Our ref.: 70014753

July 28, 2017

Fitzroy Park Residents' Association
Dancers End
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Highgate
London
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Subject: **53 Fitzroy Park – Construction Traffic Management Plan Technical Review**

Introduction

WSP has been appointed by The Fitzroy Park Residents' Association (FPRA) to review and advise them on the suitability and acceptability of the Construction Traffic Management Plan Version A, dated 18th May 2017, prepared by Motion Consultants for a new residential development at 53 Fitzroy Park, Highgate. We understand that this revised CTMP has been prepared to support revisions to the planning application for the proposed residential development at 53 Fitzroy Park, Highgate.

Background

A previous assessment of an earlier version of the CTMP (Rev 05a, planning reference 2015/0441/P) was undertaken by WSP, the findings of that review are summarised in the WSP letter dated 6th January 2016. The previous review highlighted a number of deficiencies in the unrealistic swept path analysis presented, as well as identified potential risks to neighbouring properties, pedestrians and other road users. Based on our assessment of the revised CTMP the majority of these findings do not appear to have been addressed.

Summary

At the present time, based on the information contained within the aforementioned CTMP, we do not believe the applicants' contractor has adequately demonstrated the site can be serviced and managed without creating an unnecessary risk, undue issue of safety for members of the public and an unnecessary and prolonged obstruction of the highway.

We are concerned that the proposed manoeuvres of the construction vehicles if not accurately modelled, could underestimate the potential impacts and true mitigation required to address any residual impacts to maintain the safe and efficient operation of Fitzroy Park and the surrounding public highways for all users.

The key findings which have led us to this conclusion can be summarised as follows:

1. Adequacy of site compound area and loading platform;
2. Reliance on 'Dry Steering';
3. Implementation of boundary hoarding; and
4. High risk of vehicles overrunning the footways around Merton Lane junction.

Further explanation and details of each are set out in subsequent sections of this letter.

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We have also considered separately the potential risks to the Fitzroy Park pavement from the proposed construction traffic.

We would recommend the FPRA via the London Borough of Camden seek an address from the applicant to the points set out below before the application is determined as should the issues not be appropriate to condition for post consent address prior to works commencing on site.

Loading Platform

The 'loading platform' presented in the CTMP does not appear to adequately take full account of the site conditions and constraints. Therefore the analysis may not be representative of the actual operation on site.

To elaborate, referencing Motion drawing 170512-TK01, the Phase 1 temporary vehicle loading area indicates a purple highlighted L-shaped area as available for swept path movements. The current driveway for the property only covers the northern rectangular area, so this implies there will need to be an increase in area of approximately 50% to the south.

The additional area proposed for Phase 1 vehicle loading is also approximately 2.2m lower than the existing driveway. Based on the information provided it is not clear in the CTMP how this will be constructed. It would appear that either a significant volume of fill would be required in conjunction with a retaining wall or a temporary structure. It is noted that this proposed footprint is located in close proximity to the root protection area of the nearby mature tree. We would recommend the applicant outlines how this platform will be built without adverse impact on the operation of the highway or adverse damage to the boundary vegetation.

The 'loading platform' is described as being available for the full Phase 2 construction period. The proposed extent of the 'loading platform' covers most of the building area. When we take into consideration the superstructure construction, including scaffolding, which will encroach the loading platform, it would appear that the loading platform will only be useable for a fraction of Phase 2.

Therefore a significantly higher number of vehicle movements will be as per the Phase 3 swept path analysis, which given the smaller area available for manoeuvring, would increase the number of turning movements and disruption to the operation of Fitzroy Park.

We also note the minimum components of the sites compound such as welfare, storage of materials and plant have not been identified, all of which may further compromise and reduce the size of the 'loading platform' presented in the CTMP. For instance, the storage location of granular material, recycled bricks and tiles is not shown, and any impact on the available 'loading platform' space needs to be understood.

Furthermore as outlined in the CTMP, it is proposed to employ two cranes on this project during Phases 2 and 3. The CTMP states that the cranes will be mobile and move between the loading platform and lower ground area. The submitted swept path analysis plans do not show consideration of where a crane would sit on the 'loading platform' and the reduction in available space of the 'loading platform'. There are also two large trees that overhang the 'loading platform' which could be potentially impacted by the crane boom when extended or vice versa.

We also note that piling is proposed for the temporary 'loading platform'. There are currently no design details available for the 'loading platform' therefore any impacts which piling may have on the roots of boundary trees is unclear and we recommend this warrants further investigation to ensure the surrounding trees are not unduly put at risk.

In conclusion, we would recommend that the applicant's contractor gives far more thorough consideration to the area and operation of the 'loading platform' so the impacts on Fitzroy Park can then be fully understood, as we are conscious the CTMP as proposed appears to significantly underestimate the true requirements.

Turning On The Spot or 'Dry Steering'

The CTMP presents swept path analysis on Motion drawings 170512-TK01, 170512-TK02 and 170512-TK03 which uses 'Turning On the Spot' also known as 'Dry Steering'. We have significant reservations about over reliance on the aforementioned practice.

- Under the Highways Code 'Dry Steering' is actively discouraged;
- Dry steering not only impacts on the long term maintenance but accelerates the wear and tear of the vehicles and also contributes to the failure of pavements;
- Fitzroy Park is a historic road and the specification of the pavement may not adhere to modern standards of highways construction;
- Therefore Fitzroy Park will be more susceptible to the increased tensile and torsional forces exerted on the pavement surface by the action of 'Dry Steering';
- There is no evidence provided to suggest the existing pavement is in a suitable enough condition to withstand the application of 'Dry Steering';
- The practice of dry steering is typically not monitored and controlled on site. It is often not replicated as presented in the swept path analysis as it is not strictly adhered to by the operatives;
- We envisage not only will the vehicles encroach within the buffer zone in an attempt to simplify matters the manoeuvre will take much longer to execute than set out in the CTMP causing greater disruption to all types of users on Fitzroy Park.

As described above, overreliance on 'Dry Steering' accelerates the wear and tear of pavements contributing over time to pavement failure. The risk of pavement failure typically starts with the 'plucking' of aggregate from the surface by the torsional force applied by the tyres. If this occurs it can, over time, destabilise the surface layer of the existing pavement.

Once aggregate becomes loose, further abrasion occurs compounding the issue, water can easily ingress, exacerbate matters and accelerate the deterioration of the pavements sub-surface layers. The failure and subsequent deterioration often characterised as 'pot holes'.

Given the sites constraints with repetition highly likely to occur in a similar location over and over again, if the pavements surface layer is already suffering from the effects of stress and fatigue, failure and subsequent deterioration of the pavement surface is a real concern with a higher risk of occurrence.

Independent Swept Path Analysis without Using 'Dry Steering'

WSP have previously undertaken independent swept path analysis of an 8.36m concrete mixer (the largest proposed vehicle in the CTMP), entering and exiting the site from Fitzroy Park, as per the constraints and site arrangement for Phase 3 (refer enclosed 7453-ATR-002 drawing). The site constraints were taken from the Knight Build Ltd plans including the proposed building outline, extent of the loading area and existing trees. The site constraints were mapped into the base model prior to undertaking the Swept Path Analysis.

The WSP independent swept path analysis includes a clear buffer of 0.5 metres from any physical constraints to allow for such things as vehicle wing mirrors which extend outside the vehicle profile and provide a suitable margin for error or data inaccuracy, based on good industry practice. The analysis was completed with no use of 'turning on the spot' and used a driving speed of 1 km/hr in both directions.

The swept path analysis confirmed the following:

- It will take as many as 48 individual movements for the concrete mixer to be able to fully turn around and depart from the site;
- The chart at the bottom of drawing ATR-002 shows the distance travelled with each change in direction or alternating movement. It records a total distance travelled of 202m.

- Insufficient space for vehicles or pedestrians to pass the construction vehicle safely between individual movements;
- The analysis predicts it could take up to 13 minutes to complete the overall manoeuvre, but also does not factor in time for changing gears between movements which may further increase the duration;
- The space required to turn the concrete mixer around leaves little or no room for welfare, the storage of site material or contractors vehicles within the loading area.

The application of a sensible separation between the vehicle and any physical constraints when manoeuvring and omission of dry steering lead us to the fair and reasonable predication a greater number of movements than shown within the existing CTMP will need to be undertaken for the concrete mixer to unload, turn around and depart from site.

The greater number of movements will in turn lead to an increase in the duration Fitzroy Park is obstructed. We estimate for the largest of deliveries, this could be up to approximately 13 minutes.

The manoeuvres are predicted to occur on a regular basis up to ten times a day for 24 weeks under Phase 2 and up to five times a day for 41 weeks under Phase 3 according to the CTMP. As they are not 'one offs' underestimation or incorrect assessment could have a significant impact on the operation of the site and impact to Fitzroy Park.

Obstruction of the Highway

It is apparent that the 'loading platform' and Fitzroy Park carriageway is very constrained for vehicle movements. We refer to Motion drawing 170512-TK03, which utilises of 'Dry Steering' and has no allowance for a buffer. Even under these conditions Motion predicts it would take a minimum of 9 movements to exit the site into Fitzroy Park for Phase 3.

The individual or cumulative effects of potential underestimation in the current analysis set out in previous sections could lead to a repeated obstruction of the highway for protracted periods of the working day.

The multiple manoeuvres necessary for vehicles to get into position on site during different phases could take a number of minutes to complete and then the same again to exit the site. During this time it is unlikely vehicles or pedestrians will be able to safely pass the site.

Our concern is this length of time could easily increase if additional manoeuvres are necessary to compensate for the under estimation of the space available.

Given the potential frequency (as many as 10 during a working day) and duration of the developments construction, such an increase could lead to the highway being obstructed and the public being impeded for a not insignificant period of time. This in turn could lead to frustration for members of the public who frequently use Fitzroy Park and create an unnecessary risk of road safety.

Therefore in the absence of robust analysis it is difficult to properly quantify what the impact and obstruction to the highway may or may not materialise in order to allay any concern and reduce the risk.

Boundary Hoarding

The CTMP proposes the erection of a 2.4m high timber hoarding along the Fitzroy Park site boundary as shown on Motion drawings 170512-01 to 170512-03. It is not clear that the applicant has considered the practicality of the hoarding with the proposed construction vehicle movements.

For example the swept path analysis shown on Motion drawings 0512-TK01 to 170512-TK03 clearly shows the movements overrunning the majority of the proposed hoarding extents. The CTMP states that a set of folding gates would be constructed across the site entrance. Based on the information presented it would appear that the gates would be folded back for a significant portion of construction due to the length of time required for deliveries. We suggest that more information is required to understand the space that the folded gates may take up in the 'loading platform' and delivery area to ensure movements are not hindered.

Merton Lane Junction

We wish to highlight the swept path analysis of an 8.8m vehicle negotiating the junction of Merton Lane and Millfield Lane presented in Motion drawing no.170512-TK06.

- The swept path analysis clearly shows this type of vehicle over sailing the footway of both Merton Lane and Millfield Lane;
- The analysis confirms there will be a clear risk to pedestrians who may be present on the footway at that location or approaching;
- Given the high containment kerbs protecting the traffic island on Merton Lane we anticipate the risk to pedestrians will be increased;
- Drivers, naturally prefer to avoid the above physical measures giving them a wider berth as they pass and are at greater risk of overrunning the Merton Lane and Millfield Lane footways as the only way of navigating the junction; and
- The above is not replicated in the swept path analysis and there is a lack of a reasonable offset in the swept path analysis provided.

WSP previously undertook an independent swept path analysis of an 8.36m concrete mixer (the largest proposed vehicle in the CTMP), entering and exiting Fitzroy Park from Merton Lane (refer enclosed 7453-ATR-001 drawing).

The WSP independent swept path analysis includes a clear buffer of 0.5 metres from any physical constraints to allow for such things as vehicle wing mirrors which extend outside the vehicle profile and provide a suitable margin for error or data inaccuracy, based on good industry practice.

The independent swept path analysis identified that there is a high risk of over running the existing footways as the concrete mixer navigates the Merton Lane junction.

Fitzroy Park Pavement Appraisal

As previously mentioned Fitzroy Park is a historic private road and the specification and makeup of the existing pavement construction would be considered a lesser standard.

A review of the CTMP has identified that the applicant has not properly assessed or considered the necessity for any measures to mitigate the risk of pavement damage from the traffic through the construction period.

An independent site investigation was provided by FPRA, the results of which indicated that the pavement was comprised of approximately 150mm of asphalt, underlain by approximately 300mm of granular material, on a clay subgrade. In addition it recorded subgrade CBR's in the order of 3% on Fitzroy Park.

The current design standard DMRB IAN 73/06, recommends a sub-base of 420mm thickness of well graded granular material (Type 1) for a pavement constructed on subgrade of 3% CBR. The sub-base depth on Fitzroy Park is less, although we would acknowledge this standard is more often applied to highways which may experience a greater intensity or level of imposed loading than may be experienced by Fitzroy Park over the duration of the construction phase.

We would also note there can be a wide variation in the performance of granular material depending on the aggregate strength, size, grading and angularity of material.

If not properly assessed and suitability established, over time, the use of Fitzroy Park by construction vehicles may lead to the compression or consolidation of the underlying pavement layers.

Referencing the Landscape Planning Limited report, 68936/No 53 Fitzroy Park, we understand that the root systems of existing vegetation along the boundary could easily extend beneath the road, and as a result any consolidation of the pavement and subsurface material could have a detrimental impact on the existing boundary vegetation.

We recommend further assessment of the existing pavement is undertaken to confirm suitability for the proposed loading while considering any implications that the act of re-engineering may have on the health of neighbouring vegetation.

Conclusion

WSP has undertaken a review of the Motion Consultants Construction Traffic Management Plan Version A, dated 18th May 2017, on behalf of the Fitzroy Park Residents' Association to review and provide them with independent advice on the suitability and acceptability of the management plans proposals.

In our professional opinion we have found the CTMP does not adequately reflect the true requirements, with unrealistic swept path analysis presented, an impractical 'loading platform' arrangement, as well as identified potential risks to neighbouring properties, pedestrians and other road users as a consequence.

The cumulative effects of any underestimation could lead to sustained and repeated obstruction of the highways for members of the public, leading to potential issues of road safety.

We would also highly discourage the reliance on 'Dry Steering' on Fitzroy Park to facilitate access to and from the site during the construction period.

We would therefore recommend the CTMP is revisited by the applicant, addressing the points we have raised, before any decisions are taken on about the suitability of the proposed development and the impact on the surrounding area.

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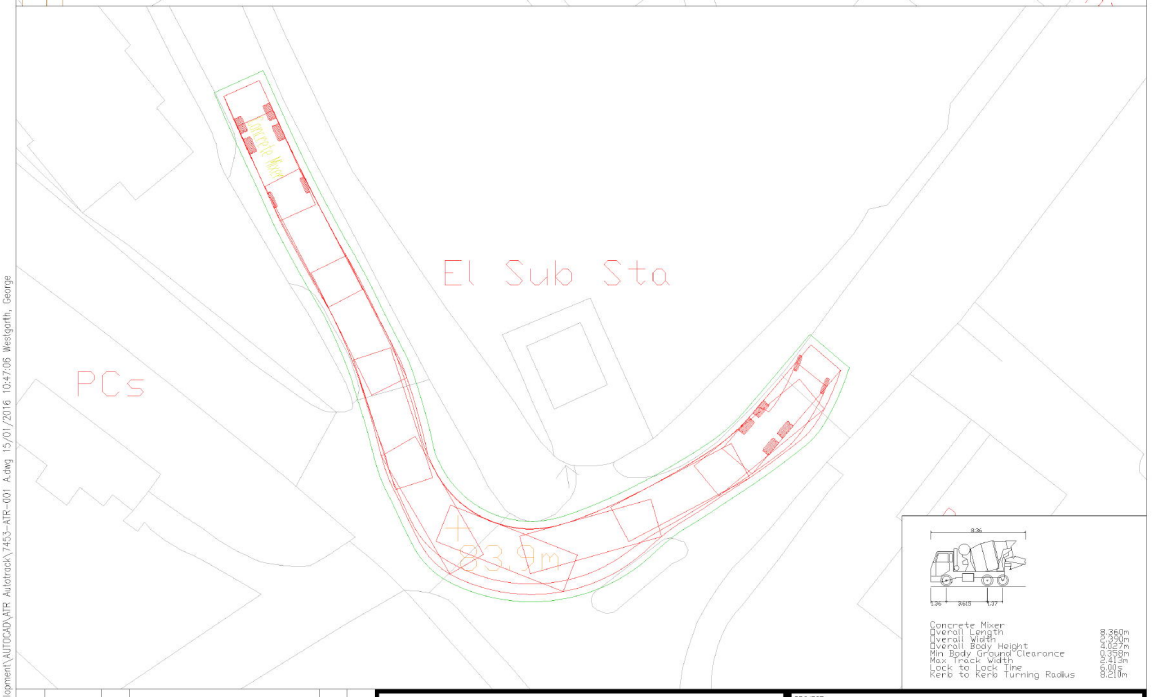
Encl. 7453-ATR-001, 7453-ATR-002

DO NOT SCALE



REV	DATE	BY	DESCRIPTION	CHK	APD
A	15/01/16	GW	ISSUED FOR	JO	JO

SCALE @ A3: 1:250 | CHECKED: JO | APPROVED: JO

DRAWING STATUS: FOR INFORMATION ONLY

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PROJECT: FITZROY PARK

TITLE: MERTON LANE CONSTRUCTION VEHICLE JUNCTION TRACK

CLIENT: -

ARCHITECT: -

CAD FILE:	DESIGN-DRAWN:	DATE:
7453-ATR-001 A.DWG	GW	January 16

PROJECT No:	DRAWING No:	REV:
70017453	7453-ATR-001 A	A

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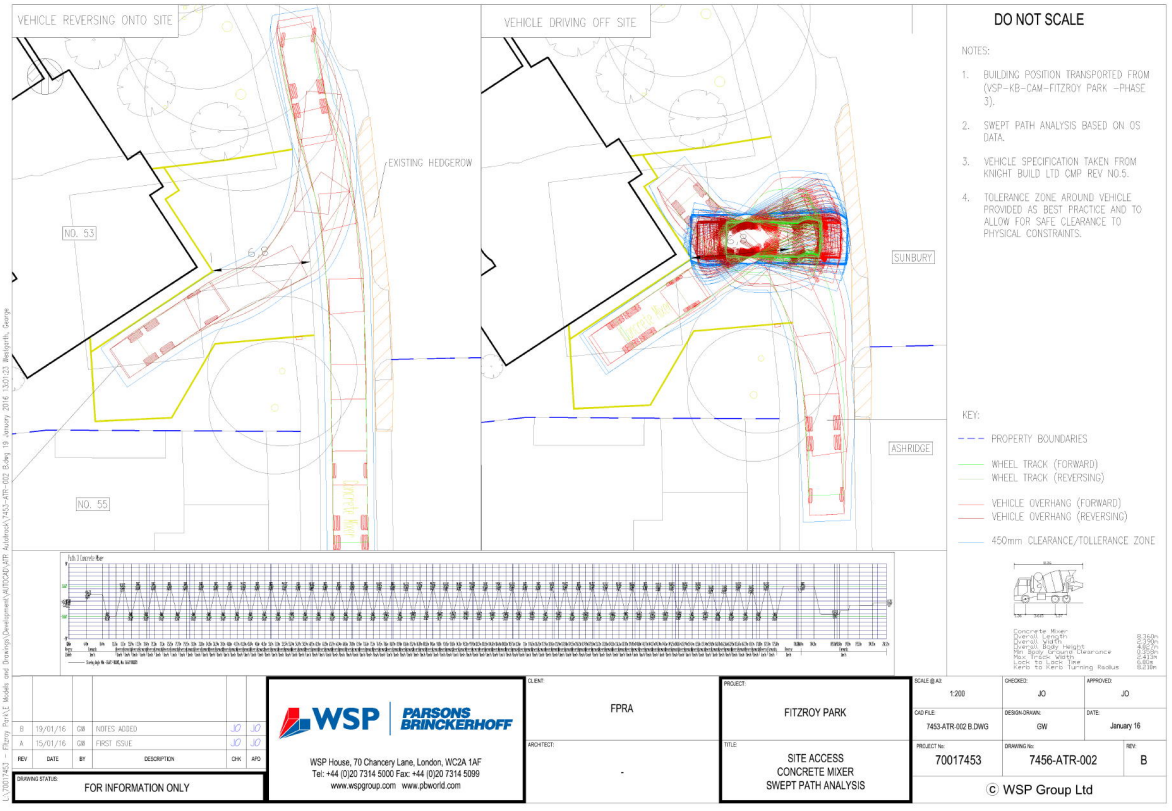

DO NOT SCALE

NOTES:

1. BUILDING POSITION TRANSPORTED FROM (VSP-KB-CAM-FITZROY PARK -PHASE 3).
2. SWEPT PATH ANALYSIS BASED ON OS DATA.
3. VEHICLE SPECIFICATION TAKEN FROM KNIGHT BUILD LTD CMP REV NO.5.
4. TOLERANCE ZONE AROUND VEHICLE PROVIDED AS BEST PRACTICE AND TO ALLOW FOR SAFE CLEARANCE TO PHYSICAL CONSTRAINTS.

KEY:

- PROPERTY BOUNDARIES
- WHEEL TRACK (FORWARD)
- WHEEL TRACK (REVERSING)
- VEHICLE OVERHANG (FORWARD)
- VEHICLE OVERHANG (REVERSING)
- 450mm CLEARANCE/TOLLERANCE ZONE

Concrete Mixer	
Overall Length	8.360m
Overall Width	2.550m
Overall Body Height	4.000m
Min Body Ground Clearance	0.260m
Track Width	2.430m
Lock to Lock Time	6.00s
Kerb to Kerb Turning Radius	8.210m

REV	DATE	BY	DESCRIPTION	CHK	APD
B	19/01/16	GW	NOTES ADDED	JO	JO
A	15/01/16	GW	FIRST ISSUE	JO	JO

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ARCHITECT: -

PROJECT: FITZROY PARK

TITLE: SITE ACCESS CONCRETE MIXER SWEPT PATH ANALYSIS

SCALE @ A3:	CHECKED:	APPROVED:
1:200	JO	JO
CAD FILE: 7453-ATR-002 B.DWG	DESIGN DRAWN: GW	DATE: January 16
PROJECT No: 70017453	DRAWING No: 7456-ATR-002	REV: B