Sound Wall Silent Protector™

3 Part Canadian Specification

1.0 GENERAL

1.1 This work includes the design, manufacture, delivery and erection of the Silent Protector™ Absorptive Sound Barrier Wall, complete.

1.2 The Silent Protector™ sound barrier wall shall be designed in accordance with the current AASHTO “Guide Specifications for Structural Design of Sound Barriers” and in accordance with the requirements specified in the contract documents and contract document special provisions.

1.3 The manufacturer of the noise barrier system shall prepare detailed layout and fabrication drawings including pertinent pecifications thereto, together with the complete engineering calculations. The manufacturer shall submit to the Contractor or Owner’s Representative four (4) sets of drawings and specifications for approval prior to the commencement of manufacture or construction.

1.4 The Contractor or Owners Representative shall establish the alignment of the wall, the top wall elevations and final ground line elevations at the bottom of the wall. The manufacturer shall use these elevations and final ground line elevations to develop the layout and fabrication drawings including complete elevations of each wall indicating top and bottom of wall elevations. The final ground elevations and wall alignments established in the field shall be protected by the Contractor for the duration of the project and shall not be adjusted without prior approval of the Engineer.

1.5 The Contractor or Owner’s Representative shall carry out site investigations to determine soil parameters, water tables, location of underground services and above grade obstructions. The manufacturer shall use these parameters to determine the depths, sizes and locations of footings.

2.0 MATERIALS

2.1 Panel Construction: Silent Protector™ panels shall be of PVC Homopolymer, SIC: 3084 CAS NO.: PVC Resin (9002-86-2) Titanium Dioxide (13463-67-7); Calcium carbonate (1317-65-3) supplied by North American resin suppliers. Silent Protector™ panels shall be manufactured in a co-extruded manner, using recycled virgin resins for the substrate and pure virgin resins for the cap stock. The cap stock (exterior layer) shall have Rigid Poly Vinyl Chloride (PVC) Exterior resistance with the use of UV TI02 to protect the colors from fading due to the ultra violet rays from the sun. The panel design shall sealed by a Licensed Professional Engineer, experienced in the design of sound barrier walls.

2.2 Acoustical Characteristics: Silent Protector™ panels shall be Absorptive on one side of the panel with a perforated routing pattern. Silent Protector ™ panels shall also be inserted with Acoustical Mineral Wool RockBoard 35 - 09 81 13. The Sound Transmission Class (STC) of the Silent Protector™ panels shall be equal or greater than 31 with a Noise Reduction Coefficient (NRC) of 1.0 as determined in accordance with ASTM E90-75.

2.3 Aesthetics: Silent Protector™ panel face colors and lengths shall be specified in the Contract Documents. (Owner to specify colors of each panel, color pattern for Silent Protector™ Absorptive Sound Wall.) The visual appearance of the Sound Barrier Wall, in terms of color, shall be uniform when viewed at a distance of 10m from the face of the wall.

2.4 Steel Posts: Steel posts shall be hot rolled wide flange structural sections in accordance with shapes, sizes, details, and method of connection as shown on the drawings. All structural steel work shall conform to CSA Standard S 16 and grade of steel shall be G40.21-M 350W. All welds shall conform to CSA Standard W59 and CSA standard W47.1. All steel components to be hot dipped galvanized after fabrication in accordance with CSA Standard G164-M. The post design shall be sealed by a Licensed Professional Engineer.

2.5 Post Footings: Concrete in augured footings shall be minimum 20 MPa and in non-standard, engineered footings, it shall be 25 MPa, all in accordance with OPAA 1 350. Depth and diameter of footing shafts shall be designed in accordance with CAN/CSA S6-06, Clause 5-7.2.

AcoustiGuard - **WILREP LTD.** 1515 Matheson Blvd., East, Unit C-10, Mississauga, Ontario L4W 2P5
Tel.: (905)625-8944 Toll Free: 1-888-625-8944 Email: info@wilrep.com Website: www.acoustiguard.com

3.0 CONSTRUCTION

3.1 Site Grading and Preparation: Grading (cut and fill) and berm construction which is associated the sound barrier installation should be completed to within 25mm below the bottom barrier wall prior to construction of the barrier footings. All grading shall be in accordance with OPSS 206. Berms shall have a profile with a minimum 3.0m flat top and a maximum side slope of 3:1. After completing of the wall panel installation, final grading shall be to bottom of wall and there should be no visible gaps between bottom of wall and top of final grade. Tree pruning and removal shall be kept to a minimum. Materials excavated from footing holes, if acceptable, may be deposited on the adjacent terrain and spread in uniform layers. Surplus excavated material shall be disposed of at the contractor's expense. Alignment and bottom elevations of wall shall be clearly marked and staked prior to commencing with construction of wall footings. Grade stakes shall be placed at approximately 25m on center and at all grade changes, wall steps, starts and ends of wall and alignment changes. Grade stakes shall show the following information: station number, bottom of wall elevation, cut or fill dimension and offset to centerline of wall. Below grade service lines (hydro, telephone, gas, water, drainage, etc) located within 1.0m of the sound barrier wall or footings, shall be clearly marked by stakes.

3.2 Footings: The depth of the footings shall be shown on the drawings and shall be designed and approved by a Licensed Professional Engineer with reference to soil strength parameters and site conditions supplied by the Owner's Representative for the project. The concrete in the footings shall be cured for a minimum of 2 days before work which places stress on the posts may be carried out. The tops of all footings are to be shaped and levelled to provide full horizontal seating of the bottom panels and the remaining surface of the top footing shall be domed to allow the shedding of water

3.2.1 Cylindrical Footings: Concrete for footings in augured holes shall be cast entirely against undisturbed soil.

3.2.2 Non-Standard Engineered Footings: Where site conditions dictate special footings in large hole excavations (e.g. other then augured holes) or flange plate type footing with anchor bolt and rebar system, the non standard footing shall be designed and sealed by a Licensed Professional Engineer. The excavation shall be backfilled with granular material and compacted, all in accordance with OPSS 501.

3.2.3 Stepped Footings: Where grade changes require the bottom of the wall to be stepped, the top of the footing shall be constructed as shown on the drawings and as per Manufacturer's recommendations.

3.3 Steel Posts: The posts shall be installed plumb to within +/- 10mm. The posts shall be located to the lines and grades specified on the drawings to within a tolerance of +/- 10mm. Any accidental coating of concrete on the above grade surfaces shall be washed off on the same day of installation. A concrete levelling pad shall be poured into the bottom of the augured hole 4 hours prior to inserting the steel post. The pad shall serve to support the steel post at it proper elevation and alignment during pouring and vibrating of the footing concrete around the inserted post.

3.4 Panels: The Silent Protector™ panels shall be installed according to type, color, and length as shown in the drawings and in accordance with Manufacturer's recommended practices. Each panel is identified as to its type and orientation in the Sound Barrier Wall. The contractor shall take care and provide adequate protection when handling, moving, and storing the panels to prevent and damage. To lift and place the Silent Protector™ panels the bottom panel shall be fully seated on the footing. Top of the footing shall be free of foreign material, ice, snow, or water. Once the bottom panel is place adjacent panels will be stacked on top of each other with a vertical tolerance of +/- 4mm. Where vertical adjustments are necessary for alignment, a PVC spacer shall be used. Intermediate panels shall fit tight to the panel below. The tongue and groove detail shall mesh fully, be free of foreign material, ice or snow and there should be no visible gaps.

[END OF DOCUMENT]

AcoustiGuard - **WILREP LTD.** 1515 Matheson Blvd., East, Unit C-10, Mississauga, Ontario L4W 2P5
Tel.: (905)625-8944 Toll Free: 1-888-625-8944 Email: info@wilrep.com Website: www.acoustiguard.com