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Structural Engineer's Calculations for Semi-Detached Houses

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1. **INTRODUCTION:**

   This project covers the design of the two semi-detached houses split between two levels, with single level of basement. Houses are to replace the single-story garage at No 95 Avenue Road, London. The current calculation includes the design of a reinforced concrete basement slab, reinforced underpinning of party walls, design of a new concrete slab above basement and steel beams to support concrete on metaldecking flat roof above the ground floor.

2. **RELEVANT DOCUMENTS:**
   - Site geological investigation carried out by GEA Geotechnical Engineers.
   - MBP's Construction Method Statement
   - MBP's Specification for the works
   - MBP's Structural Drawings for the works

3. **STRUCTURAL DRAWINGS:**
   - MBP-8538-100- PROPOSED BASEMENT GENERAL ARRANGEMENT
   - MBP-8538-101- PROPOSED GROUND FLOOR GENERAL ARRANGEMENT
   - MBP-8538-102- PROPOSED ROOF GENERAL ARRANGEMENT
   - MBP-8538-110- PROPOSED SECTION 1-1 GENERAL ARRANGEMENT
   - MBP-8538-111- PROPOSED SECTION A-A GENERAL ARRANGEMENT

4. **BASEMENT RC SLAB CALCULATIONS**

   The basement RC slab has been verified as a raft slab, with vertical loads, worst case span considered 13.0m simply supported, and two sides restrained, the analysis and verification has been carried out using TEDDS. Results can be found in Section 4.

5. **RC RETAINING WALLS CALCULATION**

   The analysis and design of the RC retaining walls has been carried out using TEDDS. The walls have been designed to support walls and floors above as well as resist the horizontal and hydrostatic pressure. Results can be found in Section 5.

6. **GROUND FLOOR CALCULATION**

   The Ground Floor slab has been designed as a concrete on metaldecking. Worst case span of supporting steel considered 7m simply supported, the analysis and verification has been carried out using TEDDS. Results can be found in Section 6.

7. **ROOF STRUCTURE CALCULATION**

   The analysis and design of the roof structure has been carried out using TEDDS. The steel beams have been designed to support concrete on metaldecking. Results can be found in Section 7.

Calculations Prepared by:	Calculations Approved by:
	
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