APPENDIX 9.1

TRAFFIC MANAGEMENT PLAN

Aviation Fuel Pipeline

Dublin Port to Dublin Airport

Traffic Management Plan

Document Reference	Prepared By	Date Prepared / Reviewed	Approved By	Signature	Date Approved
M29/09/TMPlan	D Wood	August 2014	J. O'Gorman		14/12/14

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1. INTRODUCTION

Independent Pipeline Company Ltd. (IPC) intends to construct a 200mm (8") nominal diameter pipeline to transport Aviation fuel from Dublin Port to Dublin Airport.

The proposed pipeline corridor comes under the jurisdiction of several public bodies,

- Oil terminal to East Wall Road - Dublin Port Company.
- East Wall Road to Malahide Road (R139) / Clonshaugh Road - Dublin City Council.
- Clonshaugh Road to Long Term Car Park- Fingal County Council.
- Long Term Car Park to Oil Storage Facility - Dublin Airport Authority.

The pipeline corridor has been divided into 15 sections. Traffic Management drawings detail the measures proposed to manage pedestrians and traffic during the course of these works.
The Traffic Management drawings are the basis for a detailed Traffic Management Plan which will be developed, prior to construction, based on the following, and agreed with DCC, FCC, AUL, DPC and DAA

- Minimising disruption to the local community
- Providing safe access for pedestrians
- Maintaining traffic flow for the duration of the works.
- Compliance with Health and Safety Requirements
- Four work sites in operation at the same time
- Average length of open excavation - 30m
- Agreement with the statutory authorities

2. PIPELINE ROUTE CORRIDOR

The proposed pipeline route corridor is shown on drawing no 0362/D/01/G/0001 (Refer to Appendix A)

3. TRAFFIC IMPACT

Scheduled below is a list of roads, with their traffic impact numbers, for sections of the proposed route within the jurisdiction of Dublin City Council as stated within their document: "Directions for the Control and Management of Roadworks in Dublin City" (DCMR)

Name	Traffic Impact Number
East Wall Road	4
Alfie Byrne Road	3
Clontarf Road	4
Howth Road	3
Copeland Avenue	3
Malahide Road (R107)	5
Malahide Road (R139)	4

The following sections are within the jurisdiction of other Local Authorities and as such will be subject to separate agreements.

Tolka Quay Road	Dublin Port Company
Clonshaugh Road to FAI Sports Complex	Fingal County Council
M1 Crossing to DAA Long Term Car Park (Red)	Fingal County Council
Swords Road Crossing (R132)	Fingal County Council
Long Term Car Park to Fuel Storage Facility	Dublin Airport Authority

In addition a private wayleave will be required from the Football Association of Ireland (FAI) to cross their sports grounds between the Clonshaugh Road and M1 crossing into the Long Term Car Park at the airport. The FAI have agreed in principle to this.

Sixty per cent (60%) of the route within the Dublin City Council area is designated as either category 4 or 5.
The permitted working hours for compliance with these categories during the week are:

- Monday to Wednesday 19.30 to 23.00 hrs (category 4 & 5)
- Thursday & Friday 21.00 to 23.00 hrs (category 4 & 5)
- Saturday & Sunday 09.00 to 23.00 hrs (category 4)
- Saturday 09.00 to 12.00 & 18.30 to 23.00 hrs (category 5)
- Sunday 09.00 to 23.00 hrs (category 5)

Section 2.7 of the DCMR allows for a relaxation of restrictions "*in order to progress the works in an efficient manner and states that in exceptional cases where, because of the nature of the roadworks being carried out it is in the judgement of the Roadworks Control Unit not feasible to comply with the general restrictions set out above or the compliance will result in the imposition of excessive cost on the utility/company concerned and where alternative traffic management measures(e.g road closure) would be inappropriate consideration will be given to relaxing these general restrictions*".

To progress the works in an efficient manner and ensure project viability, discussions will take place with the relevant Authorities to reach agreement on the relaxation of their current restrictions on working hours.

4. PEDESTRIAN AND TRAFFIC MANAGEMENT

Freeflow Traffic Management Services have produced preliminary traffic management drawings for each section of the works, TMP/AP/02 – 18 (Refer to Appendix B)
The drawings detail the measures proposed to manage both the traffic and pedestrians during the course of these works and to minimise disruption to the local community.
Freeflow are an approved Dublin City Council contractor, their management and staff have CSCS Signing, Lighting & Guarding accreditation, and have experience on a variety of city centre projects.

A flexible approach will be required to deal with day-to-day traffic and pedestrian management issues. For the duration of the works the contractor will have a designated gang with all necessary plant and equipment on site full time. Should any changes be necessary they can be undertaken from the site-based offices.

A key factor in effective pedestrian and traffic management is good communication with all affected parties. Prior to construction there will be a letter drop to every house and business with a contact name and phone number of personnel responsible for traffic and pedestrian management.

4.1 PEDESTRIAN & TRAFFIC MANAGEMENT PRINCIPLES

General

In order for the works to progress in accordance with the agreed works programme, there is a requirement for effective pedestrian and traffic management, including the provision of alternative pedestrian and traffic routes

Access to homes, retail and business premises along the route will be maintained where possible.

The programming of the works and the sequencing of work sites within each section will be based on minimising the impact of the works on affected parties.

Maintaining the maximum separation between work sites will prevent the situation where vehicles are diverted around one work location into the direction of an adjacent work site.

Pedestrian

Pedestrians will be protected from the works by the erection of barriers around the works. Safe working zones may affect pedestrian access along existing footpaths. In these situations, alternative routes will be provided whilst footpaths are closed.

These alternative routes will be clearly signed to ensure that the pedestrians are directed away from the works location.

Traffic

Where feasible, two lanes of traffic on the carriageway will be maintained.

If maintaining two lanes of traffic is not feasible, such as at main junctions, phasing of operations will ensure traffic flow is maintained.

A safe working zone for each section will be maintained throughout the project.

Barriers will be used as demarcation between the safe working zone and the carriageway. These barriers will be continuous along the section, the only exception will be maintaining local access through the works site, and this will be managed on a location by location basis.

4.2 RISK MANAGEMENT

Before commencement of the works the Contractor will review the preliminary Traffic Management Plans (TMPs) for each location and a detailed Traffic Management Plan, based on the preliminary traffic management drawings will be drawn up and agreed with the Local Authorities.

During this location specific review, all potential hazards and foreseeable risks will be identified and recorded.

Factors to be considered which may affect the traffic management design:

- Likely duration of the works
- Optimum time for carrying out the works, bearing in mind both programme requirements and safety issues.
- Local access
- Weekend or night working for short duration works in high risk locations

- Minimum road width of 5.5 meters to allow 2-way traffic to be maintained.
- Stop and go boards used for one way system
- If the traffic management is to remain in place overnight, what additional lighting is required to illuminate the affected area.
- Variable message signs to provide advanced warning to road users.

4.3 MONITORING OF RISK MANAGEMENT

A review of each completed traffic management installation will be undertaken to ensure that all objectives have been achieved,

Consideration will be given to the following:

- Is satisfactory pedestrian access being maintained.
- Is access to retail and business premises being maintained
- Has a safe working zone been constructed for both operatives and road users.
- Where traffic control measures are being utilized, is the sequencing correct for managing traffic flow without undue delay in each direction.
- Have all the risks previously identified on drawings or within method statements been mitigated.

Pedestrian and Traffic Management will be reviewed at each site meeting.

4.4 MAINTENANCE OF EQUIPMENT

Cones, lamps, barriers and all other apparatus used for the protection of the site, workforce and the general public will be retained in a fully operational condition.

Where signs/ cones etc. have been damaged or displaced they will be replaced without delay.

Twice daily inspections will be established where works are of longer duration and semi permanent traffic management has been established.

Where the traffic management is for short durations, then the inspection frequency will be every four hours, day and night.

A sign off sheet will be completed at the end of each inspection, and will be a confirmation that the pedestrian and traffic management is fit for purpose and in compliance with the agreed proposal.

5. ROUTE SECTIONS

The route has been subdivided in the 15 sections. The proposed traffic management is outlined for each section.

6. ROUTE SECTION 1

6.1 LOCATION
Tolka Quay Road/ Bond Drive to Pumping Station

6.2 STATUTORY AUTHORITY
Dublin Port Company

6.3 PROPOSAL
Install 2 x 200mm nominal diameter pipelines under-ground in a single trench:
From existing above-ground gantry at the junction with Bond Drive crossing Tolka Quay Road to Dublin Port Pumping Station in Bond Drive.
The trench width on this section of the works will increase to 1.35 metres to facilitate the installation and separation of the additional pipe.

6.4 TRAFFIC MANAGEMENT
This section of the project is located on the busy intersection of Bond Drive and Tolka Quay Road, which is the main access from the Port Tunnel into the docks.
A detailed traffic management plan (TMP) will be prepared and agreed with Dublin Port Company
Due to the high volumes of traffic using these roads, the TMP will include proposals to:

- Undertake the carriageway crossing works on a Sunday when traffic levels are reduced.
- Temporarily close the single lane access towards the old security post with traffic being diverted onto Branch Road No.2, Alexandra Road and Branch Road No.1.
- Close each lane of the carriageway on a phased basis for the duration of the works.

Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic at this junction.
Traffic management drawing TMP/AP/02 details the proposals for managing traffic for works within this section.

7. ROUTE SECTION 2

7.1 LOCATION
Tolka Quay Road / Bond Drive to Bond Road

7.2 STATUTORY AUTHORITY
Dublin Port Company

7.3 PROPOSAL
Install 1 x 200mm nominal diameter pipeline:
Under-ground along Tolka Quay Road to tie in with pipe laid in "advance" during construction of the

Dublin Port Tunnel at the junction with Bond Road and East Wall Road.

7.4 TRAFFIC MANAGEMENT

The section of Tolka Quay Road between Bond Drive junction and Branch Road No. 1 has relatively low volumes of traffic. Branch Road No.1 and the Advance-Works tie – in point, is now within a cul-de-sac with a requirement to maintain access to all premises in the area.
A detailed traffic management plan (TMP) will be prepared and agreed with Dublin Port Company before the commencement of any works.
The TMP will include proposals to:

- Close one lane to traffic between Bond Drive junction and Branch Road No.1
- Road crossing on Tolka Quay Road to tie in with advance works.

Advance warning and alternative route signs will be positioned during the week prior to the commencement of the road works.
Vehicular access to premises will be maintained throughout the works by traffic management operatives using stop and go boards.

8. ROUTE SECTION 3

8.1 LOCATION

East Wall Road/ ESB Sub-Station to John McCormack Bridge. (TIN 4)

8.2 STATUTORY AUTHORITY

Dublin City Council

8.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Along East Wall Road to junction with the John McCormack Bridge.

8.4 TRAFFIC MANAGEMENT

An initial survey of the route along East Wall Road indicates that between the ESB Sub-Station and John McCormack Bridge, there are a significant number of services and will require trial excavations to confirm the line of route prior to construction.
A detailed traffic management plan (TMP) will be agreed with Dublin City Council before the commencement of any works.
Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum. The TMP will include proposals to provide safe access to the Schools.

9. ROUTE SECTION 4

9.1 LOCATION

Tolka River Crossing/ East Wall Road adjacent to John McCormack Bridge and Alfie Byrne Road

9.2 STATUTORY AUTHORITY

Dublin City Council

9.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Under Tolka River using trenchless technology.
Special Engineering Difficulties (SED).
Due to difference in levels between East Wall Road and the Tolka River bed it is proposed to launch the drill from a temporary pit located in open space on the southern side of the John McCormack Bridge to a reception pit on the northern side.

9.4 TRAFFIC MANAGEMENT

A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works at this busy intersection.
Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum.
Traffic Management drawing TMP/AP/03 detail our proposals for managing works within this section.

10. ROUTE SECTION 5

10.1 LOCATION

Alfie Byrne Road / Tolka River Crossing to Clontarf Road. (TIN 3)

10.2 STATUTORY AUTHORITY

Dublin City Council.

10.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
From a reception pit on the east side of Alfie Byrne Road, crossing to the west side and onto the Clontarf Road including a crossing over Dublin Tunnel (SED)

10.4 TRAFFIC MANAGEMENT

A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works.

Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum.

11. ROUTE SECTION 6

11.1 LOCATION

Clontarf Road (R105)/ Alfie Byrne Road to Howth Road. (TIN 4)

11.2 STATUTORY AUTHORITY

Dublin City Council

11.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Along the southern side of Clontarf Road to the junction with Howth Road including crossing under CIE Bridge No. UBB5. (SED)

11.4 TRAFFIC MANAGEMENT

The Clontarf Road has high volumes of traffic during the week and forms a main route to and from Dublin City centre.
A detailed traffic management plan (TMP) will be agreed with Dublin City Council before the commencement of any works.
Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum.
Works within the confines of the railway bridge will be completed as per agreements with CIE.
TMP/AP/04 details our proposals for managing works within this section.

12. ROUTE SECTION 7

12.1 LOCATION

Howth Road/ Clontarf Road to Copeland Avenue (TIN 3)

12.2 STATUTORY AUTHORITY

Dublin City Council

12.3 PROPOSAL

Install 1 x 200mm nominal diameter Pipeline:
Across the Clontarf Road and along the western side of Howth Road

to Copeland Avenue.

12.4 TRAFFIC MANAGEMENT

A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works. The TMP will include proposals to complete the Clontarf Road crossing at off-peak times and will take into account commuter traffic along the Howth Road and provide safe access to the Schools.
Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum along this busy commuter route.
TMP/AP/05 details our proposals for managing works within this section.

13. ROUTE SECTION 8

13.1 LOCATION
Copeland Avenue / Howth Road to Malahide Road (TIN 3)

13.2 STATUTORY AUTHORITY
Dublin City Council

13.3 PROPOSAL
Install 1 x 200mm nominal diameter pipeline:
Along the Southern side of Copeland Avenue to Malahide Road

13.4 TRAFFIC MANAGEMENT
Copeland Avenue is in a residential area with a 9 metre wide carriageway used extensively by commuters for day time parking.
A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works.
Traffic flow will be managed by stop and go boards deployed by traffic management personnel specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum along this busy commuter route.

14. ROUTE SECTION 9

14.1 LOCATION
Malahide Road (R107)/ Copeland Avenue to Greencastle Road (TIN 5)

14.2 STATUTORY AUTHORITY

Dublin City Council

14.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Along eastern side of Malahide Road
Under Santry River using trenchless technology (SED).
Crossing under the Wad and Nanniken Streams using trenchless technology.

14.4 TRAFFIC MANAGEMENT

Malahide Road has a TIN of 5 with the associated working hour restrictions limiting progress to weekends only.
We propose to enter discussions with both and Dublin City Council and Dublin Bus to seek agreement to a temporary variance to the TIN 5 working restrictions.
As the proposed works affect the city centre in bound lane, we will request that the bus lane is suspended after 10.00 am when traffic flow is reduced, enabling the works to proceed during the week.
It is proposed to complete the road crossings at the junctions with Collins Avenue, Kilmore Road, Ardlea Road / Brookwood Avenue and Oscar Traynor Road / Tonlegee Road at off peak times when traffic volumes are reduced.
A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works.
The TMP will take into account traffic flows along the Malahide Road and provide safe access to Churches and Schools.
Traffic flow will be managed by stop and go boards, deployed by traffic management personnel, specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum, along this busy commuter route.
TMP/AP/06-09 detail our proposals for managing works within this section.

15. ROUTE SECTION 10

15.1 LOCATION

Malahide Road (R107)/ Greencastle Road to R139 - (TIN 4)

15.2 STATUTORY AUTHORITY

Dublin City Council

15.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Along eastern side of Malahide Road,
Crossing over to the western side north of

Priorswood roundabout to the junction with
Malahide Road (R139).
Crossing under the Kilbarrack Stream culvert using trenchless technology

15.4 TRAFFIC MANAGEMENT

Malahide Road has a TIN of 5 with the associated working hour restrictions limiting progress to weekends only.
We propose to enter discussions with both and Dublin City Council and Dublin Bus to seek agreement to a temporary variance to the TIN 5 working restrictions.
As the proposed works affect the city centre inbound lane, we will request that the bus lane is suspended after 10.00 am when traffic flow is reduced, enabling the works to proceed during the week.
It is proposed to complete road crossings (2) at Priorswood roundabout during off-peak times when traffic volumes are reduced.
A detailed traffic management plan (TMP), will be agreed with Dublin City Council before the commencement of any works.
The TMP will take into account traffic flows along the Malahide Road and provide safe access to Churches and Schools.
Traffic flow will be managed by or stop and go boards, deployed by traffic management personnel, specifically to manage the safe movement of traffic and to ensure that any disruption is kept to a minimum, along this busy commuter route.
TMP/AP/12-14 detail our proposals for managing works within this section.

16. ROUTE SECTION 11

16.1 LOCATION

Malahide Road Junction (R107 / R139) to Twin Roundabouts adjacent to Bewleys Hotel and Clonshaugh Road (North) – (TIN 4)

16.2 STATUTORY AUTHORITY

Dublin City Council

16.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
On the northern side of Malahide Road (R139) to the twin roundabouts junction with the Clonshaugh Road boundary between Dublin City Council and Fingal County Council.

16.4 TRAFFIC MANAGEMENT

This section of the route includes works in the vicinity of the Twin Roundabouts the boundary between Dublin City Council and Fingal County Council.
Works will require extensive traffic management to maintain access to and from the M1 and M50.

A detailed traffic management plan (TMP) will agreed with Dublin City Council before the commencement of any works.
TMP/AP/15 details our proposals for managing works within this section.

17. ROUTE SECTION 12

17.1 LOCATION
Clonshaugh Road (N) / Twin Roundabouts to AUL / FAI Sports Complex

17.2 STATUTORY AUTHORITY
Fingal County Council

17.3 PROPOSAL
Install 1 x 200mm nominal diameter pipeline:
Along Clonshaugh Road.
Crossing under Mayne River Culvert - (SED) and Cuckoo Stream using trenchless technology - (SED)

17.4 TRAFFIC MANAGEMENT
This section of the proposed route has high levels of vehicular traffic during the day, in a rural location and carries commuter traffic from Portmarnock and Swords to and from Dublin.
A detailed traffic management plan (TMP) will be agreed with Fingal County Council before the commencement of any works.
TMP/AP/16-17 detail our proposals for managing works within this section.

18. ROUTE SECTION 13

18.1 LOCATION
AUL / FAI Sports Complex / Clonshaugh Road to Junction with M1

18.2 Ownership
Private Wayleave

18.3 PROPOSAL
Install 1 x 200mm nominal diameter pipeline:
Along northern site boundary as per wayleave agreement.

18.4 TRAFFIC MANAGEMENT
A detailed traffic management plan (TMP), agreed with AUL/FAI will be designed to mitigate risk and to minimise the impact of the works on members using the facilities of the AUL / FAI Sports Complex.
The TMP will include proposals for:

- Management of the pipeline works within the area of agreement.
- Creation of a works safety zones on a daily basis.

19. ROUTE SECTION 14

19.1 LOCATION

M1 – Crossing from AUL / FAI Sports Complex to DAA Red Car Park

19.2 STATUTORY AUTHORITY

Fingal County Council

19.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Under M1 using trenchless technology (SED)

19.4 TRAFFIC MANAGEMENT

Launch and receive pits will be sited in the AUL /FAI grounds and the DAA Long Term Car Park respectively.
A detailed traffic management plan (TMP), will be agreed with both the FAI and DAA before the commencement of any works.
There will not be any contractor activities on the M1.

The TMP will include proposals to:

- Provide safe access for pedestrians and maintain traffic flow for the duration of the works within DAA Long Term Parking area
- Deploy traffic management personnel specifically to manage pedestrian and traffic flow using stop and go boards

20. ROUTE SECTION 15

20.1 LOCATION

DAA Red Car Park to Fuel Storage Facility

20.2 STATUTORY AUTHORITY

Dublin Airport Authority (DAA)
Fingal County Council (FCC)

20.3 PROPOSAL

Install 1 x 200mm nominal diameter pipeline:
Through Long Term Car Park (Red)
Through ALSAA grounds adjacent to Corballis Road
Crossing the Swords Road using trenchless technology and on to the DAA Fuel Storage Facility

20.4 TRAFFIC MANAGEMENT

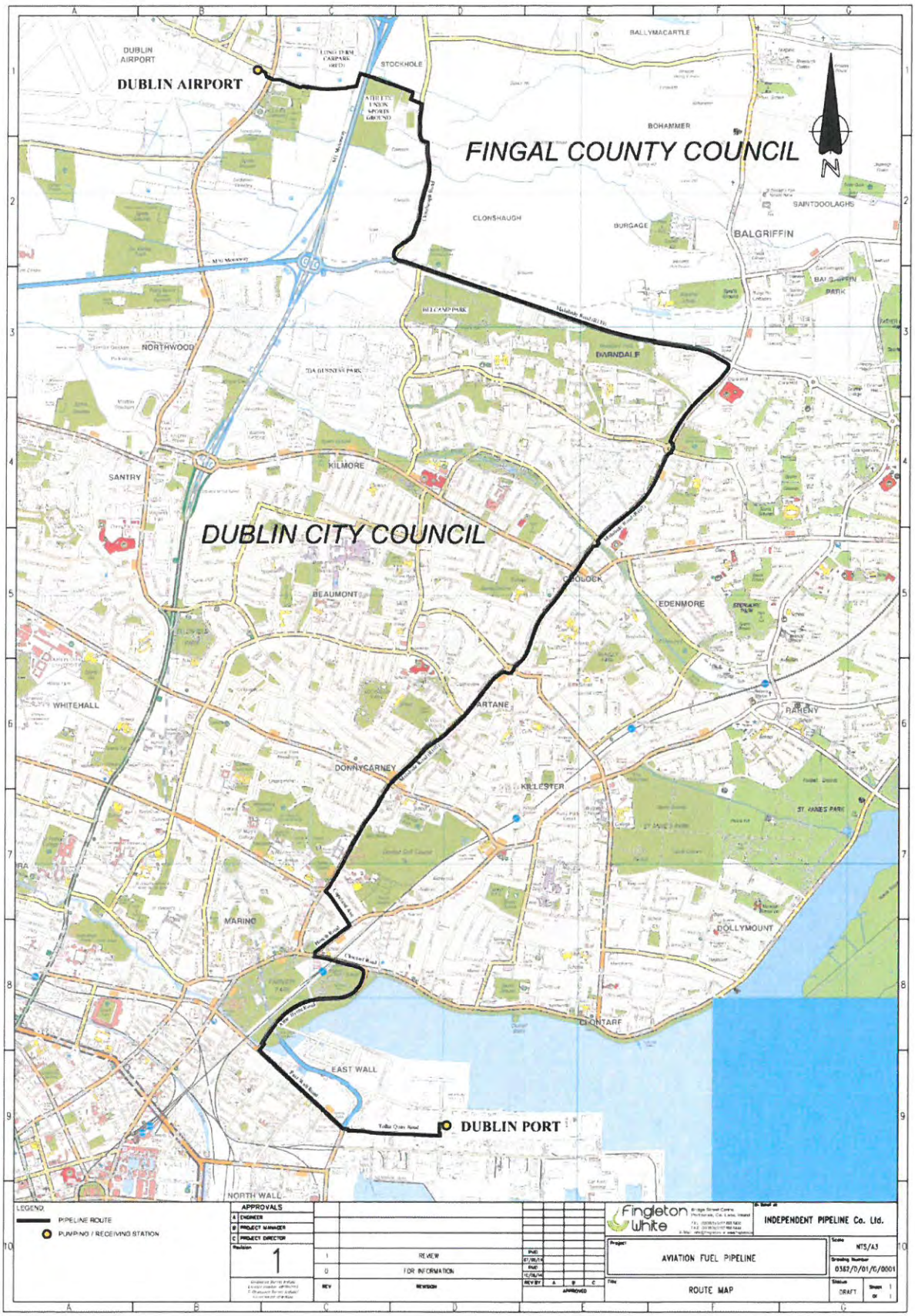
A detailed traffic management plan (TMP), will be agreed with both the DAA and Fingal County Council before the commencement of any works.

The TMP will include proposals to:

- Maintain safe access for pedestrians and maintain traffic flow for the duration of the works.
- Deploy traffic management personnel specifically to manage pedestrian and traffic flow by stop and go boards.

TMP/AP/18 details our proposals for managing traffic works within this section.

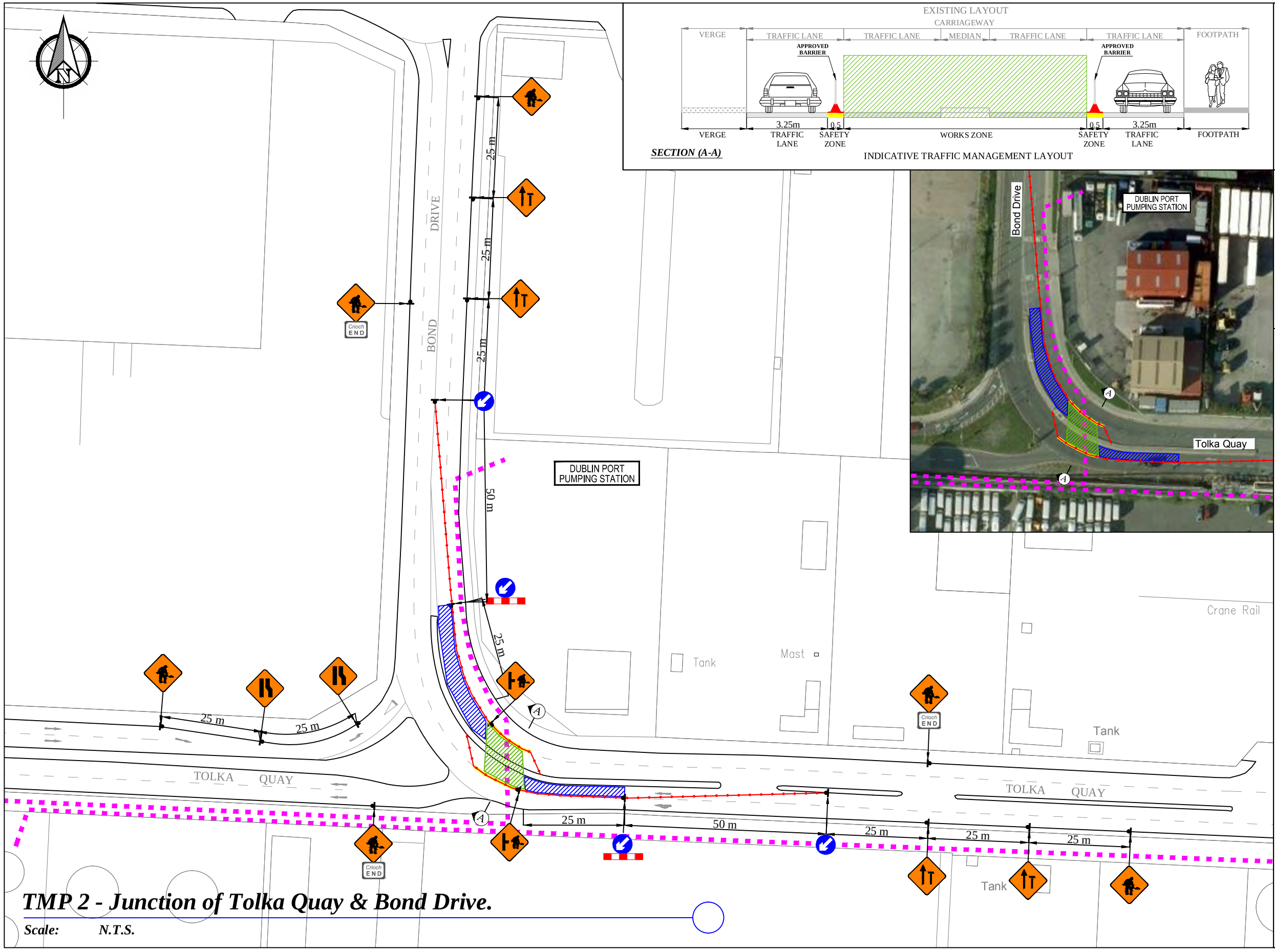
Appendix A


DUBLIN AIRPORT
DUBLIN AIRPORT
FINGAL COUNTY COUNCIL
DUBLIN CITY COUNCIL
DUBLIN PORT
BALLYMACARTLE
STOCKHOLE
BOHAMMER
CLONSHAUGH
BURGAGE
SAINTDOOLAGHS
BALGRIFFIN
NORTHWOOD
SANTRY
KILMORE
BEAUMONT
EDENMORE
WHITEHALL
DONNYCARNEY
KILLESTER
MARINO
DOLLYMOUNT
CLONTARF
EAST WALL
NORTH WALL
N
LEGEND
PIPELINE ROUTE
PUMPING / RECEIVING STATION
APPROVALS
A ENGINEER
B PROJECT MANAGER
C PROJECT DIRECTOR
Revision 1
REVIEW
FOR INFORMATION
REVISION
APPROVED
Fingleton White
INDEPENDENT PIPELINE Co. Ltd.
Project
AVIATION FUEL PIPELINE
Scale NTS/A3
Drawing Number 0362/0/01/C/0001
Title
ROUTE MAP
Status DRAFT
Sheet 1 of 1

Appendix B

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline



Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"- Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Existing footpath to be maintained at all times.

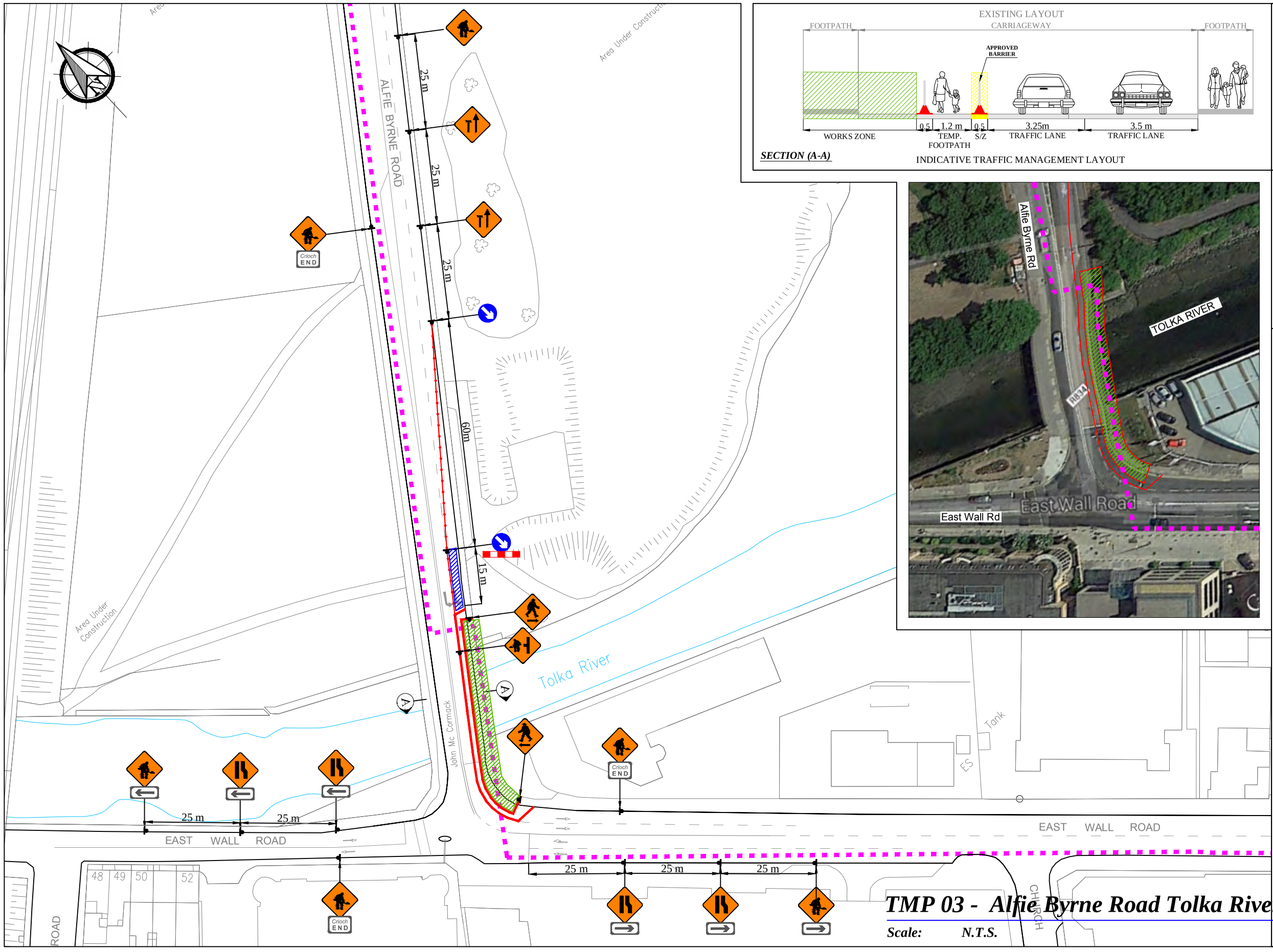
TMP 2 - Junction of Tolka Quay & Bond Drive.

Scale: N.T.S.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:		Drawing:		Dwg no:
AVIATION FUEL PIPELINE		TMP 2 - Junction of Tolka Quay & Bond Drive.		TMP/AP/02
				Rev:
Sheet: 2 of 18	CAD File ref.:	Drawn By: AK	Date: JUNE 2014	Scale: As Shown



SECTION (A-A)

INDICATIVE TRAFFIC MANAGEMENT LAYOUT

LEGEND

- ***Sign Location***
- ***Lateral Safety Zone***
- ***Approved Barrier System***
- ***Traffic Cones***
- ***Works Area Surrounded with Approved Barrier***
- ***Longitudinal Safety Zone***
- ***Aviation Fuel Pipeline***

Design Parameters:

1. *Statutory Speed of the Road -* ***50km/h***
2. *Distance between Advance Signs:* ***25m***
3. *Number of Advance Signs:* ***3No***
4. *Minimum Visibility of Signs:* ***50m***
5. *Longitudinal Safety Zone:* ***25m***
6. *Lateral Safety Zone:* ***0.5m***
7. *Leading Taper:* ***1 in 15m***
8. *Maximum at Tapers Cone Space:* ***3m***
9. *Maximum Longitudinal Cone Space:* ***6m***

Note:

1. *All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.*
2. *All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".*
3. *Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.*
4. *The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.*
5. *Exact sign positions to be agreed on site.*
6. *All safety zones to be maintained at all times.*
7. *All affected Parties and An Garda Siochana to be notified prior to works commencing.*
8. *Signs to be positioned so as not to cause an obstruction to other road users.*
9. *Minimum lane width of 3.25 m to be maintained at all times.*
10. *All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.*
11. *All delineation devices should be designed in accordance with IS EN 13422.*
12. *All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".*
13. *Safety barrier to be in accordance with IS EN 1317.*
14. *"End of Roadworks" sign placed 20m to 50m from end of works area.*
15. *Entrances to existing dwellings and businesses to be maintained at all times.*
16. ***Minimum temporary pedestrian walkway width of 1.2m to be maintained at all times.***

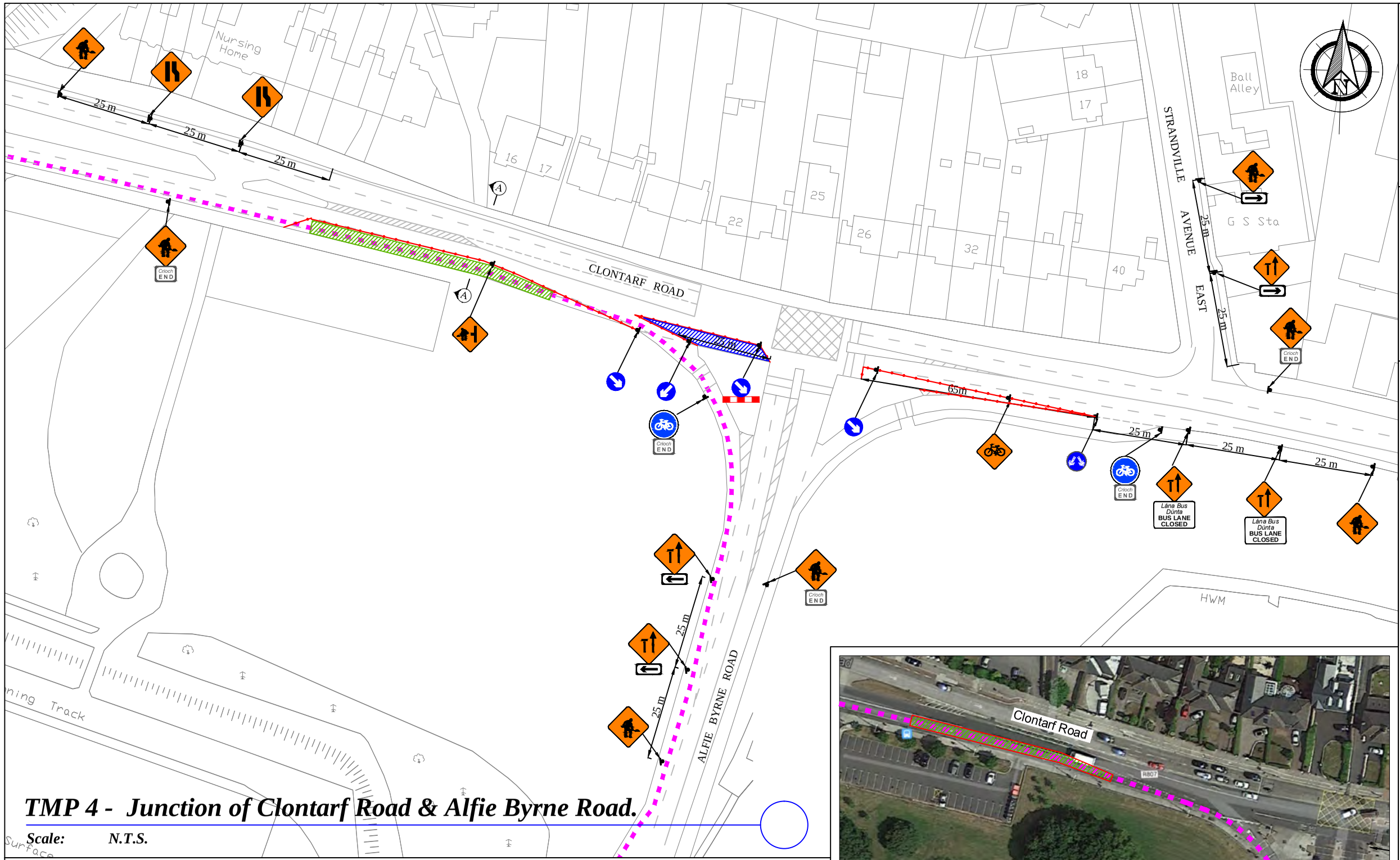
TMP 03 - Alfie Byrne Road Tolka River crossing.

Scale: ***N.T.S.***

GMC Civil & Mechanical Engineering Ltd

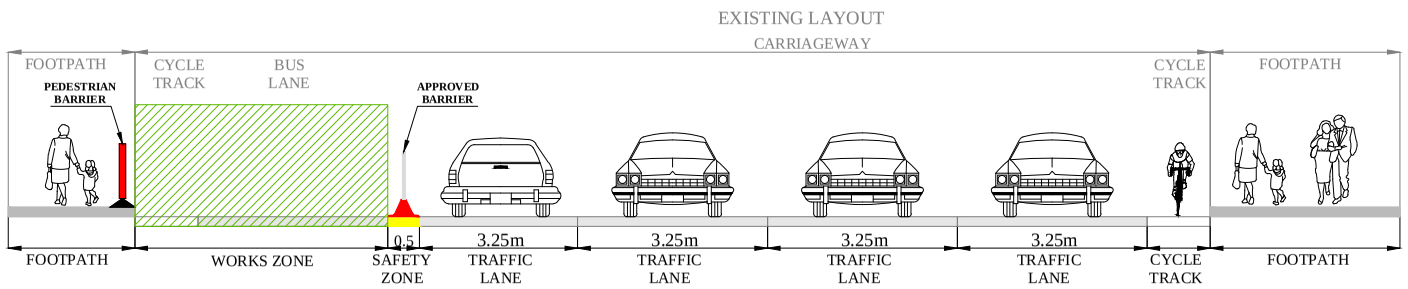
Rev:	*Description:*	*Date:*

Job Details: AVIATION FUEL PIPELINE		*Drawing:* TMP 03 - Alfie Byrne Road Tolka River crossing.		*Dwg no:* TMP/AP/03
				Rev:
Sheet: 3 of 18	*CAD File ref.:*	*Drawn By:* AK	*Date:* JUNE 2014	*Scale:* As Shown



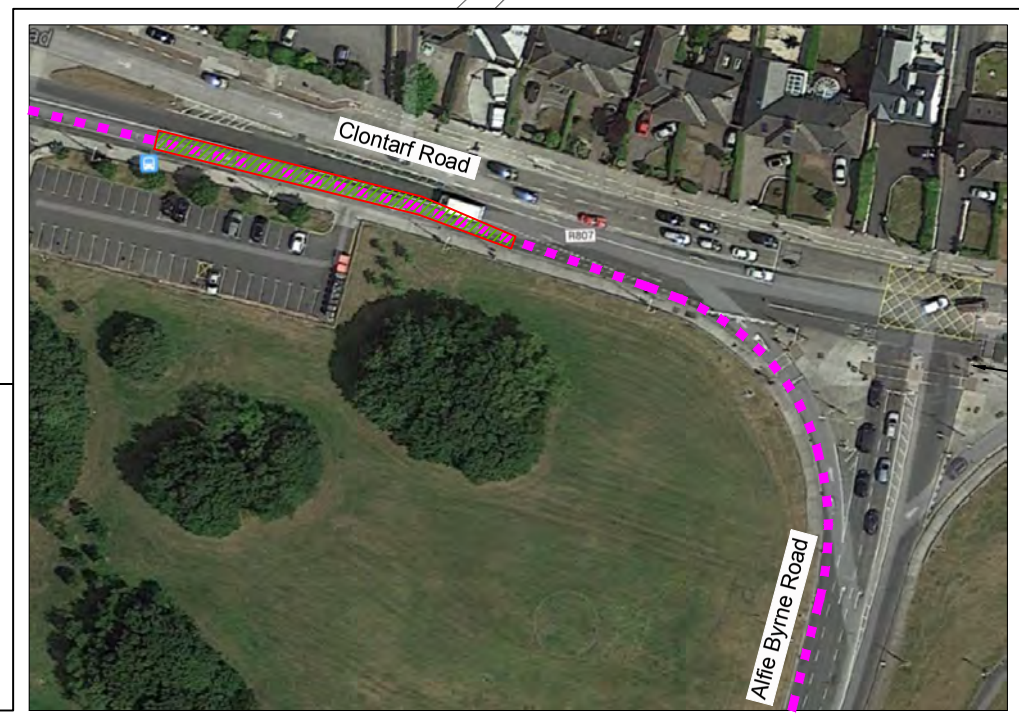
TMP 4 - Junction of Clontarf Road & Alfie Byrne Road.

Scale: N.T.S.



SECTION (A-A)

INDICATIVE TRAFFIC MANAGEMENT LAYOUT



LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

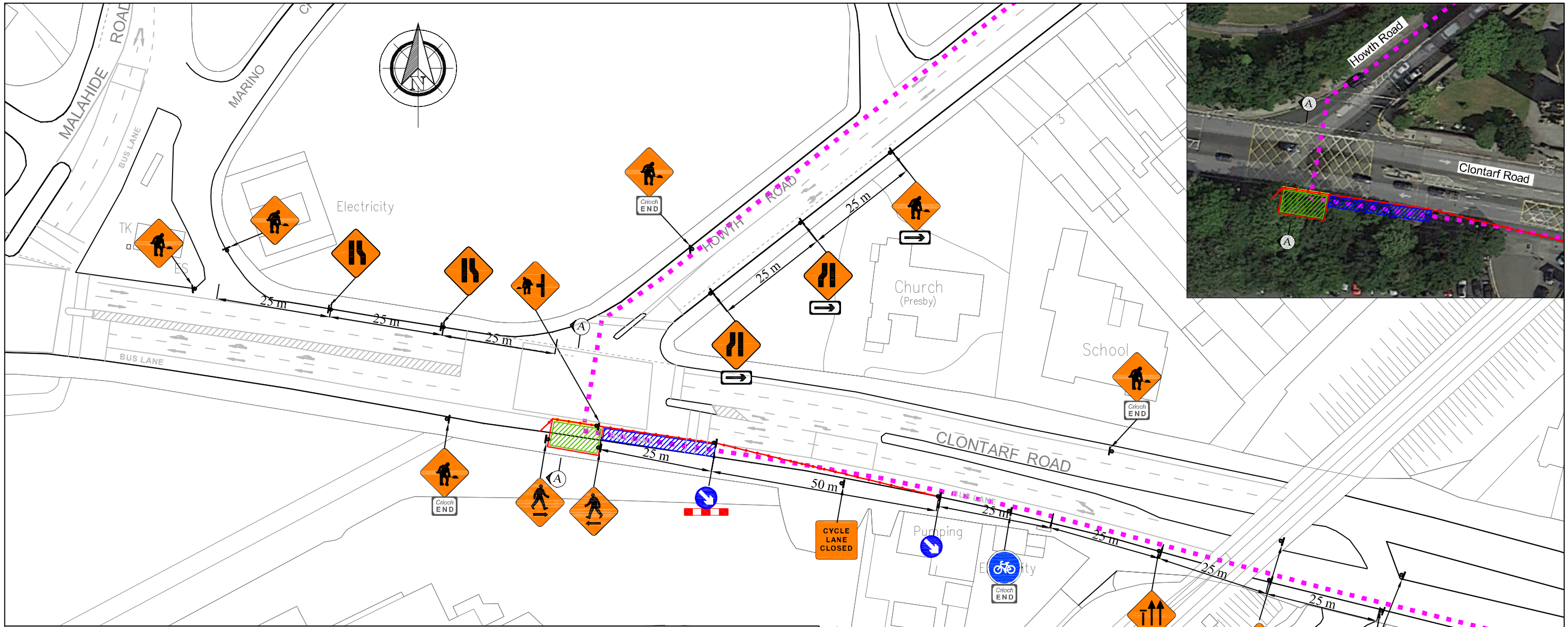
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"- Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Pedestrian Crossings to be maintained at all times.
13. Existing footpath to be maintained at all times.
14. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus lanes closure.
15. Cycle Lane Closed signs to be placed at commencement of cycle track.
16. Entire Junction to be excavated in sections with each area being "plated" and pipe work treaded through when excavation is complete.

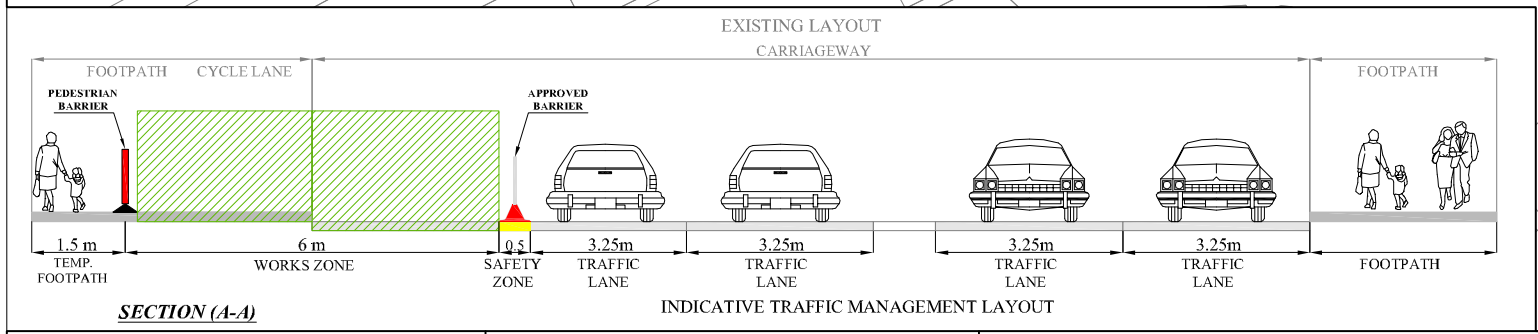
GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 4 - Clontarf Road & Alfie Byrne Road.	TMP/AP/04
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
4 of 18			JUNE 2014	As Shown





TMP 5 - Junction of Clontarf Road & Malahide Road.

Scale: ***N.T.S.***

LEGEND

- ***Sign Location***
- ***Lateral Safety Zone***
- ***Approved Pedestrian Barrier***
- ***Traffic Cones***
- ***Works Area Surrounded with Approved Barrier***
- ***Longitudinal Safety Zone***
- ***Photographic View***
- ***Aviation Fuel Pipeline***

Design Parameters:

1. *Statutory Speed of the Road -* ***50km/h***
2. *Distance between Advance Signs:* ***25m***
3. *Number of Advance Signs:* ***3No***
4. *Minimum Visibility of Signs:* ***50m***
5. *Longitudinal Safety Zone:* ***25m***
6. *Lateral Safety Zone:* ***0.5m***
7. *Leading Taper:* ***1 in 15m***
8. *Maximum at Tapers Cone Space:* ***3m***
9. *Maximum Longitudinal Cone Space:* ***6m***

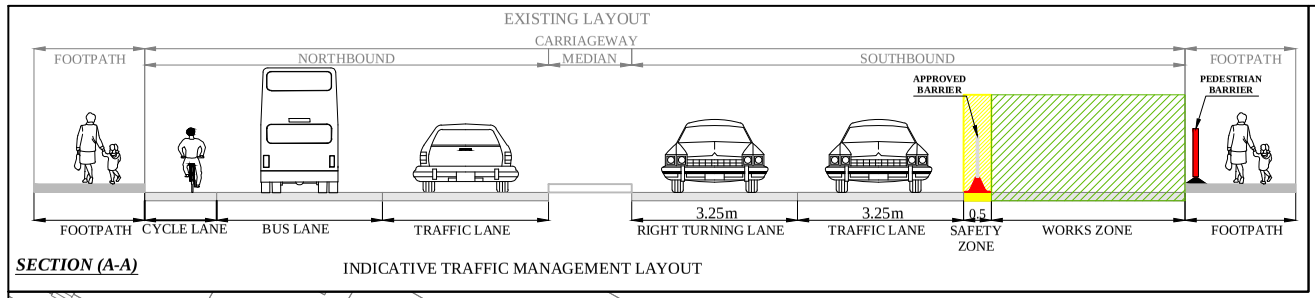
Note:

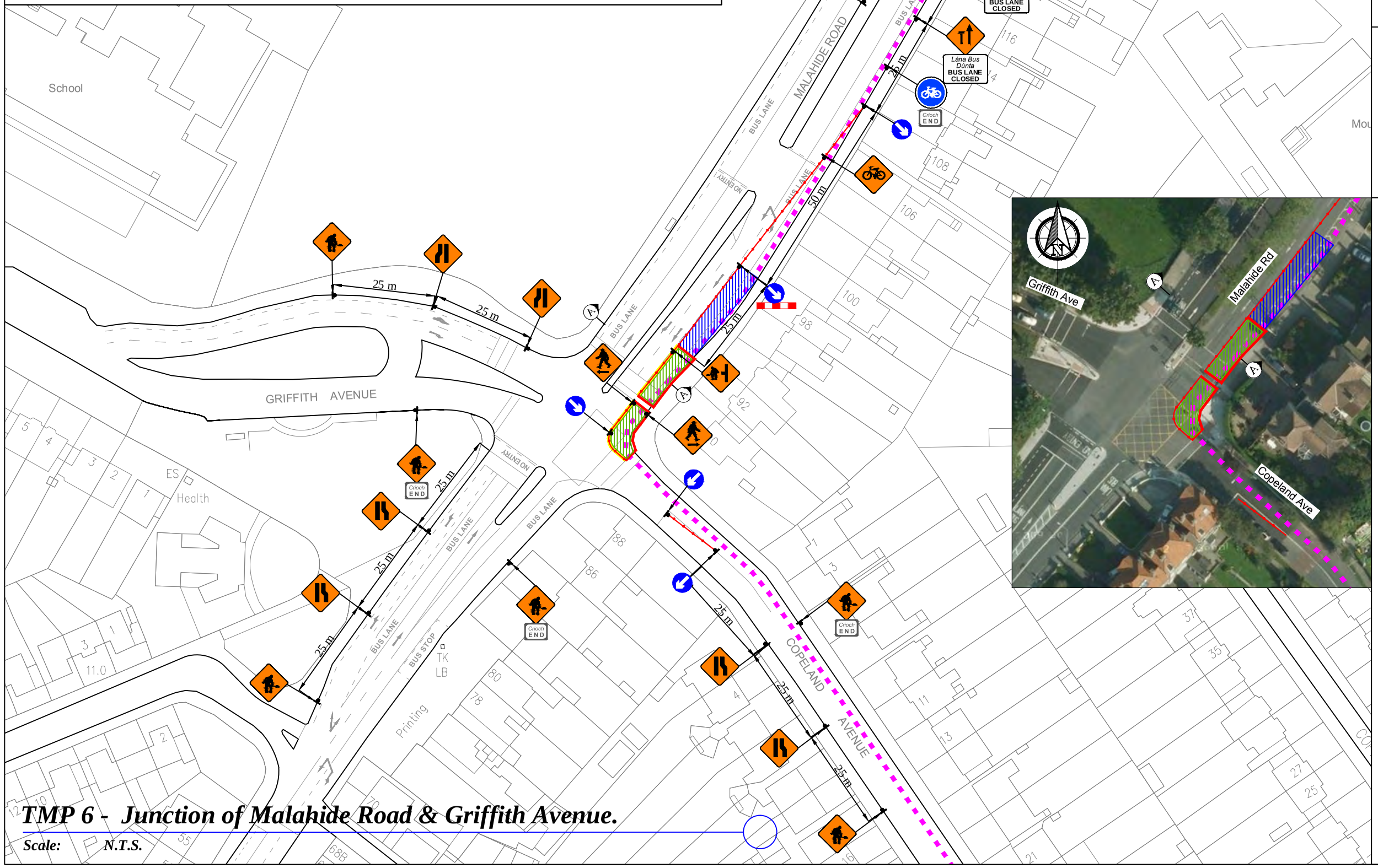
1. ***All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.***
2. ***Exact sign positions to be agreed on site.***
3. ***All safety zones to be maintained at all times.***
4. ***All affected Parties and An Garda Siochana to be notified prior to works commencing.***
5. ***Signs to be positioned so as not to cause an obstruction to other road users.***
6. ***Minimum lane width of 3.25 m to be maintained at all times.***
7. ***All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.***
8. ***All delineation devices should be designed in accordance with IS EN 13422.***
9. ***All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.***
10. ***Safety barrier to be in accordance with IS EN 1317.***
11. ***"End of Roadworks" sign placed 20m to 50m from end of works area.***
12. ***Entrances to existing dwellings and businesses to be maintained at all times.***
13. ***Minimum temporary footpath width of 1.2m to be maintained at all times.***
14. ***Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus lanes closure.***
15. ***Cycle Lane Closed signs to be placed at commencement of cycle track.***
16. ***Entire Junction to be excavated in sections with each area being "plated" and pipe work treaded through when excavation is complete.***

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details: AVIATION FUEL PIPELINE		Drawing: TMP 5 - Junction of Clontarf Road & Malahide Road.	Dwg no: TMP/AP/05
			Rev:
Sheet: 5 of 18	CAD File ref.:	Drawn By: AK	Date: JUNE 2014	Scale: As Shown





LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Pedestrian Crossing to be maintained at all times - with crossing being moved to suit excavation.
16. Existing footpath to be maintained at all times.
17. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus lanes closure.
18. Pedestrian Crossing to be manned so as to marshal pedestrian through the works area.

TMP 6 - Junction of Malahide Road & Griffith Avenue.

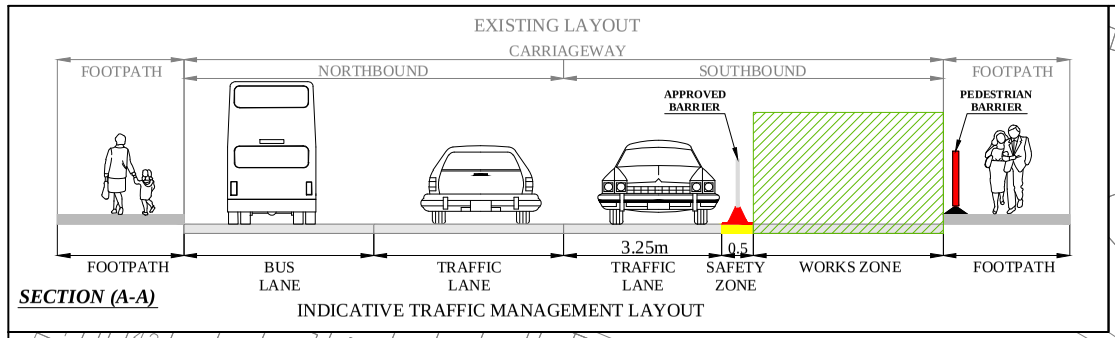
Scale: N.T.S.

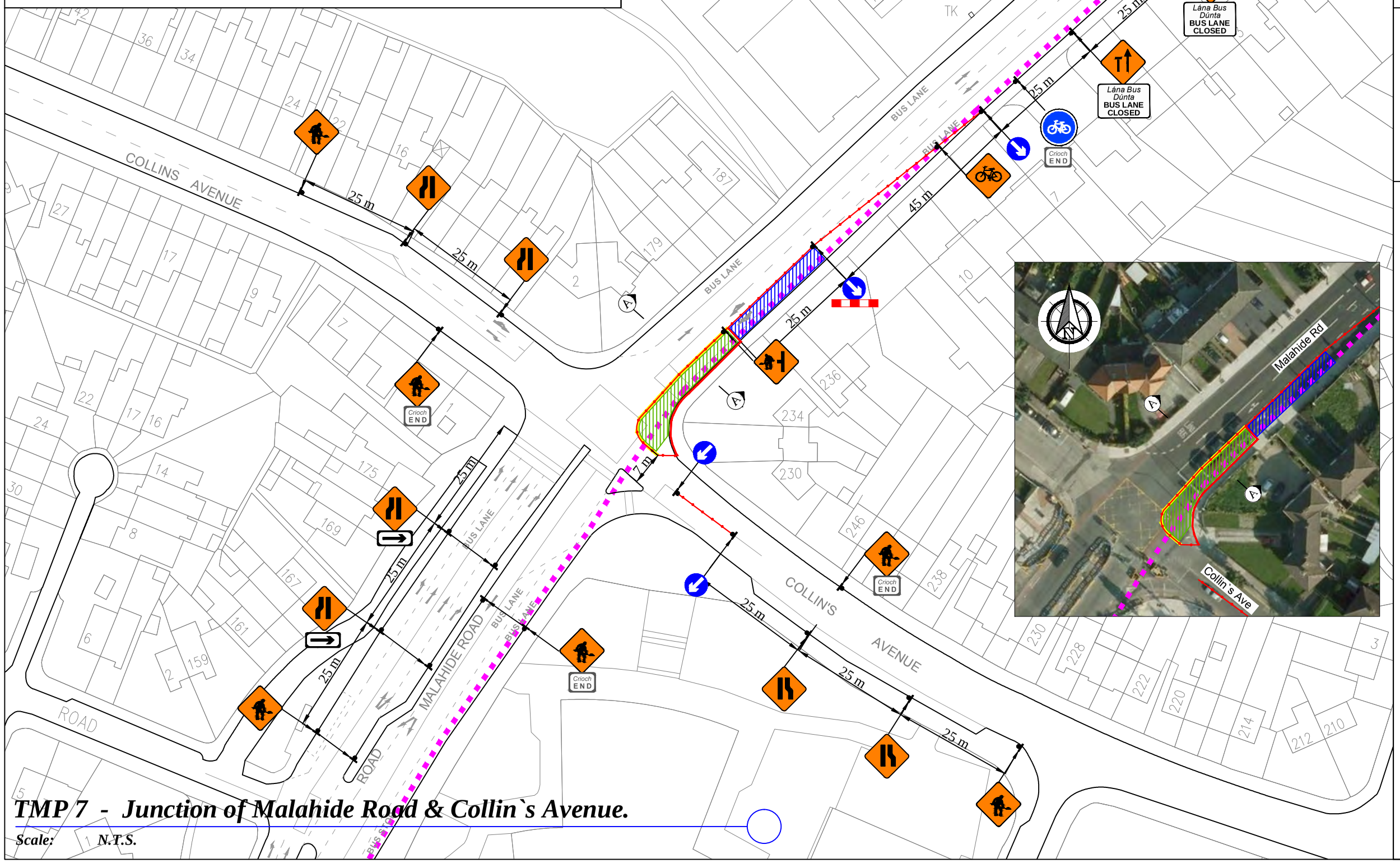
GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 6 - Junction of Malahide Road & Griffith Avenue.	TMP/AP/06
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
6 of 18		AK	JUNE 2014	As Shown





LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Existing footpath to be maintained at all times.
16. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus lanes closure and bus stop relocation.
17. Pedestrian Crossing to be manned so as to marshal pedestrian through the works area.

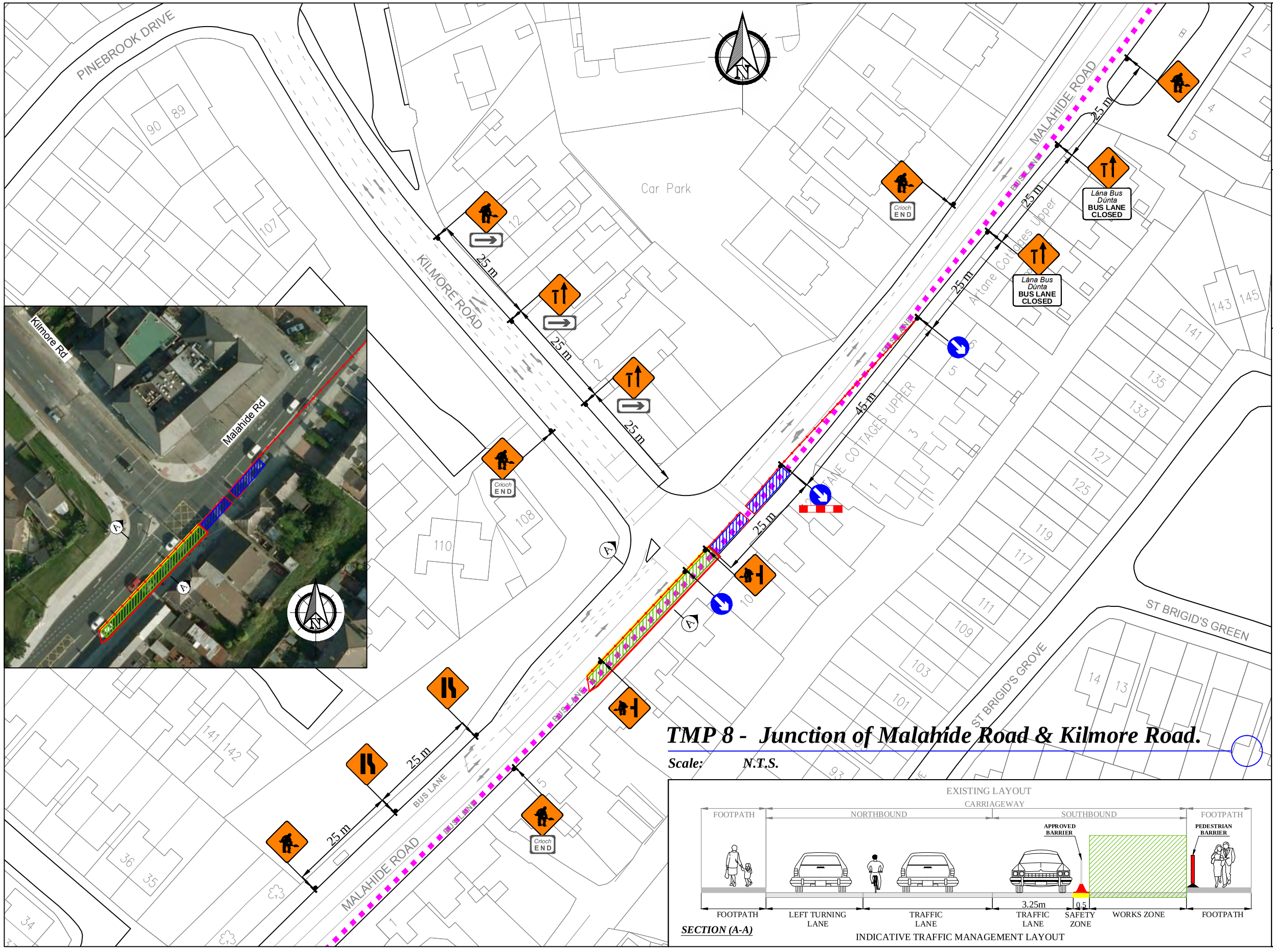
TMP 7 - Junction of Malahide Road & Collin`s Avenue.

Scale: N.T.S.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:		Drawing:		Dwg no:
AVIATION FUEL PIPELINE		TMP 7 - Junction of Malahide Road & Collin`s Avenue.		TMP/AP/07
				Rev:
Sheet: 7 of 18	CAD File ref.:	Drawn By: AK	Date: JUNE 2014	Scale: As Shown



TMP 8 - Junction of Malahide Road & Kilmore Road.

Scale: N.T.S.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

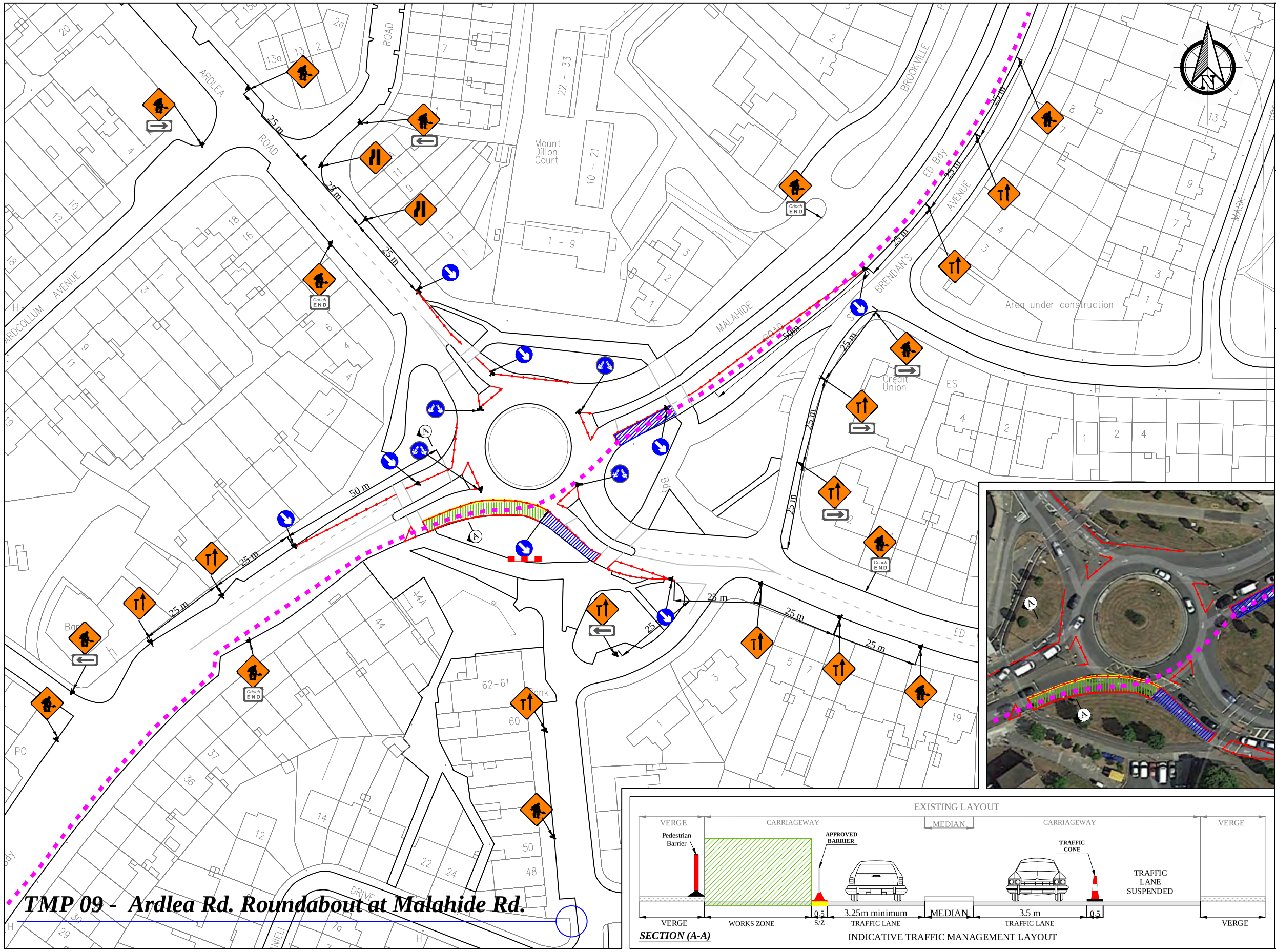
1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Pedestrian Crossing to be maintained at all times - with crossing being moved to suit excavation.
16. Existing footpath to be maintained at all times.
17. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus lanes closure.
18. Pedestrian Crossing to be manned so as to marshal pedestrian through the works area.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:	Job Details:		Drawing:		Dwg no:
			AVIATION FUEL PIPELINE		TMP 8 - Junction of Malahide Road & Kilmore Road..		TMP/AP/08
							Rev:
			Sheet: 8 of 18	CAD File ref.:	Drawn By: AK	Date: JUNE 2014	Scale: As Shown



LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

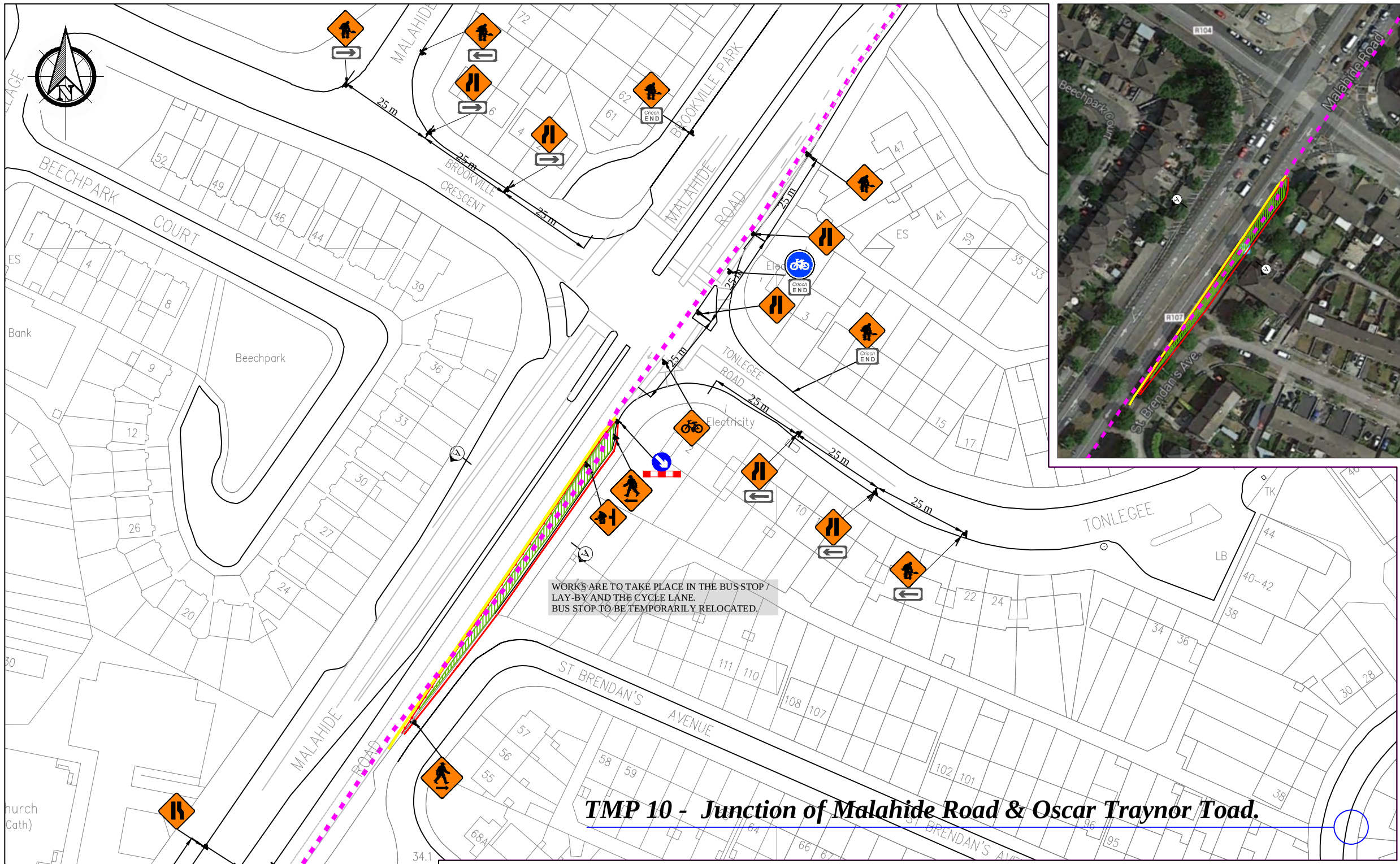
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Entrances to existing dwellings and businesses to be maintained at all times.
16. Pedestrian Crossing to be maintained at all times.
17. Existing footpath to be maintained at all times.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 09 - Ardlea Road Roundabout At Malahide Road.	TMP/AP/09
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
09 of 18			June 2014	As Shown



LEGEND

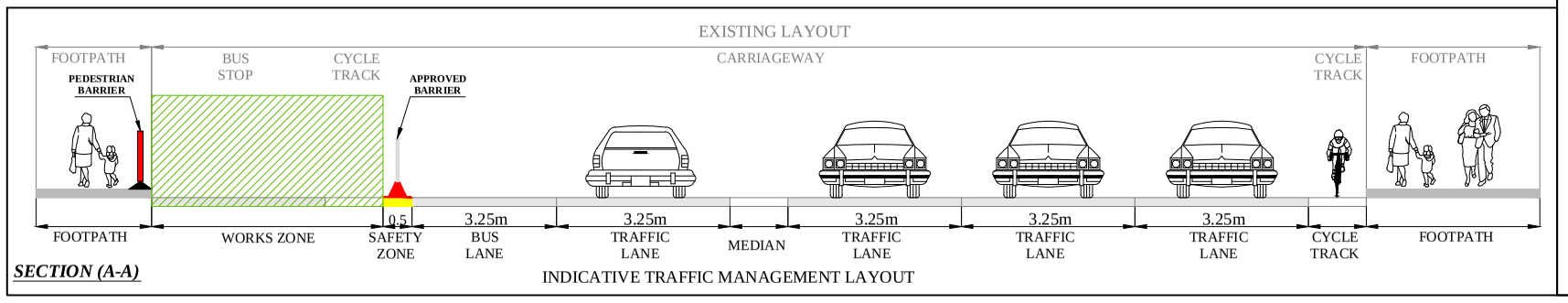
- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"- Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Pedestrian Crossing to be maintained at all times - with crossing being moved to suit excavation.
13. Existing footpath to be maintained at all times.
14. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed bus stop closure.
15. Temporary replacement bus stop location to be agreed with Dublin Bus & Council prior to works commencing.
16. Cycle Lane Closed signs to be placed at commencement of cycle track.
17. Entire Junction to be excavated in sections with each area being "plated" and pipe work threaded through when excavation is complete.



SECTION (A-A)

INDICATIVE TRAFFIC MANAGEMENT LAYOUT

GMC Civil & Mechanical Engineering Ltd

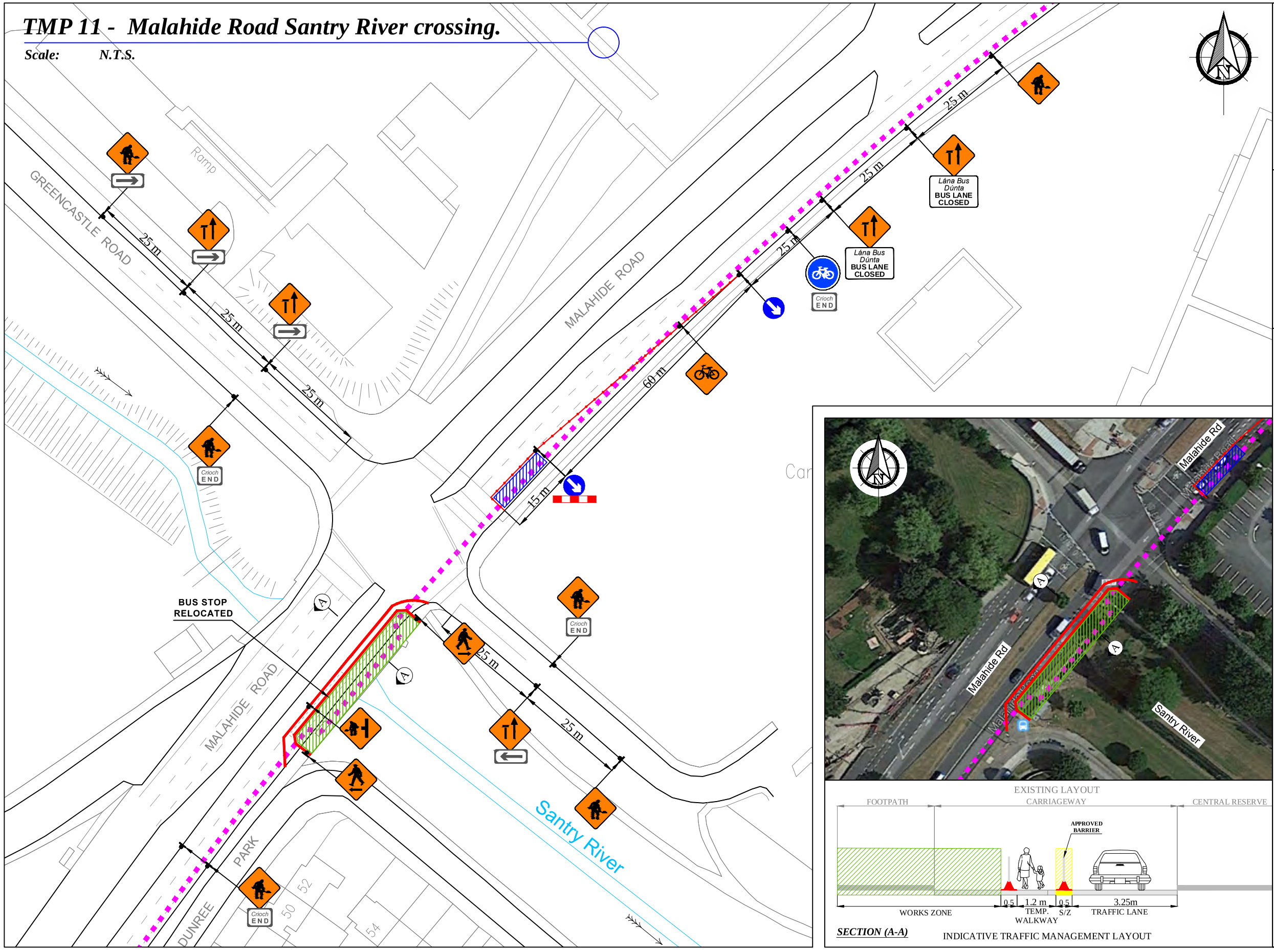
Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 10 - Junction of Malahide Road & Oscar Traynor Road.	TMP/AP/10
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
10 of 18			June 2014	As Shown

TMP 11 - Malahide Road Santry River crossing.

Scale: N.T.S.



SECTION (A-A) INDICATIVE TRAFFIC MANAGEMENT LAYOUT

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

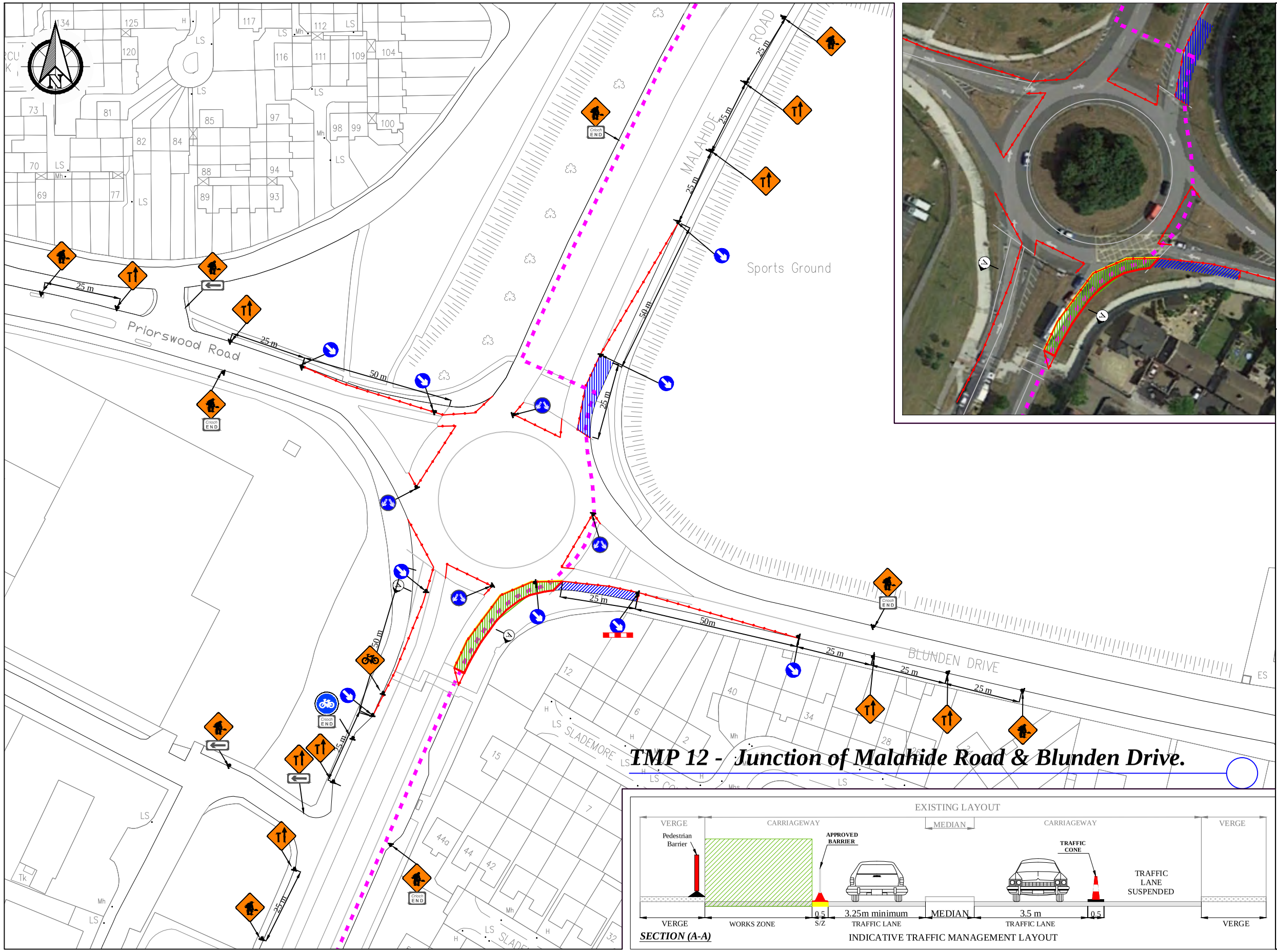
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Entrances to existing dwellings and businesses to be maintained at all times.
16. **Minimum temporary pedestrian walkway width of 1.2m to be maintained at all times.**
17. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed BUS LANE closure and BUS STOP relocation.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 11 - Malahide Road Santry River crossing	TMP/AP/11
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
11 of 18		AK	JUNE 2014	As Shown



TMP 12 - Junction of Malahide Road & Blunden Drive.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

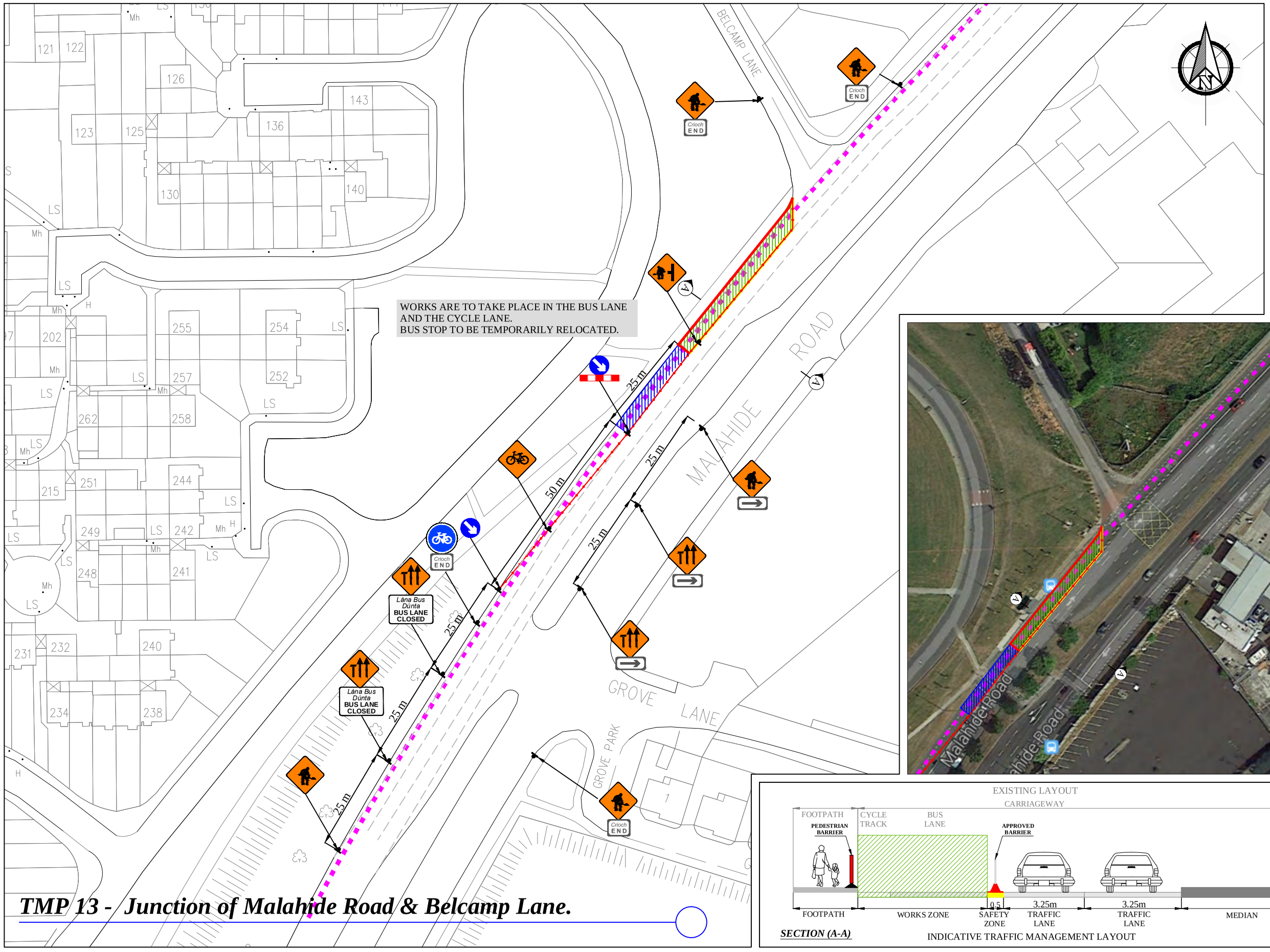
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Entrances to existing dwellings and businesses to be maintained at all times.
16. Pedestrian Crossing to be maintained at all times.
17. Existing footpath to be maintained at all times.
14. Cycle Lane Closed signs to be placed at commencement of cycle track.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 12 - Junction of Malahide Road & Blunden Drive.	TMP/AP/12
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
12 of 18			June 2014	As Shown



TMP 13 - Junction of Malahide Road & Belcamp Lane.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

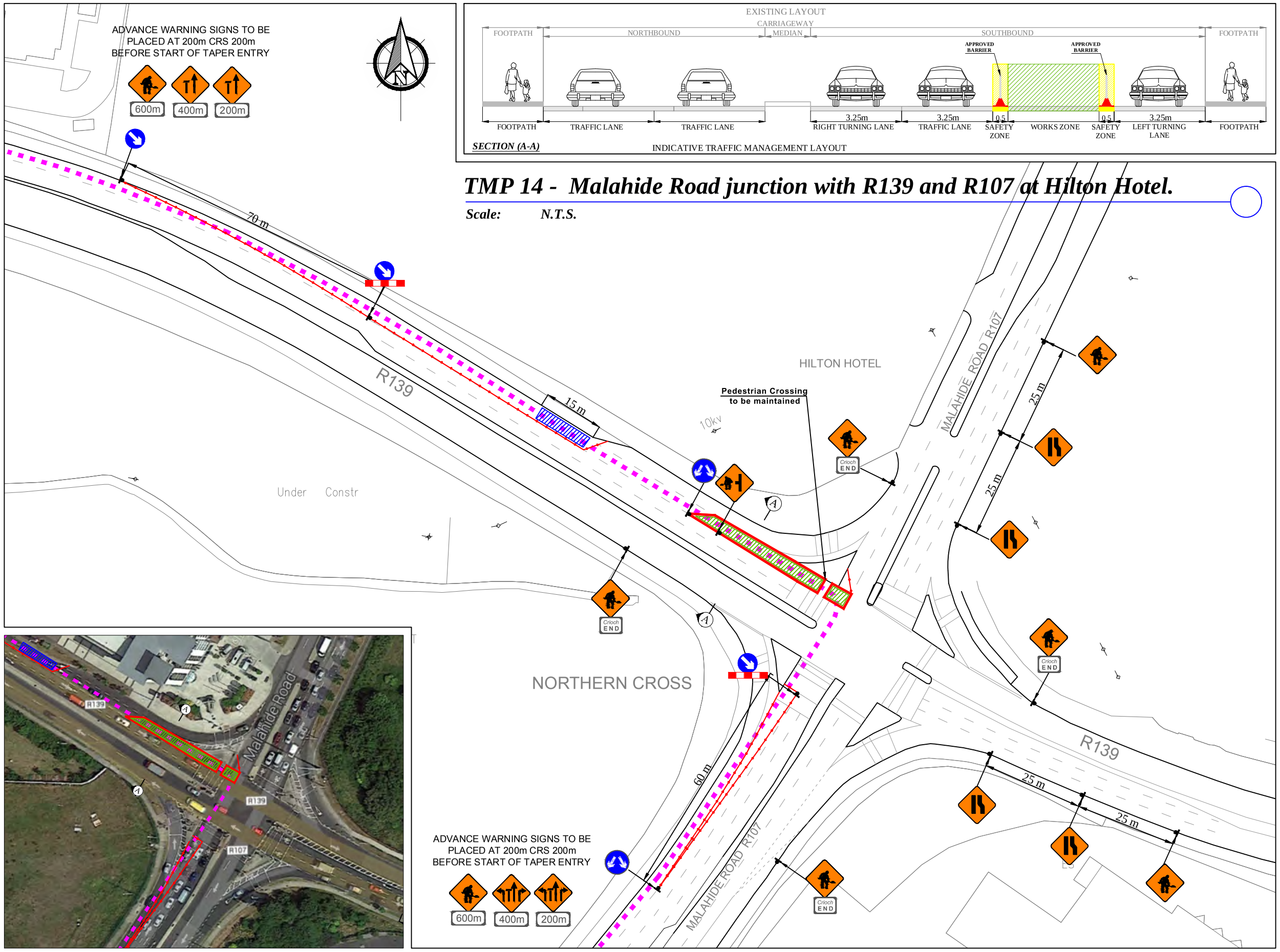
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Entrances to existing dwellings and businesses to be maintained at all times.
16. Dublin Bus to be notified of works prior to commencement and consultation to be held in relation to the proposed BUS LANE closure and BUS STOP relocation.
17. Existing footpath to be maintained at all times.
18. Cycle Lane Closed signs to be placed at commencement of cycle track.
19. Entire Junction to be excavated in sections with each area being "plated" and pipe work threaded through when excavation is complete.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 13 - Junction Of Malahide Road & Belcamp Lane.	TMP/AP/13
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
13 of 18			June 2014	As Shown



TMP 14 - Malahide Road junction with R139 and R107 at Hilton Hotel.

Scale: N.T.S.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Aviation Fuel Pipeline

Design Parameters for Level 5:

1. Statutory Speed of the Road - **60km/h**
2. Distance between Advance Signs: **200m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **15m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 20m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

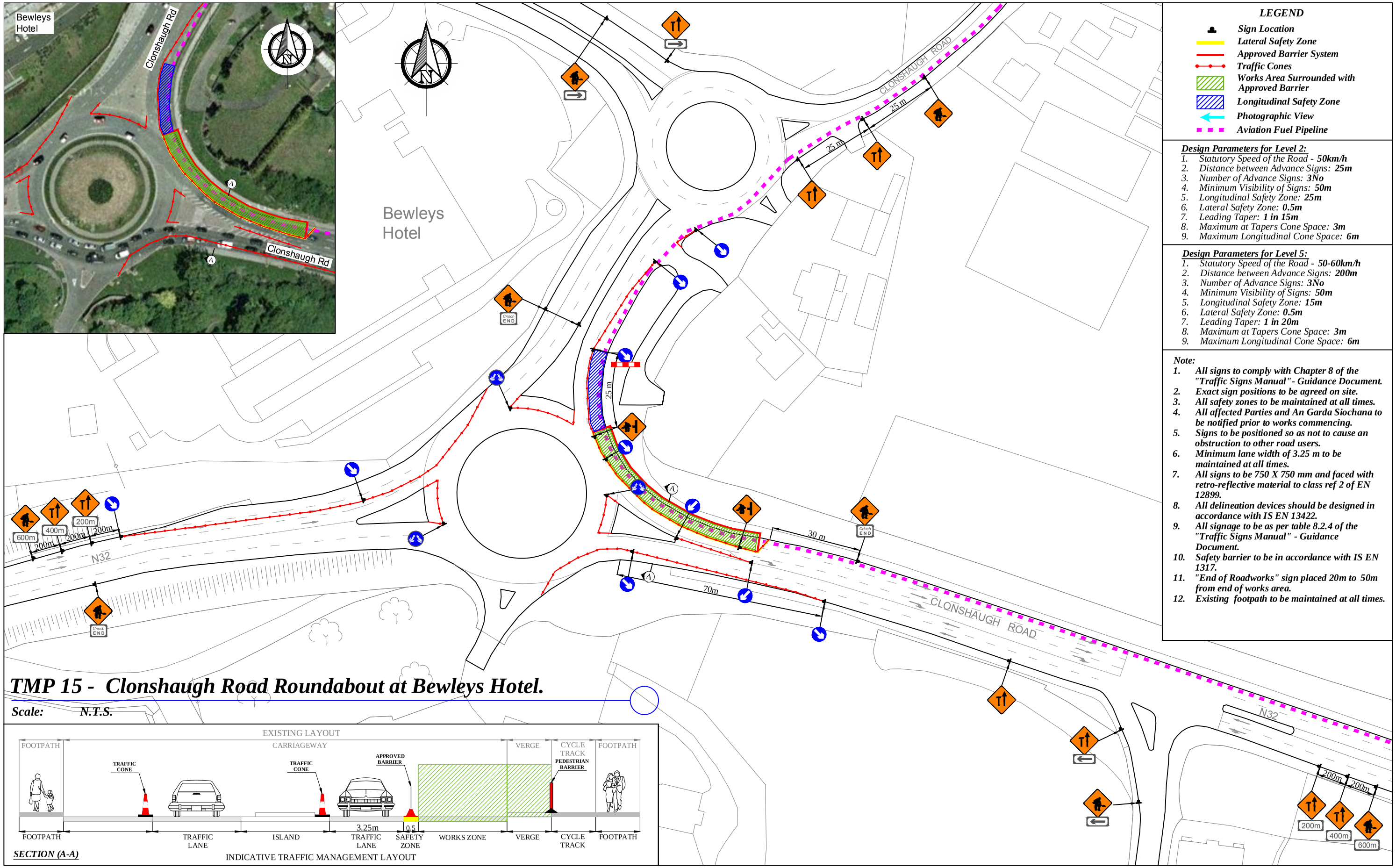
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. All Traffic Management to be carried out in accordance with Chapter 8 of the "Traffic Signs Manual".
3. Detailed Risk Assessment to be carried out prior to the installation of Traffic Management System.
4. The Contractor shall be responsible for providing all required ramp access to all changes in road surface level where traffic runs on a temporary surface and also for cycle/pedestrian ramps where footpath, cycle paths or any surface which has a level discontinuity as a result of the works.
5. Exact sign positions to be agreed on site.
6. All safety zones to be maintained at all times.
7. All affected Parties and An Garda Siochana to be notified prior to works commencing.
8. Signs to be positioned so as not to cause an obstruction to other road users.
9. Minimum lane width of 3.25 m to be maintained at all times.
10. All signs to be 600 X 600mm and faced with retro-reflective material to class ref 2 of EN 12899.
11. All delineation devices should be designed in accordance with IS EN 13422.
12. All signage shall be as per table 8.2.1, 8.2.2, 8.2.4 of the "Traffic Signs Manual".
13. Safety barrier to be in accordance with IS EN 1317.
14. "End of Roadworks" sign placed 20m to 50m from end of works area.
15. Entrances to existing dwellings and businesses to be maintained at all times.
16. Dublin Bus to be notified of works prior to commencement .
17. Existing footpath to be maintained at all times.
18. Entire Junction to be excavated in sections with each area being "plated" and pipe work threaded through when excavation is complete.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 14 - Malahide Road junction with R139 and R107 at Hilton Hotel	TMP/AP/14
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
14 of 18		AK	JUNE 2014	As Shown



LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters for Level 2:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 15m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Design Parameters for Level 5:

1. Statutory Speed of the Road - **50-60km/h**
2. Distance between Advance Signs: **200m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **15m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **1 in 20m**
8. Maximum at Tapers Cone Space: **3m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"- Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 750 X 750 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Existing footpath to be maintained at all times.

TMP 15 - Clonshaugh Road Roundabout at Bewleys Hotel.

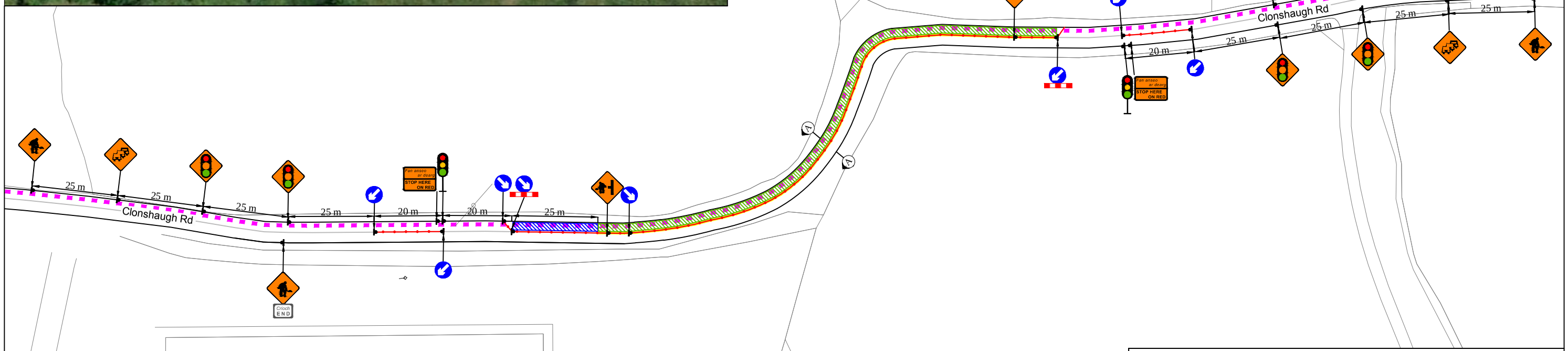
Scale: N.T.S.

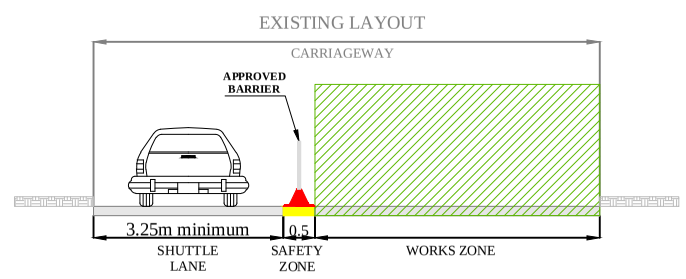
GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 15 - Clonshaugh Road Roundabout at Bewleys Hotel.	TMP/AP/15
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
15 of 18		AK	JUNE 2014	As Shown





SECTION (A-A)

INDICATIVE TRAFFIC MANAGEMENT LAYOUT

TMP 16 - Clonshaugh Road. Traffic Lights System.

Scale: N.T.S.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Pedestrian Barrier
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **60km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

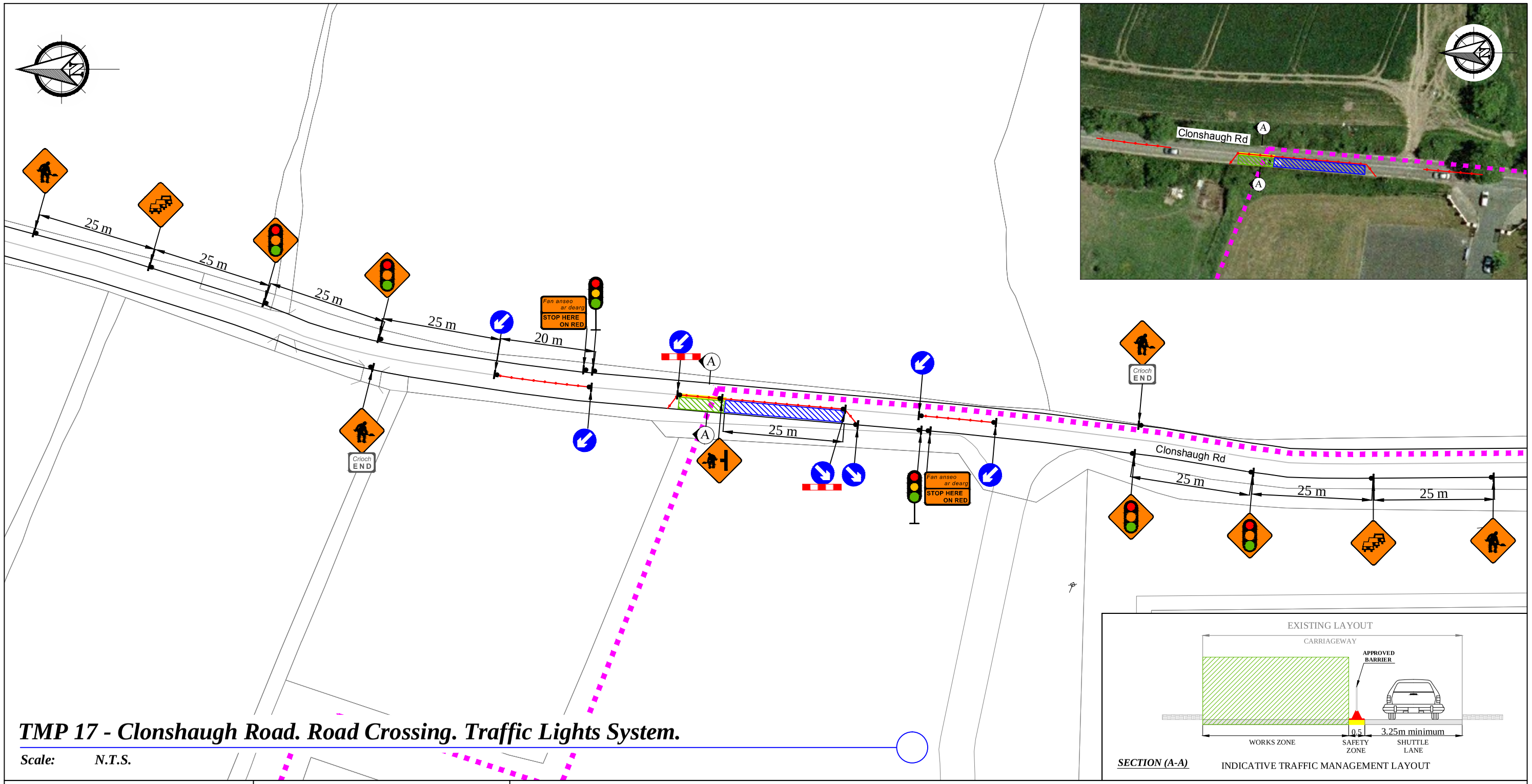
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Entrances to existing dwellings and businesses to be maintained at all times.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 16 - Clonshaugh Road. Traffic Lights System.	TMP/AP/16
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
16 of 18		AK	JUNE 2014	As Shown



TMP 17 - Clonshaugh Road. Road Crossing. Traffic Lights System.

Scale: N.T.S.

LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Pedestrian Barrier
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **60km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **3No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **25m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

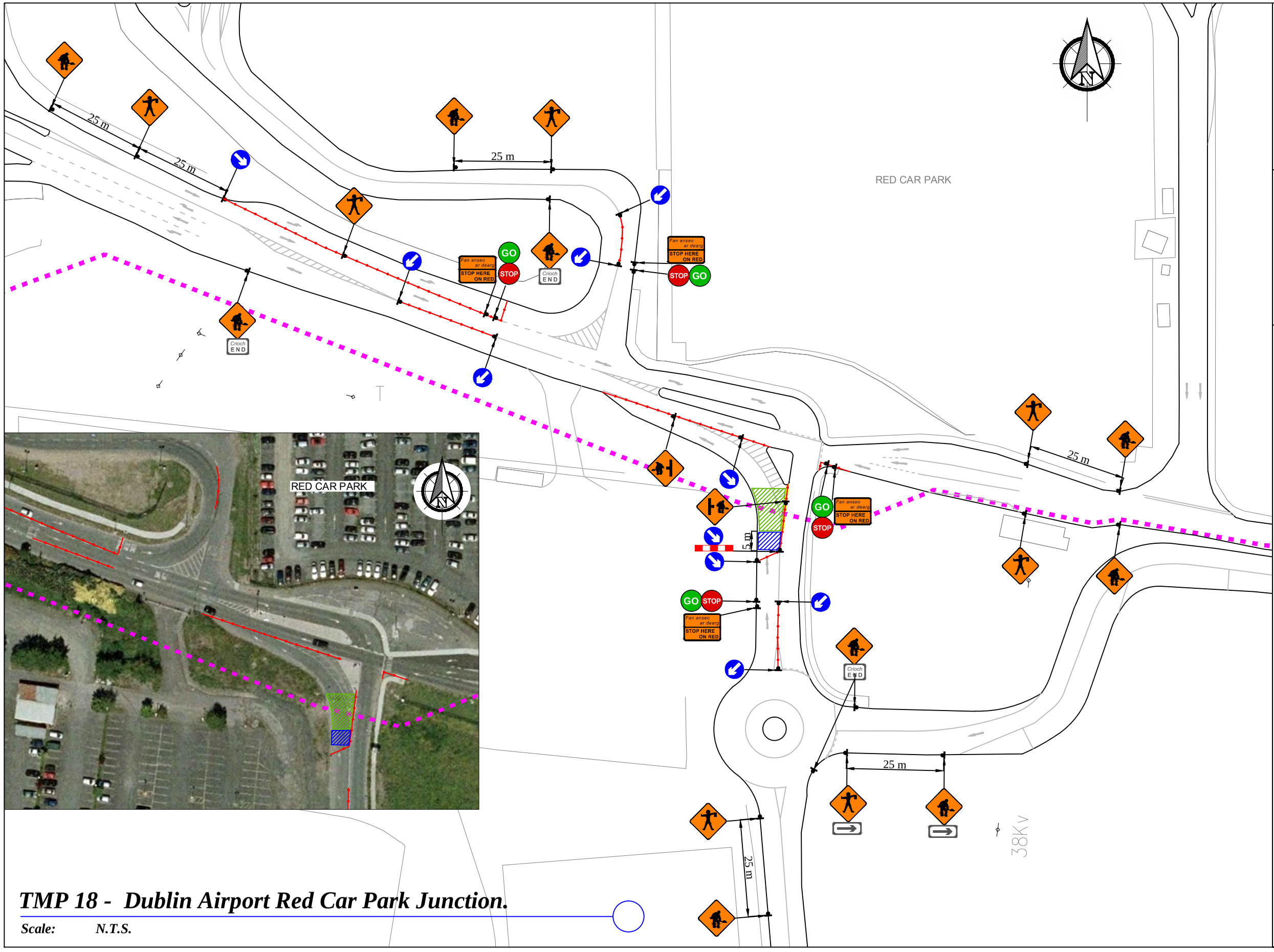
1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"-Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.
12. Entrances to existing dwellings and businesses to be maintained at all times.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 17 - Clonshaugh Road. Road Crossing. Traffic Lights System.	TMP/AP/17
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
17 of 18		AK	JUNE 2014	As Shown



LEGEND

- Sign Location
- Lateral Safety Zone
- Approved Barrier System
- Traffic Cones
- Works Area Surrounded with Approved Barrier
- Longitudinal Safety Zone
- Photographic View
- Aviation Fuel Pipeline

Design Parameters:

1. Statutory Speed of the Road - **50km/h**
2. Distance between Advance Signs: **25m**
3. Number of Advance Signs: **2No**
4. Minimum Visibility of Signs: **50m**
5. Longitudinal Safety Zone: **5m**
6. Lateral Safety Zone: **0.5m**
7. Leading Taper: **45deg**
8. Maximum at Tapers Cone Space: **1m**
9. Maximum Longitudinal Cone Space: **6m**

Note:

1. All signs to comply with Chapter 8 of the "Traffic Signs Manual"- Guidance Document.
2. Exact sign positions to be agreed on site.
3. All safety zones to be maintained at all times.
4. All affected Parties and An Garda Siochana to be notified prior to works commencing.
5. Signs to be positioned so as not to cause an obstruction to other road users.
6. Minimum lane width of 3.25 m to be maintained at all times.
7. All signs to be 600 X 600 mm and faced with retro-reflective material to class ref 2 of EN 12899.
8. All delineation devices should be designed in accordance with IS EN 13422.
9. All signage to be as per table 8.2.4 of the "Traffic Signs Manual" - Guidance Document.
10. Safety barrier to be in accordance with IS EN 1317.
11. "End of Roadworks" sign placed 20m to 50m from end of works area.

TMP 18 - Dublin Airport Red Car Park Junction.

Scale: N.T.S.

GMC Civil & Mechanical Engineering Ltd

Rev:	Description:	Date:

Job Details:	Drawing:	Dwg no:
AVIATION FUEL PIPELINE	TMP 18 - Dublin Airport Red Car Park Junction.	TMP/AP/18
		Rev:

Sheet:	CAD File ref.:	Drawn By:	Date:	Scale:
18 of 18		AK	JUNE 2014	As Shown