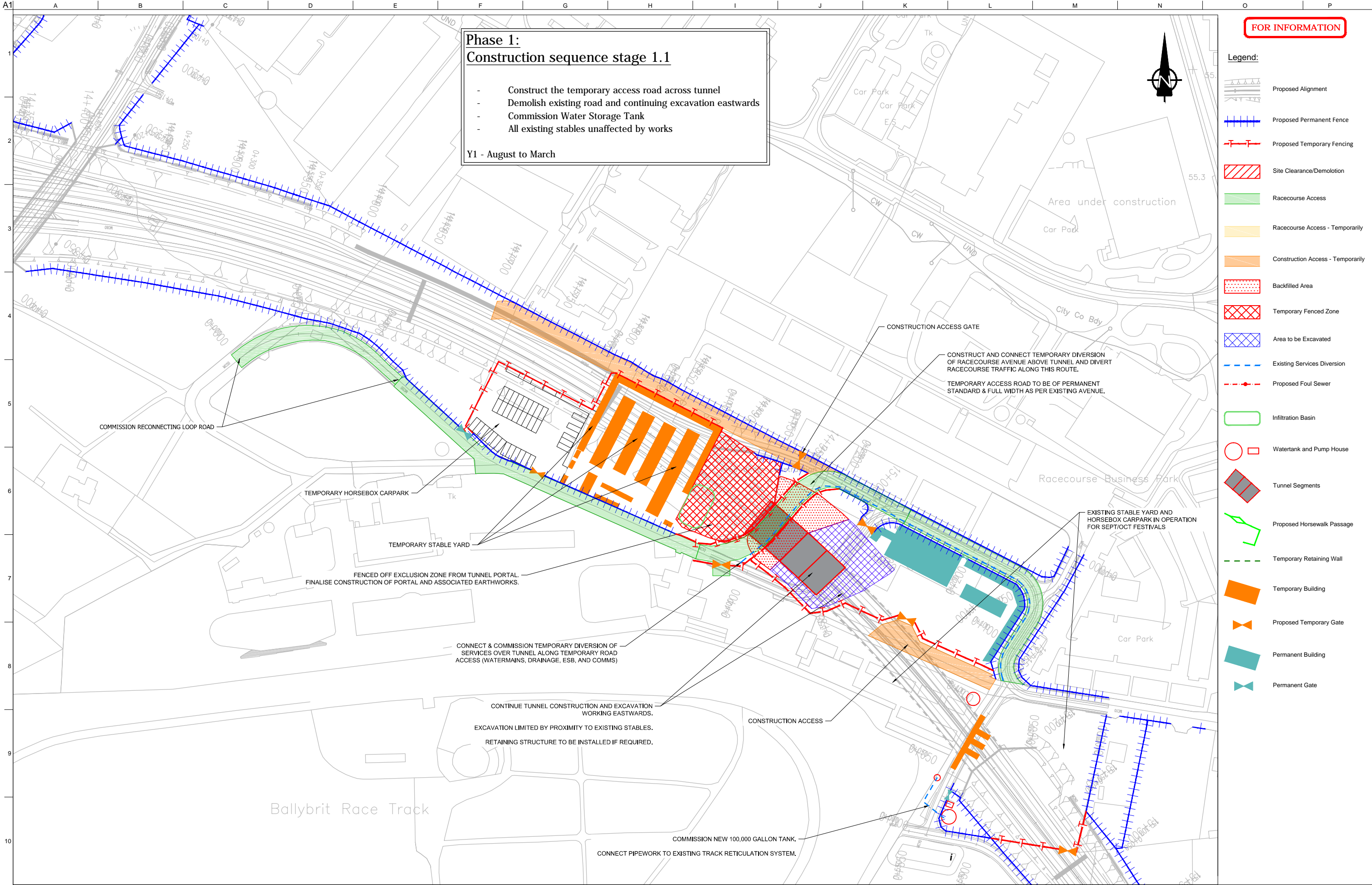
Phase 0:
Construction sequence stage 0.3

- Excavation to extend eastwards to existing Racecourse Avenue
- Install tunnel sections

Y0 - Advance Works

FOR INFORMATION

- Legend:**
- Proposed Alignment
 - Proposed Permanent Fence
 - Proposed Temporary Fencing
 - Site Clearance/Demolition
 - Racecourse Access
 - Racecourse Access - Temporarily
 - Construction Access - Temporarily
 - Backfilled Area
 - Temporary Fenced Zone
 - Area to be Excavated
 - Existing Services Diversion
 - Proposed Foul Sewer
 - Infiltration Basin
 - Watertank and Pump House
 - Tunnel Segments
 - Proposed Horsewalk Passage
 - Temporary Retaining Wall
 - Temporary Building
 - Proposed Temporary Gate
 - Permanent Building
 - Permanent Gate



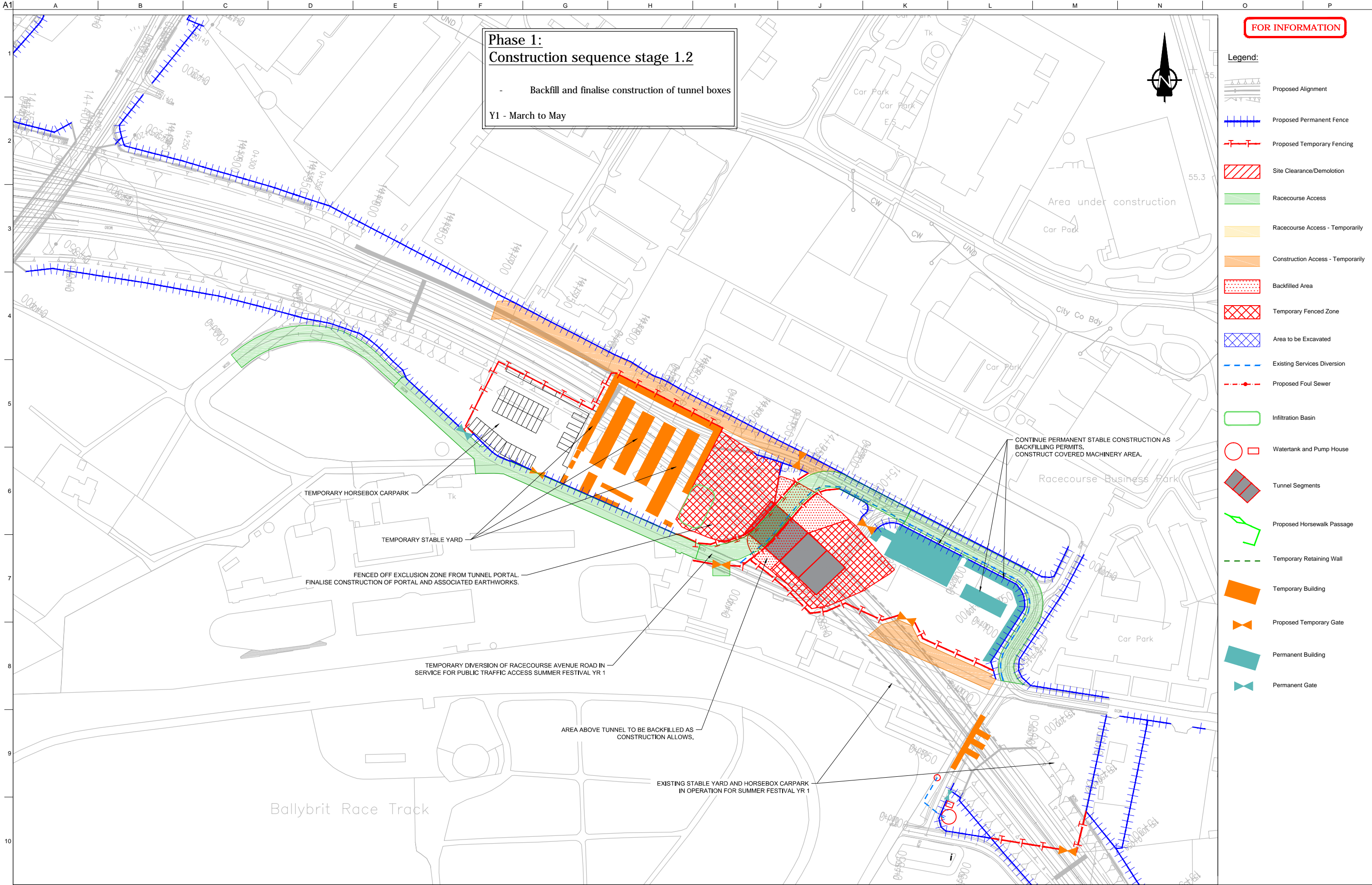
Phase 1:
Construction sequence stage 1.1

- Construct the temporary access road across tunnel
- Demolish existing road and continuing excavation eastwards
- Commission Water Storage Tank
- All existing stables unaffected by works

Y1 - August to March

FOR INFORMATION

- Legend:
- Proposed Alignment
 - Proposed Permanent Fence
 - Proposed Temporary Fencing
 - Site Clearance/Demolition
 - Racecourse Access
 - Racecourse Access - Temporarily
 - Construction Access - Temporarily
 - Backfilled Area
 - Temporary Fenced Zone
 - Area to be Excavated
 - Existing Services Diversion
 - Proposed Foul Sewer
 - Infiltration Basin
 - Watertank and Pump House
 - Tunnel Segments
 - Proposed Horsewalk Passage
 - Temporary Retaining Wall
 - Temporary Building
 - Proposed Temporary Gate
 - Permanent Building
 - Permanent Gate



FOR INFORMATION

Legend:

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- Temporary Building
- Proposed Temporary Gate
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Galway County Council

N6
Galway City
Transport Project

An Roinn Iompair
Turasóireachta agus Spóirt

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Job Title

N6 Galway City Transport Project

Scale

1:2500 @ A3

Date:

March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

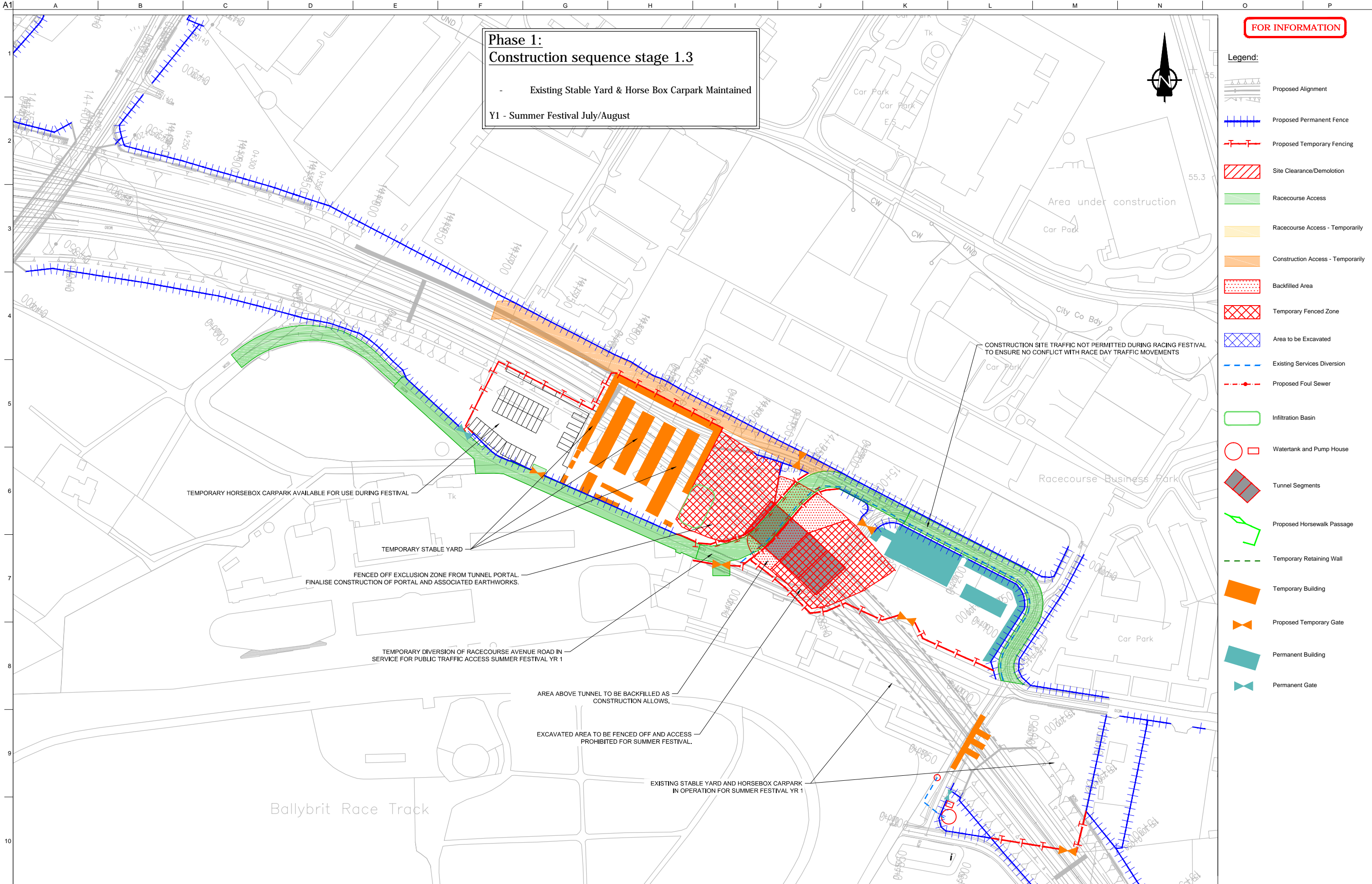
Construction Sequence
Galway Racecourse Tunnel

Sheet 5 of 16

Drawing Status

For Information

Job No	Drawing No	Issue
233985-00	GCOB-3000-D-304	I3



FOR INFORMATION

- Legend:
- Proposed Alignment
 - Proposed Permanent Fence
 - Proposed Temporary Fencing
 - Site Clearance/Demolition
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Scale 1:2500 @ A3

Date: March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

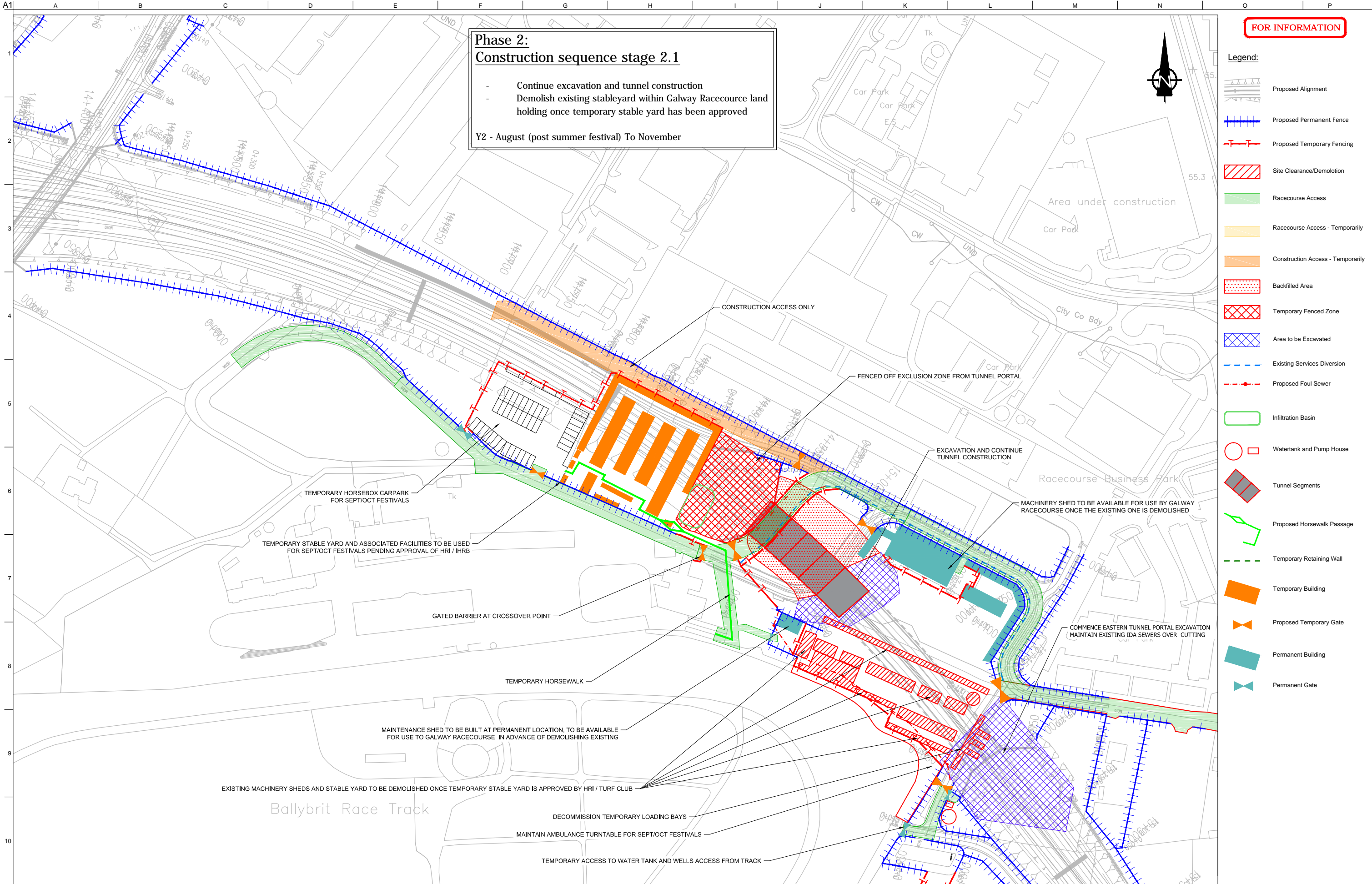
Construction Sequence -
Galway Racecourse Tunnel

Sheet 6 of 16

Drawing Status

For Information

Job No 233985-00 Drawing No GCOB-3000-D-305 Issue I3



Phase 2:
Construction sequence stage 2.1

- Continue excavation and tunnel construction

- Demolish existing stableyard within Galway Racecourse land holding once temporary stable yard has been approved

Y2 - August (post summer festival) To November

FOR INFORMATION

- Legend:
- Proposed Alignment

Proposed Permanent Fence

Proposed Temporary Fencing

Site Clearance/Demolition

Racecourse Access

Racecourse Access - Temporarily

Construction Access - Temporarily

Backfilled Area

Temporary Fenced Zone

Area to be Excavated

Existing Services Diversion

Proposed Foul Sewer

Infiltration Basin

Watertank and Pump House

Tunnel Segments

Proposed Horsewalk Passage

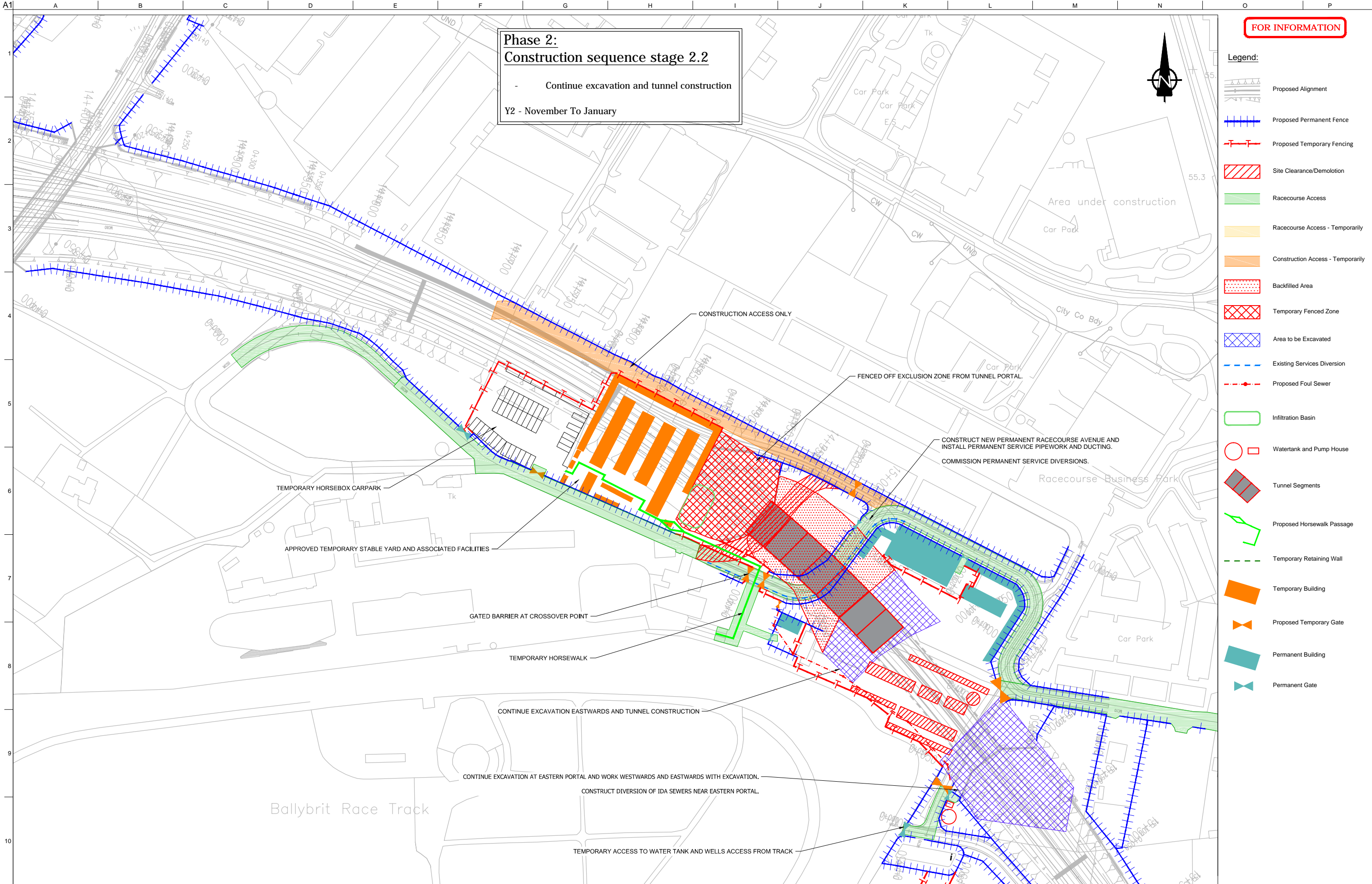
Temporary Retaining Wall

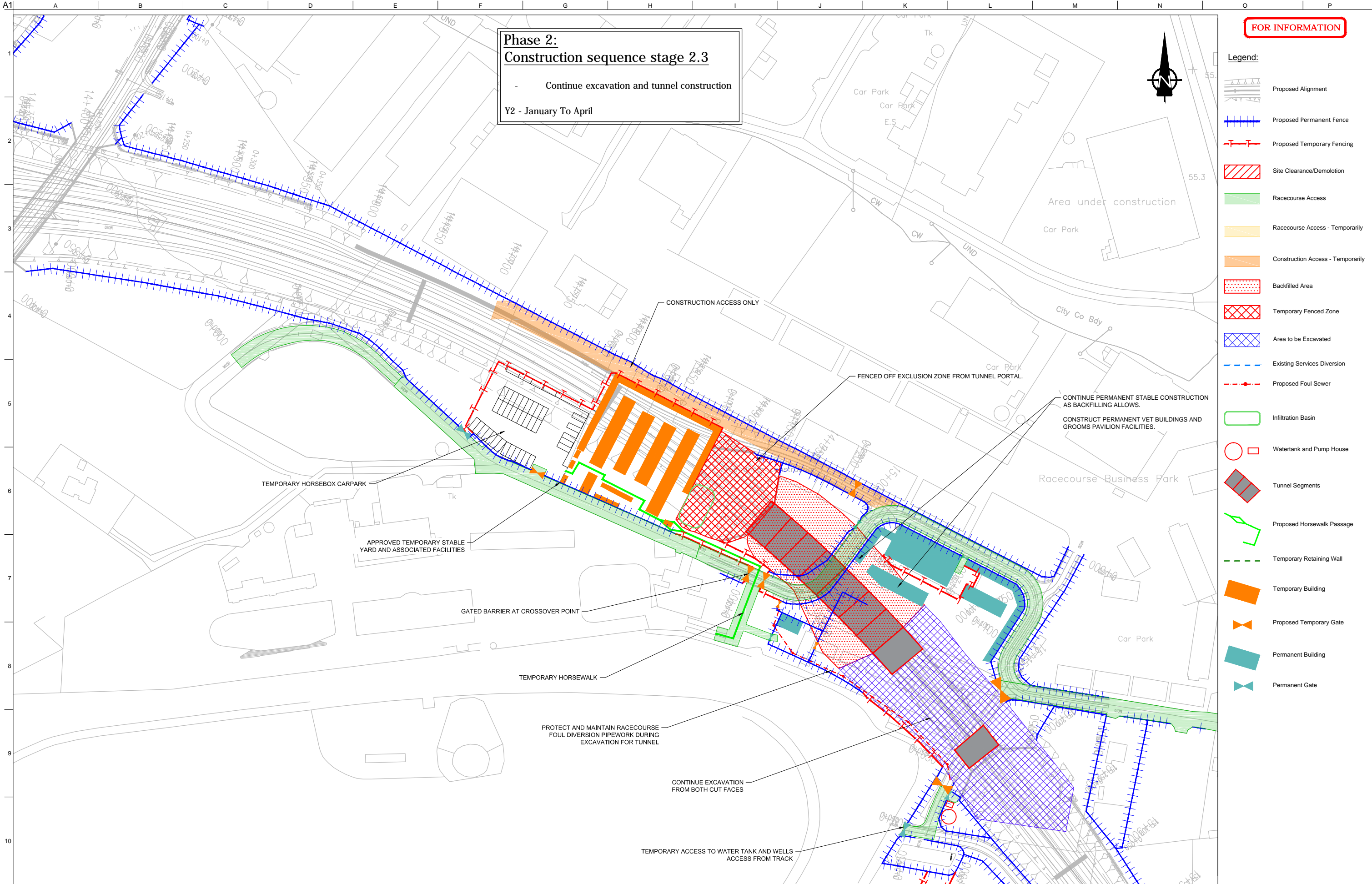
Temporary Building

Proposed Temporary Gate

Permanent Building

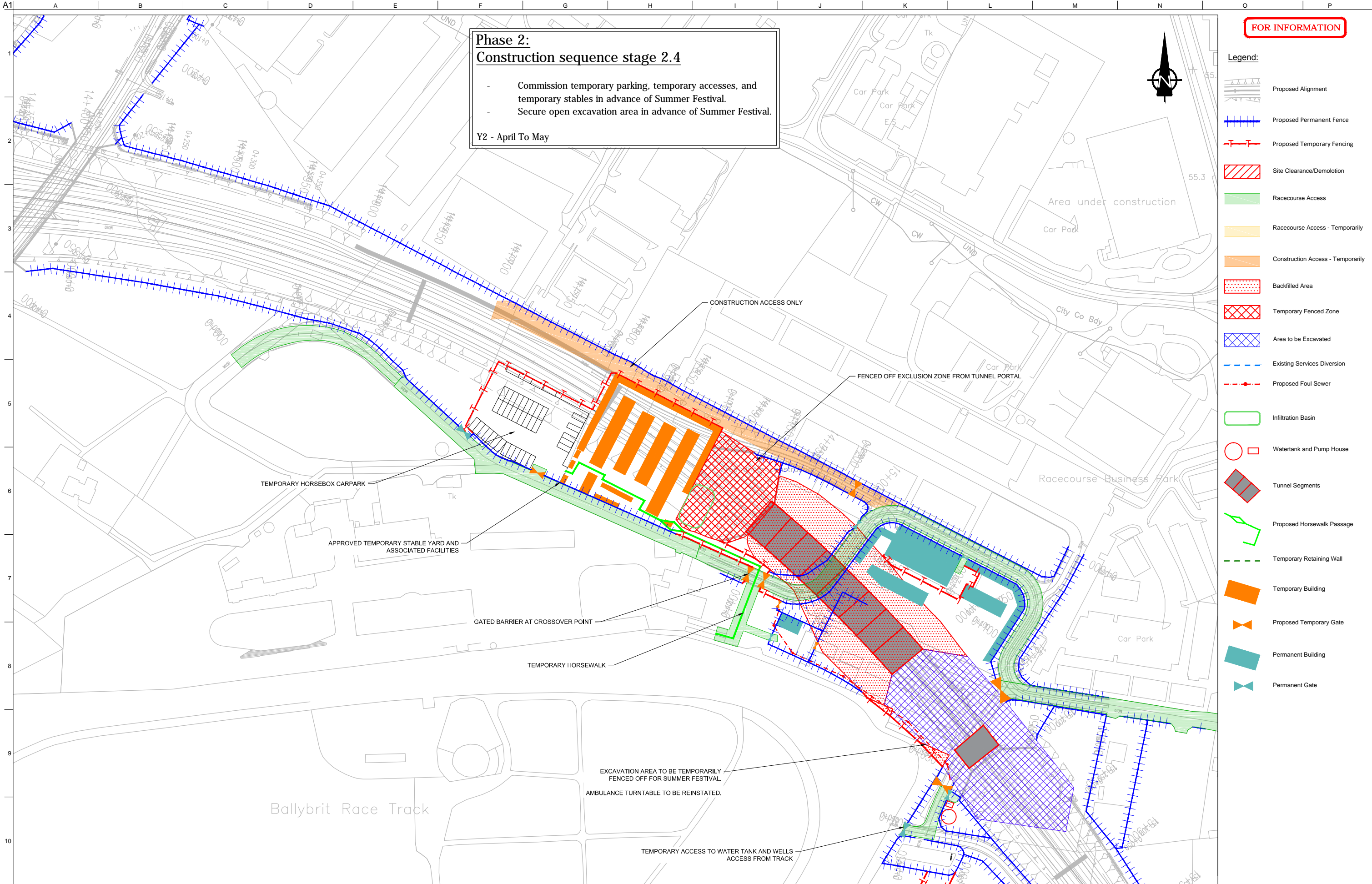
Permanent Gate





FOR INFORMATION

- Legend:
- Proposed Alignment
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Scale 1:2500 @ A3

Date: March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

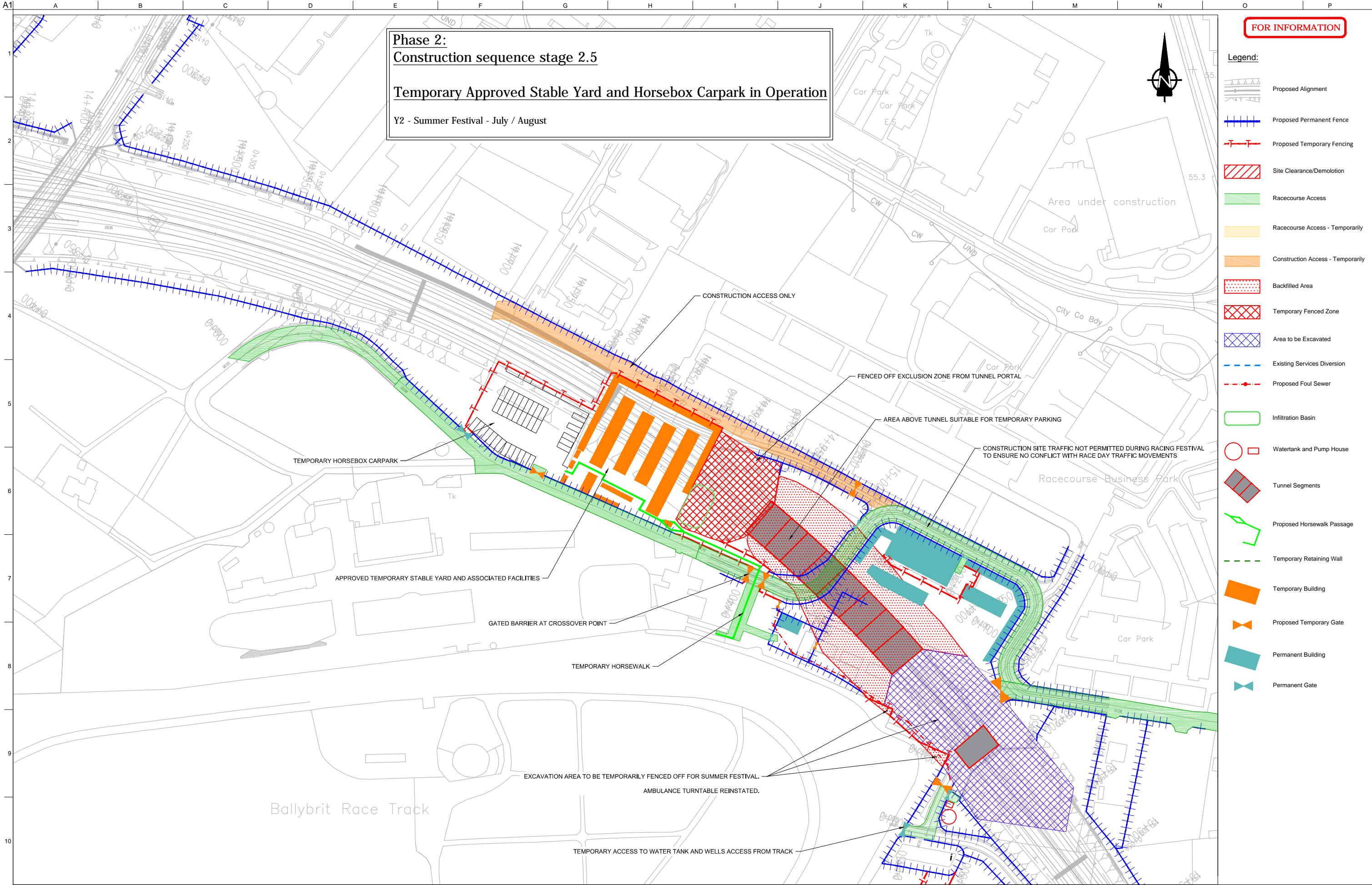
Construction Sequence - Galway Racecourse Tunnel

Sheet 10 of 16

Drawing Status

For Information

Job No	Drawing No	Issue
233985-00	GCOB-3000-D-309	I3



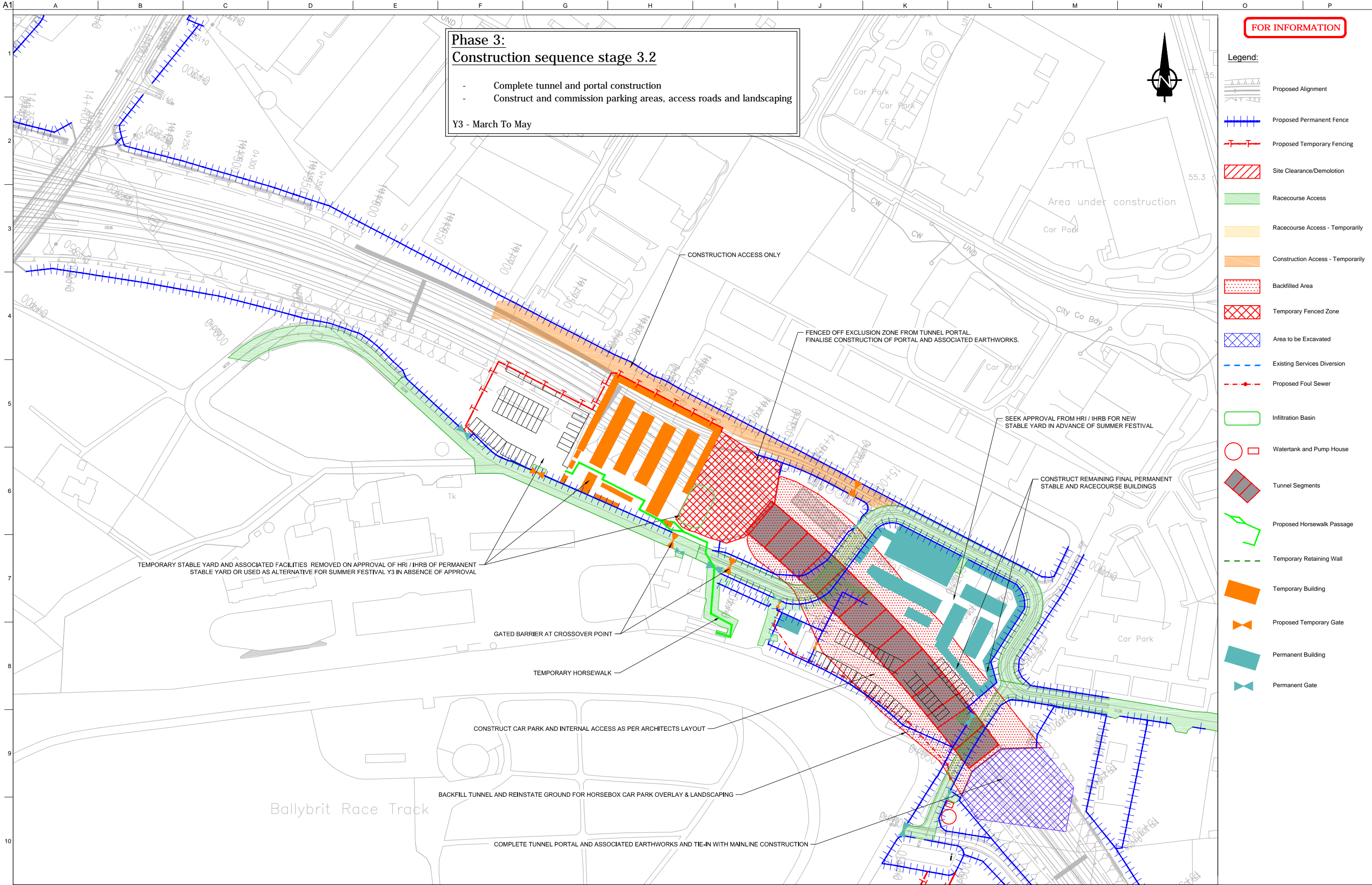
Phase 2:
Construction sequence stage 2.5

Temporary Approved Stable Yard and Horsebox Carpark in Operation

Y2 - Summer Festival - July / August

FOR INFORMATION

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FOR INFORMATION

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Department Transport, Tourism and Sport

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Job Title

N6 Galway City Transport Project

Scale

1:2500 @ A3

Date:

March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

Construction Sequence -
Galway Racecourse Tunnel

Sheet 13 of 16

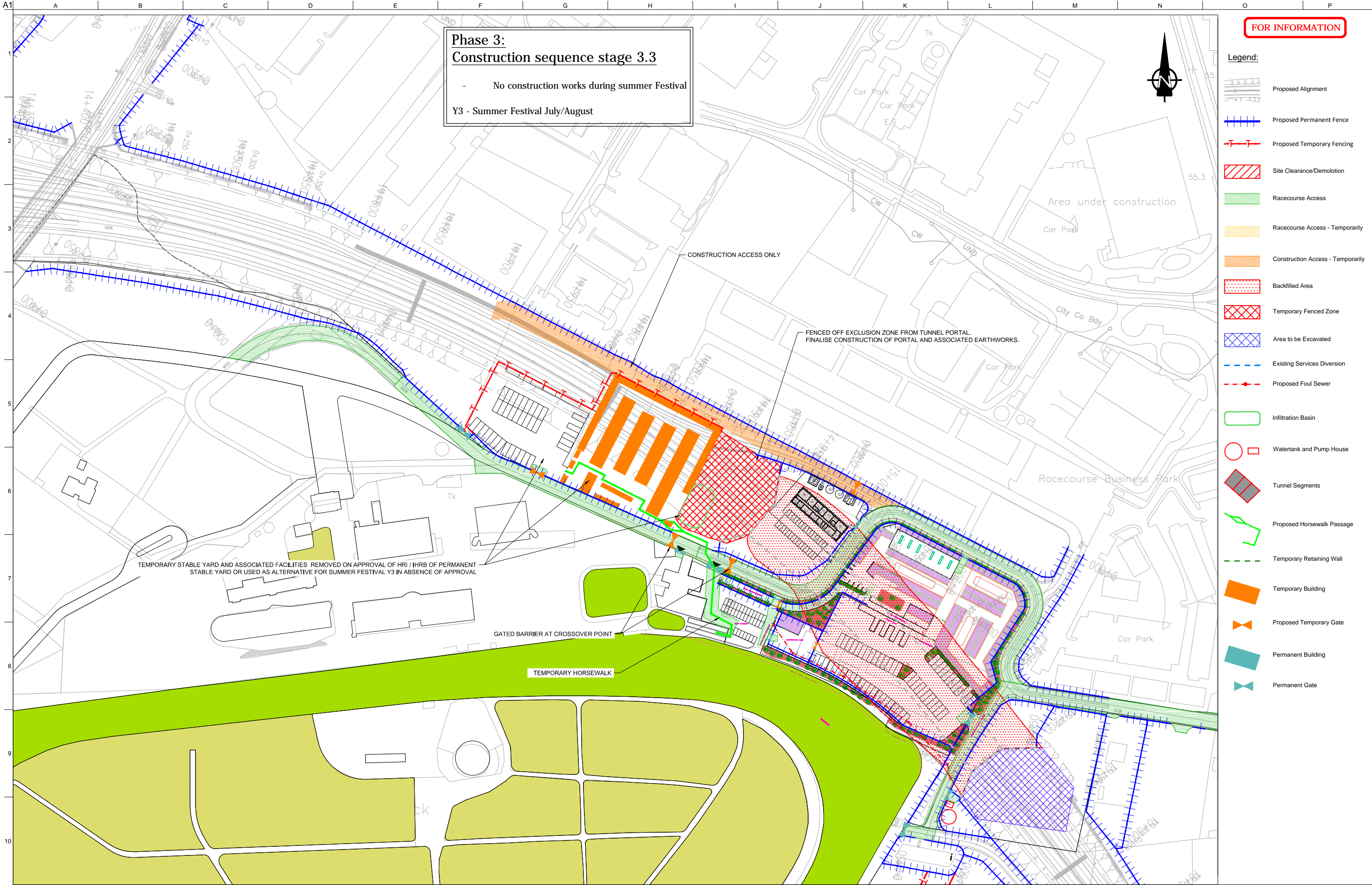
Drawing Status

For Information

Job No
233985-00

Drawing No
GCOB-3000-D-312

Issue
I3



FOR INFORMATION

Legend:

- Proposed Alignment
- Proposed Permanent Fence
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 **N6**
Galway City Transport Project

 **An Roinn Iompair**
Turasoireachta agus Spóirt

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Job Title

N6 Galway City Transport Project

Scale 1:2500 @ A3

Date: March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

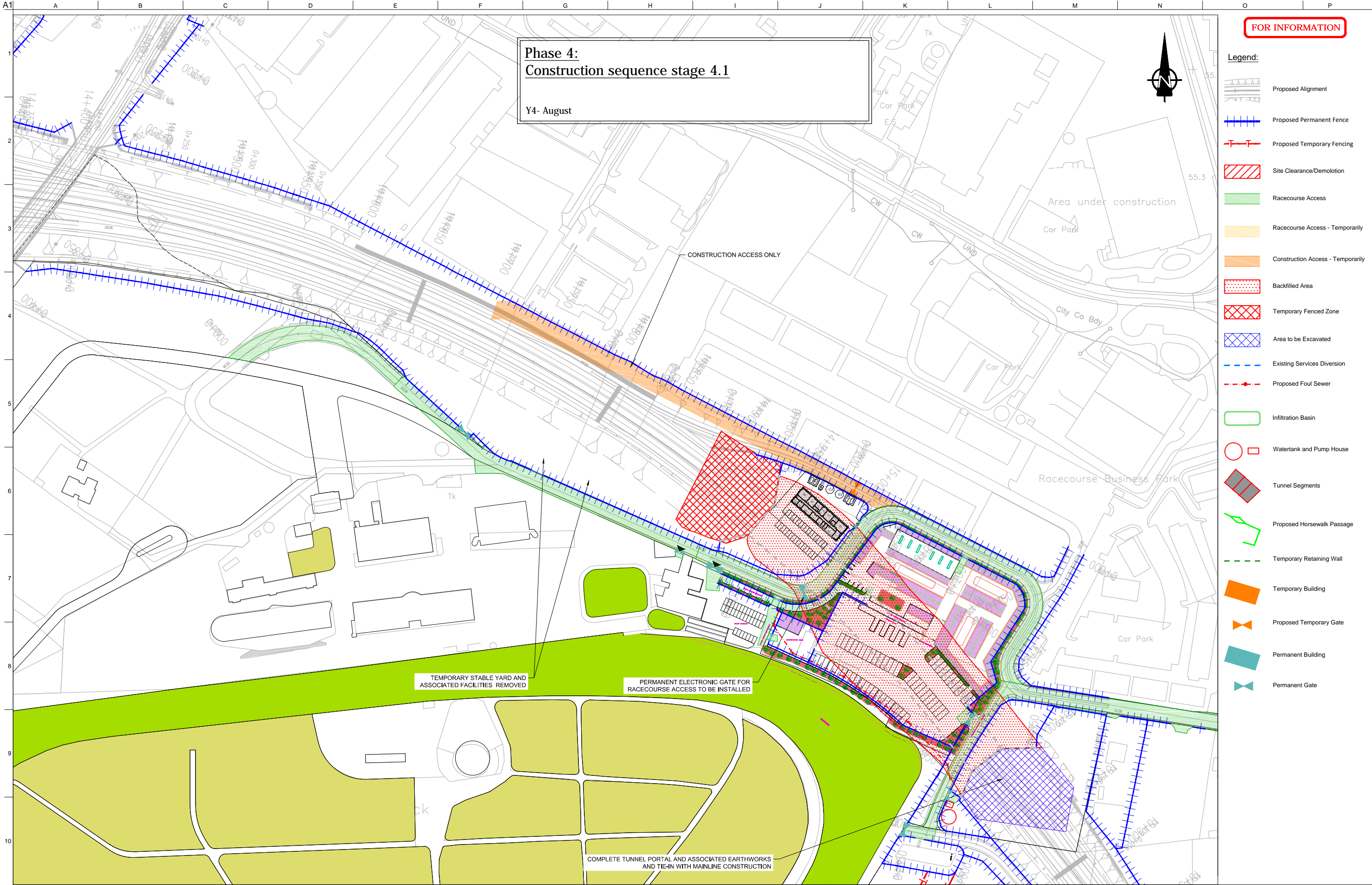
Construction Sequence - Galway Racecourse Tunnel

Sheet 14 of 16

Drawing Status

For Information

Job No	Drawing No	Issue
233985-00	GCOB-3000-D-313	I3



Phase 4:
Construction sequence stage 4.1

Y4- August

FOR INFORMATION

- Legend:
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Job Title

N6 Galway City Transport Project

Scale 1:2500 @ A3

Date: March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

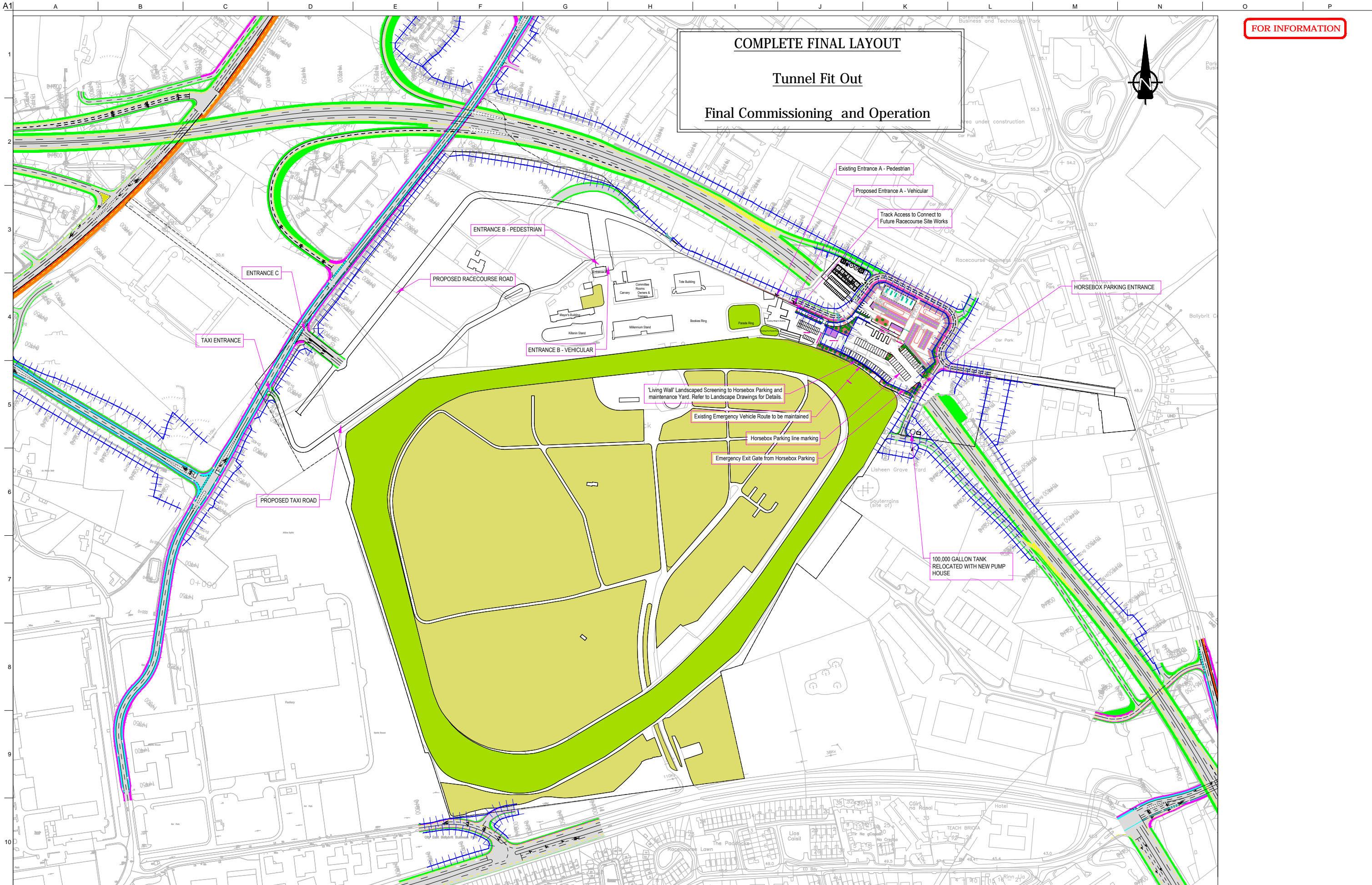
Construction Sequence -
Galway Racecourse Tunnel

Sheet 15 of 16

Drawing Status

For Information

Job No 233985-00 Drawing No GCOB-3000-D-314 Issue I3



FOR INFORMATION

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Job Title

N6 Galway City Transport Project

Scale

1:5000 @ A3

Date:

March 2018

I3	04/04/2018	AG	HK	EMC
I2	12/03/2018	JR	GOD/HK	EMC
I1	22/02/2018	JR	MH	EMC
Issue	Date	By	Chkd	Appd

Drawing Title

Construction Sequence -
Galway Racecourse Tunnel

Sheet 16 of 16

Drawing Status

For Information

Job No	Drawing No	Issue
233985-00	GCOB-3000-D-315	I3