

# **DESIGN-BUILD AGREEMENT**

## **LOOP 1604 WESTERN EXTENSION PROJECT**

### **EXHIBIT 20**

#### **WARRANTY PERFORMANCE AND MEASUREMENT TABLE BASELINE**

### Warranty Performance and Measurement Table Baseline

| ELEMENT CATEGORY  | REF | ELEMENT  | WARRANTY TERM  | TXDOT INSPECTION AND MEASUREMENT METHOD   | PERFORMANCE REQUIREMENT   |
|-------------------|-----|----------|--|---|---|
| <b>1) ROADWAY</b> |     |          |  |   |   |
|                   |     |          |  | <b>Unless stated otherwise, measurements shall be conducted using procedures, techniques, and measuring equipment consistent with TxDOT's <i>Pavement Management Information System Rater's Manual</i>.</b>   |   |
|                   | 1.2 | Pavement | 5 years, except for mill and overlay sections having a 2-year performance Warranty Term per Note 1 | <p><b>b) Ruts – Mainlanes, shoulders &amp; ramps</b><br/>Depth as measured using an automated device in compliance with TxDOT Standards.<br/>10ft straight edge used to measure rut depth for localized areas.</p> <p><b>c) Ride quality</b><br/>Measurement of International Roughness Index (IRI) according to TxDOT standard Tex-1001-S, Operating Inertial Profilers and Evaluating Pavement Profiles<br/>3-ft straightedge used to measure discontinuities</p> <p><b>d) Failures</b><br/>Instances of failures exceeding the failure criteria set forth in the TxDOT PMIS Rater's Manual, including potholes, base failures, punchouts and jointed concrete pavement failures</p> <p><b>f) Skid resistance</b><br/>ASTM E274/E274M-11 Standard Test Method for Skid Resistance Testing of Paved Surfaces at 50 MPH using a full scale smooth tire meeting the requirements of ASTM E524-08 .</p> | <p>No wheel path length with ruts greater than 1/4" in depth</p> <p>No length with depth of rut at any location greater than 0.5"</p> <ul style="list-style-type: none"> <li>• Mainlanes, ramps – no results greater than 95" per mile</li> <li>• Frontage roads – no results greater than 120" per mile</li> </ul> <p>No individual discontinuities greater than 0.75"</p> <p>No occurrence of failure</p> <ul style="list-style-type: none"> <li>• Mainlanes, shoulders and ramps – Number of sections investigated as to potential risk of skidding accident and appropriate remedial action taken where average Skid Number for 0.5-mile section of mainlanes, shoulders and ramps are in excess of 30.</li> <li>• Frontage roads –Number of sections investigated as to potential risk of skidding accident and appropriate remedial action taken where average Skid Number for 0.5-mile section of frontage roads is in excess of 30.</li> <li>• When the Skid Number is below 25 and/or when required by the Wet Weather Accident Reduction Program, areas categorized as high risk, the Concessionaire shall perform a site investigation and perform required corrective action.</li> </ul> <p>Instances where road users warned of potential skidding hazard where remedial action is identified.</p> |

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| <b>ELEMENT CATEGORY</b> | <b>REF</b> | <b>ELEMENT</b>  | <b>WARRANTY TERM</b> | <b>TxDOT INSPECTION AND MEASUREMENT METHOD</b>  | <b>PERFORMANCE REQUIREMENT</b>  |
|-------------------------|------------|---|----------------------|---|---|
|                         | 1.3        | Crossovers and other paved areas  | 2 years              | a) <b>Potholes</b><br><br>b) <b>Base failures</b>   | No potholes of low severity or higher<br><br>No base failures of low severity or higher   |
|                         | 1.4        | Joints in concrete  | 5 years              | Visual inspection of joints<br>Measurement of joint width and level difference of two sides of joints   | No length with unsealed joints greater than ¼"<br>No joint width more than 1" or faulting more than ¼"  |
|                         | 1.5        | Curbs   | 2 years              | Visual inspection   | No length out of alignment  |
| <b>2) DRAINAGE</b>      |            |   |                      |   |   |
|                         | 2.2        | Drainage treatment devices  | 2 years              | Visual inspection   | Devices functioning correctly with means of operation displayed   |
|                         | 2.3        | Travel Way  | 2 years              | Visual inspection of water on surface   | The travel way is free from water to the extent that such water would represent a hazard by virtue of its position and depth.   |
|                         | 2.4        | Discharge systems   | 2 years              | Visual inspection and records   | Surface water discharge systems perform their proper function and discharge to groundwater and waterways complies with the relevant permits and other legal requirements. |
| <b>3) STRUCTURES</b>    |            |   |                      |   |   |
|                         | 3.1        | Structures having an opening measured along the centre of the roadway of more than 20 feet between undercopings of abutments or springlines of arches or extreme ends of openings or multiple boxes | 5 years              | Inspection and assessment in accordance with the requirements of federal National Bridge Inspection Standards (NBIS) of the Code of Federal Regulations, 23 Highways – Part 650, the TxDOT Bridge inspection Manual, and the Federal Administration’s Bridge Inspector’s Reference Manual | No occurrences of condition rating below seven for any deck, superstructure, substructure or components as required in the TxDOT Bridge Inspection Manual.                |
|                         | 3.3        | Non-bridge class culverts   | 5 years              | Visual inspection   | Non-bridge-class culverts are free of: <ul style="list-style-type: none"> <li>• defects in sealant to movement joints</li> <li>• scour damage</li> </ul>                  |
|                         | 3.4        | Gantries and high masts   | 5 years              | Visual inspection   | Sign signal gantries, high masts are structurally sound and free of defects in surface protection systems   |

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|--|------------|---------------------------------|----------------------|---|--|
|  | 3.5        | Load ratings                    | 5 years              | Load rating calculations in accordance with the Manual for Bridge Evaluation and the TxDOT Bridge Inspection Manual.<br><br>Load restriction requirements as per the TxDOT Bridge Inspection Manual | All structures maintain the design load capacity.  |
| <b>4) PAVEMENT MARKINGS, OBJECT MARKERS, BARRIER MARKERS AND DELINEATORS</b> |            |                                 |                      |   |  |
|  | 4.1        | Pavement markings               | 2 years              | a) Markings General - Physical measurement<br><br>Profile Markings - Visual inspection  | No Length with no more than 5% loss of area of material at any point<br><br>Length performing its intended function and compliant with relevant regulations  |
|  | 4.2        | Raised reflective markers       | 2 years              | Visual inspection   | Markings are functioning as intended   |
| <b>5) GUARDRAILS, SAFETY BARRIERS AND IMPACT ATTENUATORS</b>                 |            |                                 |                      |   |  |
|  | 5.1        | Guard rails and safety barriers | 2 years              | Visual inspection   | All guardrails, safety barriers, concrete barriers, etc. are free of construction defects and remain at correct height.  |
|  | 5.2        | Impact attenuators              | 2 years              | Visual inspection   | All impact attenuators remain as installed.  |
| <b>6) TRAFFIC SIGNS</b>  |            |                                 |                      |   |  |
|  | 6.1        | General – All Signs             | 2 years              | <b>a) Retroreflectivity</b><br>Coefficient of retro reflectivity<br><br><b>b) Face damage</b><br>Visual inspection<br><br><b>c) Placement</b><br>Visual inspection                                  | No signs with reflectivity below the requirements of TxDOT’s TMUTCD and free from structural and electrical defects<br><br>No signs with face damage greater than 5% of area, unless caused by a third party<br><br>Sign mounting posts are structurally sound and rust free |
| <b>7) TRAFFIC SIGNALS</b>  |            |                                 |                      |   |  |
|  | 7.2        | Soundness                       | 2 years              | <b>a) Structural soundness</b><br>Visual inspection<br><br><b>b) Electrical soundness</b>   | Traffic Signals, Pedestrian Elements and Vehicle Detectors are structurally and electrically sound<br><br>Inspection records showing compliance  |
| <b>8) LIGHTING</b>   |            |                                 |                      |   |  |
|  | 8.1        | Roadway Lighting – General      | 2 years              |   | Columns are upright, correctly founded, visually acceptable and structurally sound   |
|  | 8.3        | Electrical Supply               | 2 years              | Testing to meet NEC regulations, visual inspection  | Electricity supply, feeder pillars, cabinets, switches and fittings are electrically, mechanically and structurally sound and functioning  |
|  | 8.5        | High Mast Lighting              | 2 years              |   | All winch and safety equipment is correctly functioning. (for structural requirements refer to Element Category 3)   |

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|---|------------|-----------------------------|----------------------|---|---|
| <b>9) FENCES, WALLS AND SOUND ABATEMENT</b>     |            |                             |                      |   |   |
|   | 9.2        | Construction                | 5 years              | Structural assessment if visual inspection warrants   | Integrity and structural condition of the fence is maintained   |
| <b>12) EARTHWORKS, EMBANKMENTS AND CUTTINGS</b> |            |                             |                      |   |   |
|   | 12.1       | Slope Failure               | 5 years              | Visual inspection by geotechnical specialist and further tests as recommended by the specialist   | All structural failures of the embankment and cut slopes of the Facility are repaired   |
| <b>13) ITS and ETCS EQUIPMENT</b>               |            |                             |                      |   |   |
|   | 13.5       | Vehicle Detection Equipment | 2 years              | Defect measurement dependent on equipment<br><br>Traffic Detector Loops:<br>Loop circuit's inductance to be > 50 and < 1,000 micro henries.<br>Insulation resistance to be > 50 meg ohms. | All equipment free of defects and operational problems such as; <ul style="list-style-type: none"> <li>• Inoperable loops.</li> <li>• Malfunctioning camera controllers.</li> </ul> |

Note 1: Where indicated, mill and overlay sections specified in Technical Provisions Section 1.2.1 for the Base Scope and Section 1.3.1 for the Option shall meet performance requirements for a period of 2 years from Final Acceptance of the applicable Segment (rather than for the 5-year Warranty Term generally applicable to the element category).