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Record of Determination

M77 Junction 1 Southbound

Contents

Project Details

Description

The southbound (SB) M77 carriageway at Junction 1 (J1) features an ageing surface course, laid in 1996, which is showing signs of crazing, indicating that it has reached the end of its serviceable life. There are also localised lengths of longitudinal cracking.

As such, the works are required to maintain the safety and integrity of the M77 carriageway and will address the surface course issues present within this stretch of carriageway, with deeper treatment at areas showing longitudinal cracking.

Works will involve surface course treatment using TS2010, with exact treatment depths yet to be determined. Works will involve the following construction activities:

- Milling of existing bituminous material by road planer;
- Additional bituminous material removed by jack hammer where not accessible by planer;
- Road sweeper to collect any loose material;
- HGV for removal and replacement of material;
- Tack/bond coat laid;
- New bituminous material laid by a paver;
- Material compacted using a heavy roller; and,
- Road markings will be applied where necessary.

The works are currently scheduled to commence in January 2022, with exact date, timings and duration yet to be determined. Works will likely include night working.

Traffic management (TM) for the works is yet to be determined, however will likely involve a full closure of the southbound carriageway, which would be facilitated by a diversion route via the M8.

Glasgow City Council Environmental Health Team has been informed of the required night works.

Location

The scheme is located on a section of the M77 carriageway within Glasgow City, and has the following National Grid References (NGR):

- Scheme Start: NS 55895 63440
- Scheme End: NS 54858 62885

Image 1 – Scheme Extents

Image 2 – Scheme Location

Description of Local Environment

Population and Human Health

The works area is located along an urban stretch of the M77 carriageway, within Glasgow City. Residential areas of Dumbreck and Mosspark are located east and west of the scheme respectively, and Corkerhill Rail Depot is located southwest of the scheme. Patches of trees and areas of grassland are present intermittently in the wider surroundings.

The M77 carriageway is the main connecting route between Kilmarnock and Glasgow. The vehicle count per day in 2019 at this location was 24,827, with a heavy goods vehicle (HGV) average of 14%. Baseline noise level is likely to be primarily influenced by vehicle traffic from the carriageway, with secondary sources including rail activity, and activity from nearby residential/urban areas.

Several residential properties exist in proximity of the carriageway, with the closest located on Mosspark Drive, approximately 70m west.

Due to the motorway status of the carriageway, no non-motorised provisions exist within the scheme extents. A pedestrian footway exists adjacent to northbound (NB) Dumbreck Road, which travels over the M77 carriageway within the scheme extents.

The scheme does not fall within a Candidate Noise Management Area (CNMA) as defined by the Transportation Noise Action Plan, Road Maps.

Biodiversity

The scheme is located along the M77 carriageway, within an urban area west of Pollokshields, surrounded by wooded strips. Haggs Castle Golf Course is located adjacent to the southbound (SB) carriageway for the southern half of the scheme section, with small pockets of woodland located intermittently throughout this. Pollok Country Park is located approximately 180m east.

A desktop study using Nature Scot Sitelink Online Interactive Map has not highlighted any national or European designated sites within proximity of the works location.

The works will fall within badger breeding season (December to June).

Amey's Invasive Non-native Species Database (INNS) has not highlighted any INNS growth within proximity of the works location.

Field Survey

The surrounding environment consists of thin vegetated strips and open grassland (golf course). Due to lack of favourable environment within close proximity to the scheme, presence of shelter for protected species has been ruled out. As such, a desktop assessment has been deemed sufficient, and a site survey has been ruled out.

Land

The M77 southbound trunk road footprint within the scheme extents consists of two lanes, in addition to an on-slip of one-lane width, and off-slip of two-lane width.

Road verges are vegetated with low lying grass and thin strips of trees.

Soil

The National Soil Map of Scotland has no record of local soil type at the scheme location, likely due to urban location.

A desktop study using the British Geological Survey Map identifies local geology type for this section of the M77 as the following:

Bedrock geology:

- Index Limestone (Scotland) - Limestone. Sedimentary Bedrock formed approximately 328 to 329 million years ago in the Carboniferous Period. Local environment previously dominated by shallow carbonate seas.

- Limestone Coal Formation - Sedimentary Rock Cycles, Clackmannan Group Type. Sedimentary Bedrock formed approximately 328 to 329 million years ago in the Carboniferous Period. Local environment previously dominated by swamps, estuaries and deltas.

Superficial deposits:

- Raised Tidal Flat Deposits, Late Devensian - Gravel, Sand and Silt. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by shorelines (U).
- Till, Devensian - Diamicton. Superficial Deposits formed up to 2 million years ago in the Quaternary Period. Local environment previously dominated by ice age conditions (U).

Water

A desktop study using the Scottish Environment Protection Agency (SEPA) Water Classification Map has not highlighted any classified watercourses in proximity of the scheme. An issue (unclassified by SEPA) flows below the M77 carriageway approximately 80m from the southern scheme extents.

The Indicative River & Coastal Flood Map by SEPA has highlighted the SB carriageway and off-slip within the scheme extents to be at high risk of surface water flooding.

Road drainage is provided by top entry gullies in the hard shoulder and central reservation.

Air

The scheme is located along an urban stretch of the M77 carriageway, with residential areas and Corkerhill Rail Depot located in proximity.

The M77 carriageway is the main connecting route between Kilmarnock and Glasgow. The vehicle count per day in 2019 at this location was 24,827, with a heavy goods vehicle (HGV) average of 14%.

As such, local air quality is likely affected by the high daily use of the carriageway by road vehicle users, with secondary sources from nearby rail activity, and from nearby residential/urban activities.

The scheme is not located in proximity to any Air Quality Management Areas (AQMA) declared by Glasgow City Council.

Climate Change

The Climate Change (Scotland) Act sets out the target and vision set by the Scottish Government for tackling and responding to climate change. The Act includes a target of reducing CO2 emissions by 80% before 2050 (from the baseline year 1990).

Scotland is working to reduce emissions of all major greenhouse gases by at least 75% by 2030, with the aim of reaching net zero by 2045**.**

Amey, working on behalf of Transport Scotland, undertake carbon monitoring. Emissions from our activities are recorded using Transport Scotland's Carbon Management System.

To support the journey towards carbon neutral and zero waste, Amey include potential opportunities for enhancement utilising circular economy principals within assessment of material assets.

Material Assets

Table 1 – Materials

Activity	Material Required	Origin/ Content
Site Construction	TS2010 Surface Course (bitumen and aggregate) Road paint Road studs	A proportion of reclaimed asphalt pavement (RAP) is used in asphalt production. Typical RAP values for base and binder are 10% -15%. TS2010 Surface Course allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 will reduce the usage of imported aggregates and increase the use of a wider range of sustainable aggregate sources.

Waste

Table 2 – Waste Production

Activity	Waste Arising	Disposal / Regulations
Site Construction	Road Planings	Further on-site investigations of the carriageway condition are required, including Coring and Testing. Due to this, the condition of surfacing has not yet been fully determined, including presence of coal tar. As such, presence of tar is not currently known for this scheme. Presence of tar will be confirmed prior to the commencement of the works. If testing does not identify any coal tar within the scheme extents, road planings generated as a result of the works will be recovered in accordance with the criteria stipulated within

Activity	Waste Arising	Disposal / Regulations
		SEPA document 'Guidance on the Production of Fully Recoverable Asphalt Road Planings'. If evidence of tar is identified during further site investigations, any tar-contaminated planings will be removed off site for treatment/disposal at a licenced waste facility.

Cultural Heritage

PastMap has highlighted the following features of cultural heritage within proximity of the works:

- Pollok Park (Nether Pollok) Garden & Designed Landscape (Ref: GDL00317), located directly adjacent to the SB M77 carriageway at the southern scheme extent.
- Three Conservation Areas exist in proximity:
  - West Pollokshields, located approximately 85m east of the northern scheme extent.
  - Dumbreck, located approximately 90m west of the northern scheme extent.
- Pollok Park, located directly adjacent to the SB M77 carriageway at the southern scheme extent.

Vulnerability of the Project to Risks

The Indicative River & Coastal Flood Map by SEPA has highlighted the SB carriageway and off-slip within the scheme extents to be at high risk of surface water flooding.

Road drainage is provided by top entry gullies in the hard shoulder and central reservation.

No other existing vulnerabilities exist at the scheme location.

Description of Main Environmental Impacts and Proposed Mitigation

Population and Human Health

Impacts

- Due to location above the M77 carriageway, no impact is predicted to the pedestrian footway located on Dumbreck Road overbridge.

- Residential properties within proximity may experience a level of disturbance during the works, including potential for sleep disruption due to night-time working.
- Traffic management (TM) for the works will likely involve a closure of the SB carriageway facilitated by a diversion route.
- TM may cause slight levels of disruption and impact on journey times for those travelling via this stretch of the carriageway.
- TM arrangements may cause slight levels of temporary disruption to road users (i.e. increased traffic levels, congestion and nuisance to surrounding road networks).
- This section of carriageway will benefit from reduced reoccurring routine maintenance and associated levels of disruption due to TS2010 durability.
- TS2010 road surfacing will be utilised, which should improve the skid resistance and reduce mid to high frequencies of traffic levels.

Mitigation

- Advance traffic warning signs will be placed prior to road closures in order to inform road users of temporary traffic management arrangements. The road closures/restrictions will be widely publicised within the local and wider area, in an effort to minimise disturbance to vehicular travellers.
- Diversion routes will be clearly signed to minimise disruption to carriageway users.
- Due to night-time works, Glasgow City Council's Environmental Health Department have been contacted by the Environmental and Sustainability (E&S) Team.
- Residential properties in proximity shall be notified in advance of the works, providing details of timings, nature, and duration of the works.
- Operatives will be briefed with the Good Neighbours and Noise and Vibration toolbox talk before starting works.
- Effects from noise shall be kept to a minimum through the use of appropriate mufflers and silencers fitted to machinery. All exhaust silencers will be checked at regular intervals to ensure efficiency.
- The noisiest works will be scheduled for before 11:00pm where feasible.

The residual impact to population and human health is considered slight beneficial.

Biodiversity

Impacts

- Protected species may be active within the local surrounding environment.
- The carriageway at this location features permanent lighting and any additional lighting required for the works is not considered to result in excessive levels of lighting, thus will be unlikely to impact on nearby foraging habits of bat species.

Mitigation

- On site light sources shall be kept to a minimum, and only used as required. Any artificial light will be directed at the area of works as far as reasonably practicable, reducing any light spill into the wider surroundings, and potentially sensitive habitat (e.g. woodland).
- If a protected species is seen on or near the scheme, all works will be stopped until the animal passes by. The area will be isolated temporarily until the animal has moved on;
- The E&S team shall be contacted for any guidance if required, and the control room will be contacted for environmental record.
- Operatives will be briefed with the Badgers toolbox talk before starting works.

On the condition that best practice is adhered to, residual impact to local biodiversity is considered neutral as a result of the works.

It has been determined that the proposed project will not have direct or indirect significant effects to Biodiversity.

Land

The works will be kept to the existing M77 carriageway boundary and will not require or prevent access to private or community land out with the works area. Plant, materials and any temporary storage will be restricted to the made carriageway surface only.

It has been determined that the proposed project will not have direct or indirect significant effects to land.

Soil

All works will operate on a like-for-like basis and remain restricted within the existing carriageway footprint. No excavations beyond the existing engineered footprint will be required as part of the works, and as such no soils will be impacted.

It has been determined that the proposed project will not have direct or indirect significant effects to local soils.

Water

Impacts

- Potential for fuel/chemical spillages through the operation of resurfacing and use of various machinery and vehicles, which may affect the water environment if not effectively controlled.
- If not appropriately controlled, debris, sediment and run off from the works has the potential to enter nearby drains and watercourses and could detrimentally impact water quality.
- There is potential for flooding to occur within the works area, with potential for flooding to delay works, and potential for pollution via flooding.

Mitigation

- Best practice, as detailed by SEPA Guidance for Pollution Prevention (GPPs), will always be followed onsite. This will ensure that any potential sediments / spills are not allowed to enter road drainage unchecked.
- Appropriate measures shall be implemented onsite to prevent any potential pollution to the natural water environment (e.g. debris, dust and hazardous substances). This will include, but will not be limited to, spill kits being present onsite at all times, and the use of funnels and drip trays when transferring fuel, and utilisation of drain covers.
- Visual pollution inspections of the working area will be conducted in frequency, especially during heavy rainfall and wind.
- Debris and dust generated as a result of the works shall be prevented from entering nearby watercourses and the road drainage system, via the use of drain covers or similar.
- All debris which has the potential to be suspended in surface water and wash into the local water environment shall be cleaned from the site following the works.
- Weather reports will be monitored prior to the works, with all construction activities temporarily halting in the event of predicted high rainfall or wind.

Providing all works operate in accordance with current best practice, the residual impact on the local water environment is considered to be neutral.

Air

Impacts

- The use of vehicles, plants and generators emitting carbon emissions may temporarily affect air quality and will require the use of finite resources.
- On site construction activities carry a potential to produce airborne particulate matter that may have a slight impact on local air quality levels.

- The diversion route is likely to increase traffic levels and associated emissions within local road networks.

Mitigation

All works shall operate in accordance with current best practice as outlined in the Guidance on the assessment of dust from demolition and construction (2014) published by the IAQM, which includes the following mitigation relevant to this scheme:

- When not in use plant and vehicle will be switched off; there will be no idling vehicles.
- All plant and fuel-requiring equipment utilised during construction shall be well maintained in order to minimise emissions, as per manufacturing and legal requirements.
- Green driving techniques will be adopted, and effective route preparation and planning shall be undertaken prior to works.
- Planing operations will be wetted to reduce dust arising.

The works are of a temporary nature and will not result in any permanent local changes to air quality levels.

It has been determined that the proposed project will not have direct or indirect significant effects to air quality.

Climate Change

Impacts

- Greenhouse gas emissions will be emitted through the use of machinery, material production, materials used (containing recycled and virgin materials), and transporting to and from site.

Mitigation

- Where possible local suppliers will be used as far as practicable to reduce travel time and greenhouse gas emitted as part of the works.
- Vehicles / plant shall not be left on when not in use to minimise and prevent unnecessary emissions being emitted.
- Further actions and considerations for this scheme are detailed in section 8 Material Assets and Waste.

It has been determined that the proposed project will not have direct or indirect significant effects to climate.

Material Assets

Impacts

- Contribution to resource depletion through use of virgin materials.
- Greenhouse gas emissions generated by material production and transporting to and from site.

Mitigation

- Materials will be derived from recycled, secondary or re-used origin as far as practicable within the design specifications to reduce natural resource depletion.
- The chosen material TS2010 Surface Course allows a wider array of aggregate sources to be considered when compared to typical stone mastic asphalt (SMA). As a result, the use of TS2010 should reduce the usage of imported aggregates and increase the use of a wider range of sustainable aggregate sources.

Circular Economy

The design life for the TS2010 surfacing proposed is estimated to be 20 years. This will reduce the requirement for maintenance to this section of road over the period.

It has been determined that the proposed project will not have direct or indirect significant effects to the consumption of material assets or disposal of waste.

Waste

Impact

- Transportation and recovery of planings will require energy deriving from fossil fuel.
- Limited quantity of waste from sweeping will arise requiring disposal.

Mitigation

- Road planings generated will be recovered by a licenced contractor for reuse and / or recycling in accordance with the criteria stipulated within SEPA document ‘Guidance on the Production of Fully Recoverable Asphalt Road Planings’.
- Further on-site investigations are required to determine the presence of tar with the carriageway. If tar is found, and will be disturbed by the works, then:
    - Special Waste will require disposal at a suitable waste facility.
    - A Scottish Environmental Protection Agency consignment note is required.
    - SEPA are to be informed at least three days prior to the movement of special waste.
    - Uncontaminated road planings generated will be recovered by a licenced contractor for reuse and / or recycling in accordance with the criteria stipulated within SEPA document ‘Guidance on the Production of Fully Recoverable Asphalt Road Planings’.

- Road sweeping waste will be treated at a licenced facility to separate useful materials such as stone/aggregate as far as reasonably practicable, recovering this waste and diverting it from landfill.

Cultural Heritage

The works will be kept to the existing carriageway and will be like-for-like in nature, and as such will have no impact on these features of cultural heritage.
It has been determined that the proposed project will not have direct or indirect significant effects to cultural heritage.

Vulnerability of the Project to Risks

As the works will be limited to the like-for-like replacement of the carriageway pavement and associated road furniture, there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impacts on the environment.

It has been determined that the proposed project is not expected to alter the vulnerability of the existing trunk road infrastructure to risk of major accidents or disasters.

Cumulative Effects

There are no other schemes close to this which will contribute to a cumulative impact on the environment.

Statement of case in support of a Determination that a statutory EIA is not required

This is a relevant project in terms of section 55A(16) of the Roads (Scotland) Act 1984 as it is a project for the improvement of a road and the completed works (together with any area occupied by apparatus, equipment, machinery, materials, plant, spoil heaps, or other such facilities or stores required during the period of construction) exceed 1 hectare in area, are not situated in whole or in part in a sensitive area within the meaning of regulation 2(1) of the Environmental Impact Assessment (Scotland) Regulations 1999.

The project has been subject to screening using the Annex III criteria to determine whether a formal Environmental Impact Assessment is required under the Roads (Scotland) Act 1984 (as amended by The Roads (Scotland) Act 1984 (Environmental Impact Assessment) Regulations 2017). Screening using Annex III criteria, reference to consultations undertaken and review of available information has not identified the need for a statutory EIA.

The project will not have significant effects on the environment by virtue of factors such as:

Characteristics of the scheme:

- Construction activities are restricted to the 14,791m^2 (1.5ha) area of existing carriageway.

- Materials will be derived from recycled, secondary or re-used origin as far as practicable within the design specifications.
- The chosen material TS2010 Surface Course allows a wider array of aggregate sources to be considered when compared to typical SMA.
- Road planings will be fully recycled in accordance with Guidance on the Production for Fully Recovered Asphalt Road Planings.
- The design option (replacing the defective surfacing) conveys sustainability benefits by significantly reducing the quantity of maintenance interventions required at the location over approximately 20 years.

Location of the scheme:

- The scheme will be confined within the existing carriageway boundaries and as a result will not require any land take and will not alter any local land uses.
- The scheme is not situated in whole or in part in a “sensitive areas” as listed under regulation 2 (1) of the Environmental Impact Assessment (Scotland) Regulations 1999 (as amended).

Characteristics of potential impacts of the scheme:

- As the works will be limited to the like-for-like replacement of the carriageway pavement, there is no change to the vulnerability of the road to the risk or severity of major accidents/disasters that would impact on the environment.
- No significant residual impacts are predicted. Disruption due to construction activities are not expected to be significant and will be mitigated as far as is reasonably practicable.
- The successful completion of the scheme will afford benefits to road users, due to improved condition and ride quality of the carriageway surface.
- The use of TS2010 road surfacing affords the benefits of a reduction in mid to high frequencies of traffic noise and a reduction in ground vibrations. As a result,

Annex A

"sensitive area" means any of the following:

- land notified under sections 3(1) or 5(1) (sites of special scientific interest) of the Nature Conservation (Scotland) Act 2004
- land in respect of which an order has been made under section 23 (nature conservation orders) of the Nature Conservation (Scotland) Act 2004
- a European site within the meaning of regulation 10 of the Conservation (Natural Habitats, &c.) Regulations 1994
- a property appearing in the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage
- a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979
- a National Scenic Area as designated by a direction made by the Scottish Ministers under section 263A of the Town and Country Planning (Scotland) Act 1997
- an area designated as a National Park by a designation order made by the Scottish Ministers under section 6(1) of the National Parks (Scotland) Act 2000.

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