

Road Design, construction and maintenance

Definition:

This GPP criteria set addresses the procurement process for road design, construction and maintenance.

A road is defined as:

“Line of communication (travelled way) open to public traffic, primarily for the use of road motor vehicles, using a stabilized base other than rails or air strips” (Eurostat, 2009)

Road construction is defined as:

“The preparation and building of a road using materials, including aggregate, bituminous and hydraulic binders and additives that are used for the sub-base, road-base and surfacing layers of the road “

Road maintenance is defined as:

“all actions undertaken to maintain and restore the serviceability and level of service of roads (PIARC Road Dictionary), with the following two sub-categories:

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| Detailed Design and Performance requirements | | |
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| 1.1 | Subject Matter (suggestion on how to draft the tender title) | |
| | <p>The construction of new resource efficient roads whose design considers wider environmental impacts.</p> <p>or</p> <p>The maintenance works or major rehabilitation of existing roads in a resource efficient manner which considers wider environmental impacts.</p> | |
| 1.2 | Technical Specification (to be included in the terms of reference / technical specifications) | |
| | <p>Environmental Integration and Restoration Plan (This criterion shall apply when suitable land for planting is available, which may include planting in any soft-engineered drainage infrastructure such as retention basins, ponds or artificial wetlands)</p> <p>An Environmental Integration and Restoration Plan shall be provided as part of the road design that includes the following details:</p> <ul style="list-style-type: none"> - A site map indicating the type, location and quantities/densities of all plant species (only non-invasive and native plant species shall be included); - A description of the procedure used to select plant species and a brief rationale as to why each species is suitable for the particular environmental conditions on the site; - Planting bed requirements: soil/compost/growing media used and their depths, initial fertiliser application, use of mulch, sowing of grass seeds; - Planned measures to avoid soil erosion both prior to and after the establishment of vegetation cover; - Expected maintenance requirements of the vegetated areas. Included any irrigation, grass cutting, pruning or replacement of plants. <p>The plan should be compiled in accordance with best practice guidelines such as those outlined in the COST 341 report or other similar literature.</p> | |
| | Verification: | The design team or the DB tenderer or the DBO tenderer shall provide a copy of the Environmental Integration and Restoration Plan to the contracting authority. |

| | Monitoring of noise emissions during construction and maintenance (When planning permission or local/national legislation requires, or when specifically requested by the contracting authority) The design team or the DB tenderer or the DBO tenderer shall provide details of how temporary noise barriers (or permanent if part of the final design) shall be erected to reduce noise levels in the defined receptor area to less than X dB(A) as averaged LdEN and Y dB(A) as averaged Ln10 values as defined in Annex I of the Environmental Noise Directive (2002/49/EC). | | | | | |
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| | Verification: | The design team or the DB tenderer or the DBO tenderer shall submit: - a plan of the works site and receptor area as defined by the Environmental Impact Assessment, legislation or contracting authority where relevant; - a timetable of works, highlighting when the loudest works are to take place; - specification of the noise barrier location and approximate properties coupled with basic acoustic calculation that demonstrate that noise mitigation in the receptor area will be feasible. | | | | |
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| | Traffic Congestion Mitigation Plan A Traffic Congestion Mitigation Plan to be implemented during construction and maintenance activities, shall be presented with the road design and include: - A timeline with expected construction and/or maintenance activities for the road service life; - Alternative routes for diverted traffic during such activities, if necessary. If the design team or the DB tenderer or the DBO tenderer includes congestion solutions during the use phase and any maintenance actions based on tidal flow lanes or hard shoulders to be used as lanes, they shall present an LCC analysis, including user cost externalities due to congestion. For those roads where intelligent traffic systems (ITS) are implemented for traffic management, the road shall be equipped with the devices needed to support the ITS: cameras, traffic lights, information screens and variable road signs. | | | | | |
| | Verification: | The design team or the DB tenderer or the DBO tenderer shall provide the detailed traffic congestion mitigation plan, the LCC analysis in accordance with ISO 15686-5 (if required) and the descriptions of the ITS devices (if required). | | | | |
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| | Incorporation of recycled content in concrete and masonry A minimum of 15% by weight of recycled content, re-used content and/or by-products shall be incorporated for the sum of the main road elements in the table below: <table><tr><th>New construction or major extension</th><th>Maintenance and rehabilitation</th></tr><tr><td><ul style="list-style-type: none">• Sub-grade, including earthworks and ground works;• Sub-base• Base, binder and surface or concrete slabs.</td><td><ul style="list-style-type: none">• Base, binder and surface or concrete slabs.</td></tr></table> The recycled content as well as the re-used content shall be calculated on the basis of an average mass balance of re-used, recycled materials and/or by-products according to how they are produced and delivered to site: - For each ready mixed batch from which deliveries are dispatched to the construction site in accordance with standards on: <ul style="list-style-type: none">• Aggregates EN 13242, EN 13285;• Asphalt pavement EN 13043, EN13108-1, EN 13108-2, EN 13108-3, EN 13108-4, EN 13108-5, EN 13108-6, EN 13108-7, EN 13108-8;• Concrete pavement EN 206, EN 12620, EN13877;• Hydraulically bound granular mixtures EN 14227 part 1 to 5;• Stabilised soil EN 14227 part 10 to 15 - On an annual basis for factory made slabs and elements with claimed content levels in accordance with EN 12620 an EN 206, EN 13877 and national legislation. | | New construction or major extension | Maintenance and rehabilitation | <ul style="list-style-type: none">• Sub-grade, including earthworks and ground works;• Sub-base• Base, binder and surface or concrete slabs. | <ul style="list-style-type: none">• Base, binder and surface or concrete slabs. |
| New construction or major extension | Maintenance and rehabilitation | | | | | |
| <ul style="list-style-type: none">• Sub-grade, including earthworks and ground works;• Sub-base• Base, binder and surface or concrete slabs. | <ul style="list-style-type: none">• Base, binder and surface or concrete slabs. | | | | | |
| | Verification: | <p>The design team or the DB tenderer or the DBO tenderer shall indicate the recycled content, re-used content and/or by-products quantifying the proportional contribution of the recycled content and/or re-used content to the overall weight of the specified road elements, based on the information provided by the producer(s) of the construction material.</p> <p>The design team or the DB tenderer or the DBO tenderer shall describe how the recycled content will be calculated and verified, including, as a minimum, batch documentation as the Type Test report, factory production control documentation and delivery documentation, and how the third party verification will be arranged during the construction phase.</p> | | | | |

| Maintenance and operation | | |
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| | <p>Demolition waste audit and management plan</p> <p>A minimum of 55% by weight of the non-hazardous waste generated during demolition, including backfilling, shall be prepared for re-use, recycling and other forms of material recovery. This shall include:</p> <ul style="list-style-type: none"> (iii) Concrete, RAP, aggregates recovered from the main road elements; (iv) Materials recovered from ancillary elements. <p>Backfilling shall not be allowed in greenfield sites outside the roadway. Backfilling in permeable areas of the roadway shall be realised only with excavated materials and soils. Re-used, recycled and recovered materials shall only be used for backfilling in impermeable areas of the roadway.</p> <p>The main construction contractor or the DB contractor or the DBO contractor shall carry out a pre-demolition audit in order to determine what can be re-used, recycled or recovered. This shall comprise:</p> <ul style="list-style-type: none"> (i) Identification and risk assessment of hazardous waste; (ii) A bill of quantities with a breakdown of different road materials; (iii) An estimate of the % re-use and recycling potential based on proposals for systems of separate collection during the demolition process. <p>The materials, products and elements identified shall be itemised in a Demolition Bill of Quantities.</p> | |
| | <p>Verification:</p> | <p>The main construction contractor or the DB contractor or the DBO contractor shall submit a pre-demolition audit that contains the specified information. A system shall be implemented to monitor and account for waste production. The destination of consignments of waste and end-of- waste material shall be tracked using consignment notes and invoices. Monitoring data shall be provided to the contracting authority.</p> |