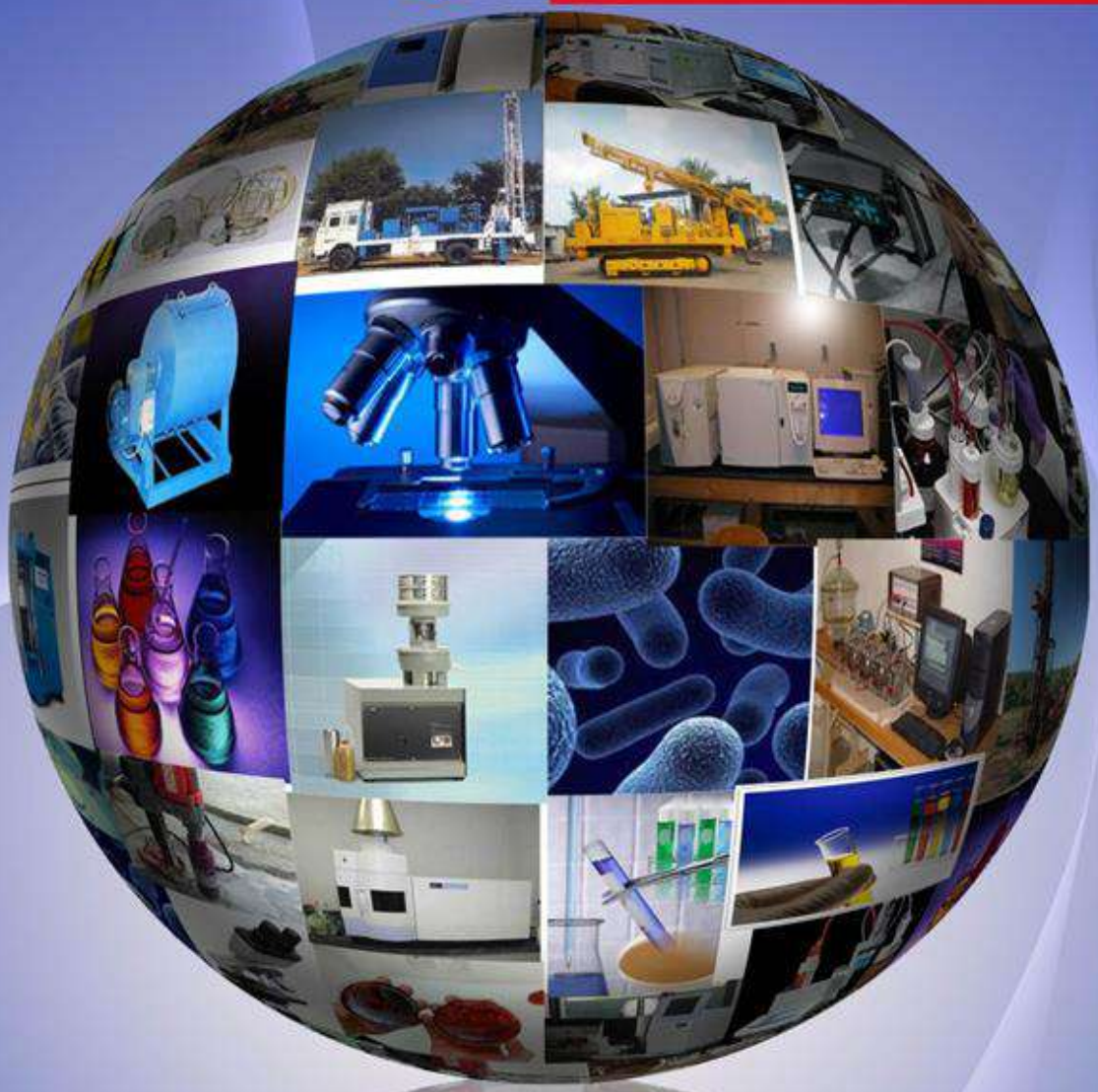
WIMPEY LABORATORIES



PREQUALIFICATION DOCUMENT

Wimpey Laboratories – Muscat
P.O Box 1017, Postal Code:133
Muscat, Sultanate of Oman
email: info.muscat@wimpeylab.om

Wimpey Laboratories – Duqm
Duqm, Sultanate of Oman
email: info.duqm@wimpeylab.om

Wimpey Laboratories – Nizwa
Nizwa, Sultanate of Oman
email: info.nizwa@wimpeylab.om

www.wimpeylab.om

Wimpey Laboratories – Salalah
Salalah, Sultanate of Oman
email: info.salalah@wimpeylab.om

Wimpey Laboratories – Sohar
Sohar Industrial Estate, Oman
info.sohar@wimpeylab.om

Wimpey Laboratories,
Calibration Division - Muscat
email: calibration@wimpeylab.om

INDEX

Appendices :

WIMPEY LABORATORIES OMAN : Post Box No. 1017 : Postal Code 133: Tel. 968 24533137 : Fax. 968 24533269

1.0 Introduction

1.1 The legal name of our organization is "Wimpey Laboratories LLC". "Wimpey Laboratories" is an independent testing, reporting and certification organisation. The current operating location for "Wimpey Laboratories" is:

Wimpey Laboratories LLC
P.B. 1017 P.C 133,
Rusyl Industrial Estate, Muscat,
Sultanate of Oman

1.2 Wimpey Laboratory is one of the largest independent testing services in United Arab Emirates (UAE). Wimpey Laboratories was set up in Oman and commenced trading on 13th June 2011. The company's mission is to provide independently accredited testing services to the very highest standards of quality, service and technical compliance.

1.3 Fully qualified and experienced personnel are available to design and implement inspection and testing programmes tailored to clients' individual investigative requirements. Advisory services and laboratory testing services are offered to meet British, American and other international specifications for materials.

1.4 Wimpey group of Laboratories offers independent, accredited, testing services. In the pages that follow, we aim to outline the mode of operation of our service, and will detail how we intend to satisfy all of the requirements of your testing needs. This will demonstrate clear benefits to you in selecting Wimpey considering the fast track, high volume, and potentially diverse nature of the testing required.

1.5 Operating a quality management system, which complies with ISO IEC 17025, Wimpey Laboratories Oman is committed to providing quality services to its customers.

Registration Details In Oman.

- ANS/ISO/IEC 17025 – TL-491 (IAS Accreditation) Muscat Lab
- ANS/ISO/IEC 17025 – TL-492 (IAS Accreditation) Salalah Lab
- Chamber of commerce Registration Number – 1B/27298
- Ministry of Commerce and Industry-1107412
- Regional Municipality Registration Number – 2011/8754/MB
- DGSM Registration Number – MOCI/440/446/21/2016
- Ministry of Environment – MK /19869
- ISO 9001:2008 – BN 14339/13923:1215

2. Quality Policy Statement

As a Quality-minded Organization, Wimpey Laboratories is committed to ensure continuous improvement of processes and products to achieve customer satisfaction. It is therefore our policy to:

- Consistently provide quality products and services that conform to customer requirements.
- Deliver our testing services with accurate and quick test results, while maintaining an economical value to the customer.
- Comply with **ISO/IEC 17025: 2005** standards at all times to ensure quality product and testing services.
- Maintaining a laboratory environment and associated services consistent with the guidelines of ISO 17025.

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- Maintaining a well –trained, motivated work force founded on team work and fostered by group activities, an open culture, the free flow of ideas, and advancement opportunity for employees seeking to increase their contributions to the organization.
- We our Wimpey staff understand our goal of customer satisfaction can only be achieved through consistency, Quality, and efficiency of both our results and our customer service.
- Management system procedures as a means for meeting and maintaining these goals and objectives.
- Our Laboratory keeps personnel aware of the relevance and importance of their positions frequently, and through various means.

It is Wimpey Laboratories goal to encourage active participation of all employees in quality planning and continuous improvement efforts to meet all quality, service and cost objectives.

2.1 Quality Objectives

- Continuously monitor progress of works to ensure timely completion.
- The policies and procedures reduce the likelihood that a non-conformance is occurring. Once a need to improve has been identified, an action plan is developed, which included tasks, assigned responsibility, and timing as per the procedure Control of Non-Conforming and Anomalous activities Testing/calibration, procedure # WLP-008
- Records for test/calibration and operational equipment and its software are maintained per the procedure Equipment Control, Calibration and Maintenance, procedure # WLP-013.
- Achieve customer satisfaction.
- Ensure safe practices for the protection of personnel, equipment and properties of customers.
- Continuous development of the competence of staff through training, teamwork and awareness.
- Use latest international and national methods to enhance value to customers.

3. Health, Safety & Environment

3.1 Environmental Policy

As an environment conscious organization, **Wimpey Lab** shall

- Comply with applicable environmental laws and regulations.
- Set internal standards and requirements, as needed.
- Apply practices and control technologies that minimize pollution to the extent possible.
- As appropriate, take corrective action where past practices have harmed the environment.
- Ensure prompt actions are taken to situations endangering employees, customers, the general public, and the environment as a result of our activities.
- Ensure continuous improvement in our activities to prevent pollution of air, land and water.

3.2 Occupational Health and Safety Policy

As an occupational health and safety conscious organization, **Wimpey Lab** shall

- Comply with applicable occupational health and safety laws and regulations. Set internal standards and requirements, as needed.
- Apply practices and control technologies that minimize risk to the extent possible.
- Ensure prompt actions are taken to situations endangering employees, customers and the general public as a result of our activities.
- Ensure continuous improvement in its activities to prevent personal injury and / or property damage.

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4. Service Overview:

4.1 The laboratory services would be divided into two principal sections; these being tests conducted at our central laboratories (Muscat and Salalah) and field testing and sampling activities. The precise list of activities and tests are given in Appendix 2 & 4. Each area would fall under the responsibility of our Laboratory Manager, who would act as a single point of contact between Wimpey and other parties. He would coordinate all sampling and testing activities and report on all such activities, regardless of the originator of the instruction.

4.2 All coordination and integration with other on-site agencies would be devised by our Laboratory Manager and Laboratory Supervisor, to ensure not only Wimpey quality assurance requirements are met, but also those using the laboratory.

4.3 Wimpey Laboratories provide testing services. No other services are provided that could place the laboratory in a position where conflicting interest could be a concern. Responsibilities of key personnel that are involved and have influence on testing activities are defined.

4.4 WIMPEY LABORATORIES will do everything possible to assure that its customers receive the best possible service while maintaining the utmost in confidentiality when required. This may include, however is not limited to:

- Cooperating with customers in the clarification of test requests and the performance of said tests.
- Affording customers access to the laboratory to witness testing when requested.
- Prepare, package and dispatch test items and reports as required by our customers for verification purposes.
- Advise, guide and communicate with our customer in technical matters, opinions and interpretations in regards to testing performed or to be performed.
- Communicate to our customers any major deviations in testing being performed.
- Communicate to the customers any delays that may result in the customer not receiving their testing in a timely manner.
- Customers will be notified of any event that casts doubt onto the validity of results supplied to them.

5. Services Offered

Wimpey Laboratories Oman operates mainly 6 divisions.

1. **Construction material Testing**
2. **Analytical services**
   Chemical Analysis
   Microbiological Analysis services
3. **Oil Analysis**
4. **Environmental monitoring services**
5. **Geotechnical Services**
6. **Metallurgical Testing Services**

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5.1 Construction material Testing (Civil)

The scope of material testing covers full range of analysis includes :

a) Soil
b) Aggregates
c) Cement
d) Concrete
e) Rocks
f) Water
g) Admixture
h) Micro silica
i) Fly Ash
j) Precast concrete materials
k) Other building materials

Wimpey laboratories also operates all in situ testing of soil including In situ density tests, In situ CBR, Plate bearing test, Trial pit excavation and logging…

Wimpey laboratories also have an experienced Concrete investigation team which can provide all the nondestructive tests and effective sampling techniques which can ensure that the maximum information is available to enable an effective and accurate assessment to be made.

Investigation process includes visual surveys of cracks, Half Cell potential measurements,

electromagnetic cover surveys, resistivity tests, ultra sonic pulse velocity tests, carbonation depth measurements, chemical contamination analysis, delamination surveys, diamond core drilling…

We also operate satellite laboratories for different civil construction sites in all over Oman.

5.2 Analytical services

5.2.1 Chemical Analysis

The scope of chemical analysis covers full range of analysis includes:

- Drinking Water
- Waste/STP Water
- Sea water
- Soil, Sludge
- Aggregate
- Sediment
- Cement
- Microsilica, Fly Ash
- Rock
- Mineral Ores
- Limestone, Dolomite, Marble
- Food
- Special Testing

Chemical analysis samples typically from the fields of routine monitoring of the Drinking Water, Environmental Impact Study, Environmental Baseline study, Marine Survey, Land contamination Study,

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Waste characterization Study, Waste Disposal to sea, Construction materials..etc.

Wimpey offers a high Quality sampling and analysis of Drinking water from various sources like Desalination Plants, Bottling Plants and other private sources.

Wimpey offers a comprehensive range of testing for Waste Water, Effluent, Ground Water, Sea Water, Sludge, Sediment..etc for various parameters such as Anions, Cations, VOC, SVOC, Total Petroleum Hydrocarbons, PAHs, Nutrients, Pesticides, Phenolic compounds..etc

5.2.3 Microbiological Analysis services

The scope of Microbiological analysis covers the following

- Drinking Water
- Treated Water
- Food

Wimpey offers a comprehensive solution to your water quality testing needs. It includes Drinking Water, Waste or treated effluent, Ground Water and Sea water.

The Microbiological analysis parameters includes Total Coliforms, Fecal Coliforms, Total Bacterial Count, Salmonella, Legionella, Nematode ova, Sulphate reducing Bacteria, E-coli ..etc.

Wimpey Offers Microbiological Food analysis for Dairy products, Meat products, sea food, ready to eat food..etc.

We are able to perform Microbiological Indoor Air Quality Monitoring.

5.3 Oil Analysis

5.3.1 Petroleum Products

Wimpey laboratories a wide range of tests in the analysis of petroleum products includes:

- Crude Oil
- Gasoline
- Gas Oil
- Jet A-1
- Fuel Oils
- Bitumen
- Lubricants and Grease
- Fire Fighting Foam
- Petrochemicals
- Bunker fuels

5.3.2 Oil condition monitoring

Oil condition monitoring can help in the identification of problems at an early stage in equipment by analyzing the condition of oil in service.

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The benefits of the process are reduced downtime, lower machine costs. Optimize maintenance intervals, extended oil drain period and reduced capital investment. The diagnosis helps the customer to act at an early stage before major problems occur.

Two broad categories of samples are taken:

- In service samples from turbines, compressors, hydraulic systems, marine engines, fleets, industrial systems etc.
- In service samples from aircraft engines and hydraulic systems, helicopter engines and rotors, etc.

5.3.3 Transformer oil analysis

Wimpey Laboratories Undertakes transformer oil monitoring through oil analysis. Transformer is a complex and critical component of the power distribution and transmission system.

System abnormalities, loading, switching and ambient condition normally contribute towards accelerated aging and sudden failures. In the absence of monitoring, the failure risk is always high. Monitoring the performance of the transformer via oil analysis can give early warning to its physical condition, integrity of the core and windings and the condition of the cellulose insulation system.

5.4 Environmental monitoring services

Wimpey Laboratories gives a guaranteed support in the fields of :

- **Stack and Process Monitoring**: Emission Compliance Testing, Process Optimization, Commissioning Testing, CEMS Verification testing.
- **Ambient Air Quality Monitoring**: Baseline Environmental Monitoring, Dispersion modeling, medium and long term environmental monitoring
- **Occupational Hygiene**: Exposure monitoring to dust, fumes and other organic compounds.
- **Indoor Air Quality (IAG)**: Sick building investigations.
- **Noise and vibration monitoring:** short and long term environmental noise, occupational noise exposure and investigations.

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5.5 Geotechnical Services

A full range of geotechnical services are offered from us by a fully supported

experience team of civil engineers and geologists. Additionally, laboratory services including equipment, technicians etc are available for associated testing and monitoring services.

5.5.1 Ground Investigation

- Boring & Sampling of soil
- Standard penetration test
- Dynamic cone penetration test
- Static cone penetration test
- Electrical resistivity test.

- Sub grade modulus(K) CBR, Field permeability(Constant and Falling Head), Field density (Bulk and Dry)
- Permeability test(Using Single /Double packer)
- Exploratory core drilling & Grouting
- Ground water monitoring
- Land surveying(Topographical and contour surveys**)**

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- Permeability test(Using Single /Double packer)
- Exploratory core drilling & Grouting
- Ground water monitoring
- Land surveying(Topographical and contour surveys**)**

5.5.2 Related Laboratory tests

- Grain size analysis and Atterbergs limits.
- Direct and Tri axial shear tests
- Consolidation tests.
- CBR, Proctor, Bulk & Dry Density tests.

- Unconfined compression tests.
- Porosity, Water absorption & Permeability tests.
- Determination of specific gravity & Moisture content.
- Free Swell, Shrinkage limit & Swelling pressure tests.
- Chemical testing of Soil & Water samples.

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- Crushing strength, Point load tests, Porosity, Density & Moisture content on rock specimen.

5.5.3 Analysis and reccomendations

- Bearing capacity calculations
- Interpretation of laboratory & Field data.
- Settlement calculations
- Isolated & Strip footing
  Raft foundation.
- Pile foundations
- Slope stability analysis.
- Retaining walls.
- Special ground strengthening measures including the use of geo-textiles.
- Special problems due to the complex soil conditions**.**

5.6 Metallurgical Testing Services

Wimpey Group laboratories also assure the service of all metallurgical testing.

- General mechanical Testing: Tensile, Impact, Hardness, Bend
- Fracture Toughness: CTOD, Metallurgical detailed notch evaluations
- Corrosion Testing: Hydrogen sulphide corrosion, Hydrogen Induced Cracking (HIC), Sulphide Stress Corrosion Cracking (SSCC), Austenitic series stainless steel and nickel alloys inter angular corrosion test, ASTM A262 (full series) and ASTM G28 pitting corrosion testing to ASTM G48
- Failure Analysis: Components and situation evaluation, root cause analysis, prevention measures
- PMI: Positive Material Identification
- Microstructure replication
- Ferrite measurements of austenitic and duplex stainless steel
- Metallurgical Chemistry: Nature and composition of scales and corrosion products, composition and grading of steels.

6. Organizational Structure

Wimpey Laboratories holds legal responsibility for its operation and is organized to operate in accordance with the requirements of ISO/IEC 17025, whether carrying out work in its permanent facilities or on location, at customer sites.

Company is not part of an organization performing activities other than testing and/or calibration; therefore, there is no potential conflict of interest amongst its personnel.

Wimpey Laboratories has maintains a clearly documented organizational structure, defining the authority, interrelation and responsibilities of personnel throughout the laboratory. Our Managerial staff is given the authority and resources to effectively operate the laboratory, train personnel, satisfy customers and meet all quality requirements.

The organizational chart (Appendix) defines our organizational structure.

7. Resources

7.1 Man Power

Wimpey Laboratories group employees around 250 including 200 qualified technicians /Chemists/ Microbiologists/ Geologists/ Engineers.

The company has a standard recruitment policy and an effective and professional in house training process to build up the employees to a promotional rank. The CV's of the employees are available on request.

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7.2 Equipment

Wimpey Laboratory is fully equipped with the latest and technically most modern equipment.

7.3 Financial

Wimpey Laboratory is comprehensively insured for workman's compensation, third party liability and all business risks. The company's bankers in Oman are Bank Sohar.

8. Contact Details

8.1 Sultanate of Oman

a. Wimpey Laboratories LLC, Corporate Office and Civil & Geotechnical labs

Post Box: 1017, Postal Code 133
Ghala Industrial Area, Sultanate of Oman
Tel : 00968 24030001 / 24030004
Fax : 00968 24533269
Email : info.muscat@wimpeylab.om
Web : www.wimpeylab.om

b. Wimpey Laboratories LLC, Chemistry/Micro/Oil Division

Post Box: 1017, Postal Code 133
Rusayl Ind Estate, Road No 22, Sultanate of Oman
Tel : 00968 24533137
Fax : 00968 24533269
Email : chemistry.muscat@wimpeylab.om
Web : www.wimpeylab.om

c. Wimpey Laboratories (Salalah)

Al Herafeyeen Street
Salalah Industrial Area
Sultanate of Oman
Tel : 00968 23214216
Fax : 00968 24533269
Email : info.salalah@wimpeylab.om
Web : www.wimpeylab.om

d. Wimpey Laboratories (Duqm)

Duqm Free Zone
Tel : 00968 94302818
Email : info.duqm@wimpeylab.om
Web : www.wimpeylab.om

d. Wimpey Laboratories (Sohar)

Road No. 2, Sohar Industrial Estate
Tel : 00968 94291436
Email : info.sohar@wimpeylab.om
Web : www.wimpeylab.om

e. Wimpey Laboratories (Nizwa)

Karsha Industrial Area, Nizwa
Tel : 00968 94360011
Email : info.nizwa@wimpeylab.om
Web : www.wimpeylab.om

8.2 Calibration Division

a. Wimpey Laboratories, Calibration Division

Post Box: 1017, Postal Code 133
Ghala Industrial Area, Sultanate of Oman

Tel : 00968 24030001 / 24030004
Fax : 00968 24533269
Email : calibration@wimpeylab.om
Web : www.wimpeylab.om

8.3 United Arab Emirates

a. Wimpey Laboratories (Dubai)
Post Box: 123279
Dubai, United Arab Emirates
Tel : 00971 43204717
Fax : 00971 43204718
Email : info@wimpeylab.com
Web : www.wimpeylab.com

b. Wimpey Laboratories (Abu Dhabi)
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Abu Dhabi, United Arab Emirates
Tel : 00971 25503324
Fax : 00971 25503387
Email : info@wimpeylab.com

Appendix - 1

Registration And Accreditation Details – Wimpey Oman

CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES

RUSAYL INDISTRIAL ESTATE, ROAD NO. 22
POST BOX: 1017, POSTAL CODE: 133 MUSCAT
SULTANATE OF OMAN

Testing Laboratory TL-491

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories,* and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to January 1, 2023.

This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.

Raj Nathan
President

18-15965

SCOPE OF ACCREDITATION

IAS Accreditation Number	TL-491
Company Name	Wimpey Laboratories - LLC
Address	Rusayl Industrial Estate, Road No. 22 Post Box: 1017, Postal Code: 133 Muscat Sultanate of Oman
Contact Name	Dr. V.B. Mohan Kumar, Director
Telephone	+968 24533137
Effective Date of Scope	June 17, 2019
Accreditation Standard	ISO/IEC 17025:2017

Chemical

AASHTO T267	Standard method of test for determination of organic content in soils by loss of ignition
ASTM C40/C40M	Standard test method for organic impurities in fine aggregates for concrete
ASTM C114	Standard test method for chemical analysis of hydraulic cement
BS 812-117	Testing aggregates- method for determination of water soluble chloride salts
BS 812-118	Testing aggregates-methods for determination of sulphate content
BS 1377-3	Methods of test for soils for civil engineering purposes - Chemical and electro-chemical tests (clauses 3, 5, 6, 7.2, 7.3, 8 and 9) Clause 3 Determination of organic matter Clause 5.2 Acid soluble sulphate Clause 5.3 Water soluble sulphate Clause 6 Determination of carbonate content Clause 7.2 Water soluble chloride Clause 7.3 Acid soluble chloride Clause 8 Total dissolved solids Clause 9 Determination of pH value
BS 1881-124	Testing concrete - methods for analysis of hardened concrete Clause 10.2 Determination of chloride content Clause 10.3 Determination of sulphate content
BS EN 196-2	Chemical Analysis of cement Clause 7 Determination loss on ignition Clause 8 Determination sulphate content

	Clause 9 Determination of residue insoluble Clause 13.10 Determination iron (III) oxide Clause 13.11 Determination of aluminium oxide Clause 13.14 Determination of calcium oxide Clause 13.15 Determination of magnesium oxide Clause 13.5 Determination of silica Clause 13.6 Determination of pure silica Clause 14 Determination of chloride Clause 17.4 Determination of alkali content
BS EN 1744-1	Tests for chemical properties of aggregates - chemical analysis Clause 7 Determination of water soluble chloride Clause 10 Determination of water soluble sulphate Clause 12 Determination of acid soluble sulphate
HACH 8029	Fluoride (SPADNS method)
HACH 8039	Nitrate (cadmium reduction method)
US Agriculture Hand Book 60	Determination of gypsum content in soil
USEPA 3050 B	Acid digestion of sediments, sludge, and soils
USEPA 6010 C ICP	Analysis by ICP OES for metals: aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be),boron (B), cadmium (Cd), calcium (Ca), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), magnesium (Mg), manganese (Mn), molybdenum (Mo), nickel (Ni), potassium (K), phosphorous (P) selenium (Se), silver (Ag), sodium (Na), strontium (Sr), tin (Sn), vanadium (V), zinc (Zn), titanium (Ti), thalium (Tl), silica (SiO2)

Water and Waste Water Analytical Chemistry

APHA 3120 B/ICP	Water – metals by inductively coupled plasma (ICP OES) aluminium (Al), antimony (Sb), arsenic (As), barium (Ba), beryllium (Be), boron (B), cadmium (Cd), calcium (Ca), chromium (Cr), cobalt (Co), copper (Cu), iron (Fe), lead (Pb), lithium (Li), magnesium (Mg), manganese (Mn), molybdenum (Mo), nickel (Ni), potassium (K), selenium (Se), silica (SiO_2), silver (Ag), sodium (Na), strontium (Sr), tin (Sn), vanadium (V), zinc (Zn), titanium (Ti), thalium (Tl)
SMEWW (APHA) 2320	Alkalinity (method B)
SMEWW (APHA) 2340	Hardness (method C)
SMEWW (APHA) 2510	Conductivity
SMEWW (APHA) 2540	Solids (methods C and D)
SMEWW (APHA) 3500-Ca	Calcium (method B)

SMEWW (APHA) 3500-Mg	Magnesium (method B)
SMEWW (APHA) 4500-Cl	Chlorine (method B)
SMEWW (APHA) 4500- Cl^- B	Chloride
SMEWW (APHA) 4500-F^-	Fluoride
SMEWW (APHA) 4500-H^+	pH value
SMEWW (APHA) 4500 NH3	Nitrogen (ammonia)
SMEWW (APHA) 4500-O C	Oxygen (dissolved) (method C)
SMEWW (APHA) 4500 SO_4^{2-}	Sulphate
SMEWW (APHA) 5210	Biochemical oxygen demand (BOD) (method B)
SMEWW (APHA) 5220	Chemical oxygen demand (COD)

Microbiology

APHA 10200F	Enumeration of Phytoplanktons (Algae)
Bacteriological Analytical Manual (BAM):	
	Chapter 3, Aerobic plate count
	Chapter 5, Detection and enumeration of salmonella
	Chapter 9, Detection and enumeration of vibrio cholera and vibrio parahemolyticus
	Chapter 12, Detection and enumeration staphylococcus aureus
	Chapter 14, Detection and enumeration bacillus cereus
	Chapter 16, Enumeration of clostridium perfringens
CCFRA 1.1.1	Standard plate count (total viable count)
CCFRA 2.1.1	Enumeration of yeasts and moulds
CCFRA 2.2.1	Enumeration of coliforms: colony count technique
CCFRA 2.2.4	Enumeration of presumptive coliforms: membrane filtration technique
CCFRA 2.3.1	Enumeration of enterobacteriaceae: colony count technique
CCFRA 2.4.2	Enumeration of presumptive escherichia coli (E. coli): alternative colony count technique using chromogenic medium without membranes

CCFRA 2.5.2	Enumeration of pseudomonas aeruginosa: colony count technique
CCFRA 3.1.2	Detection and enumeration of salmonella: cultural method
CCFRA 3.2.3	Detection of listeria monocytogenes and other listeria species: cultural method using two enrichment stages.
CCFRA 3.2.4	Detection of listeria monocytogenes and other listeria species: cultural method using two enrichment stages one 48 hour enrichment stage
CCFRA 3.5.1	Enumeration of staphylococcus aureus: (coagulase positive staphylococci): colony count technique using baird-parker agar medium
CCFRA 3.6.1	Enumeration of clostridium perfringens: colony count technique
CCFRA 3.7.1	Enumeration of presumptive bacillus cereus: colony count technique
CCFRA 3.8.1	Detection of vibrio cholerae and Vibrio parahaemolyticus
CCFRA 3.9.1:2003	Detection and enumeration of Legionella spp in water: culture technique
MICRO-002-OMN	Microbiological air monitoring
MICRO-003-OMN	Swab analysis
SMEWW (APHA) 9213	Recreational waters (method B)-swimming pools 1) Heterotrophic plate count 2) Test for total coliforms 3) Test for fecal coliforms 4) Test for staphylococci or staphylococcus aureus 5) Test for pseudomonas aeruginosa 6) Test for streptococci or enterococci
SMEWW (APHA) 9215	Heterotrophic plate count (methods B & C) 1) Pour plate method 2) Spread plate method
SMEWW (APHA) 9221	Multiple-tube fermentation technique for members of the coliform group (method F)-escherichia coli procedure
SMEWW (APHA) 9222	Membrane filter technique for member of the coliform group (methods B, D and G) Method B-standard total coliform membrane filter procedure Method D-fecal coliform membrane filter procedure method G-MF partition procedure (E. coli)

SOP Micro-019 OMN	Detection and enumeration of fecal streptococci
CMT	
AASHTO T180	Moisture Density Relationship of Soil using 4.54 kg rammer
AASHTO T277	Electrical indication of concrete's ability to resist chloride ion penetration
ASTM C131/C131M	Standard test method for resistance to degradation of small-size coarse aggregate by abrasion and impact in the Los Angeles machine
ASTM C136/C136M	Standard test method for sieve analysis of fine and coarse aggregates
ASTM C142/C142M	Standard test method for clay lumps and friable particles in aggregates
ASTM C1202	Standard test method for electrical indication of concrete's ability to resist chloride ion penetration
ASTM D5	Test Method for Penetration of Bituminous Materials
ASTM D36/D36M	Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
ASTM D1556	Standard test method for density and in place by the sand-cone method
ASTM D1557	Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (MDD/OMC)
ASTM D1559	Test method for resistance of plastic flow of bituminous mixtures using Marshall apparatus
ASTM D1883	Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils
ASTM D2172/D2172M	Standard test methods forquantitative extraction of bitumen from bituminous paving mixtures (method A)
ASTM D2419	Standard test method for sand equivalent value of soils and fine aggregate
BS 812-2	Testing aggregates - methods for determination of density (clause 5.4)
BS 812-103.1	Testing aggregates - method for determination of particle size distribution sieve tests
BS 812-105.1	Testing aggregates - methods for determination of particle shape- flakiness index

BS 812-105.2	Testing aggregates - methods for determination of particle shape- elongation index of coarse aggregate
BS 812-110	Testing aggregates - methods for determination of aggregate crushing value (ACV)
BS 812-111	Testing aggregates - method for determination of ten percent fines value (TFV)
BS 812-112	Testing aggregates-method for determination of aggregate impact value (AIV)
BS 1377-2	Methods of test for soils for civil engineering purposes-classification tests (clauses 4, 5 and 6)
BS 1377-2 Cl. 8.2	Classification tests - Determination of particle density
BS 1377-2 Cl. 9.2 & 9.3	Classification tests - Wet & Dry Sieving Methods
BS 1377-2 Cl. 9.5	Classification tests - Sedimentation by the hydrometer method
BS 1377-4	Methods of test for soils for civil engineering purposes-compaction-related tests (Clauses 3.5, 3.6 and 7)
BS 1377-9	Methods for test for soils for civil engineering purposes - in-situ tests (clause 2.1, 2.2 and in-situ tests)
BS 1881-114	Testing concrete - methods for determination of density of hardened concrete
BS 1881-116	Testing concrete - method for determination of compressive strength of concrete cubes
BS 1881-122	Testing concrete – method for determination of water absorption
BS1881-208	Testing concrete – recommendations for the determination of the initial surface absorption of concrete
BS EN 196-1 Cl. 9.2	Compressive strength of cement
BS EN 196-3	Methods of testing cement – determination of setting times and soundness
BS EN 196-3 Cl. 5	Standard Consistence test of cement
BS EN 196-6	Fineness modulus of cement
BS EN 933-1	Determination of particle size distribution of aggregate - Sieving method
BS EN 12390-3	Testing hardened concrete - compressive strength of test specimens
BS EN 12390-7	Testing hardened concrete - density of hardened concrete

CIRIA SP 83	Density and water absorption
DIN 1048 Part 5/ BS/EN 12390-8	
	Testing hardened concrete - depth of penetration of water under pressure
ISO 17892-1	Determination of water content
ISRM	Suggested method for determining point load strength
NT Build 492	Chloride migration coefficient from non-steady-state migration experiments
Thermal	
ASTM C518	Standard test method for steady-state thermal transmission properties by means of the heat flow meter apparatus
ASTM D2584	Test Method for Ignition Loss of Cured Reinforced Resins
Environmental	
BS 667	Light monitoring [direct instrument method-lux meter]: Lux level/ Illumination
ISO 9613-2	Noise monitoring [direct instrument method] Sound level dB(A) / dB(C)
ISO 21501-4	Indoor air quality [direct instrument method]: Particulate Matter (Mass mode) [PM 1, PM 2.5, PM 4, PM 7 & PM 10, TSPM] Particulate Matter (Count Mode) 0.05µm, 1.0µm, 5.0µm & 10µm
SOP WL –IP-EE-01	[Direct Instrument Method] Determination of hydrocarbons (CxHy) and hydrogen sulphide (H_2S)
TESTO 350	Flue gas monitoring
USEPA 1	Determination of ambient temperature and flue gas temperature
USEPA 3A	Determination of oxygen (O2), carbon dioxide (CO2)
USEPA 6C	Determination of sulphur dioxide (SO2)
USEPA 7E	Determination of nitrogen oxides (NO_x)
USEPA 10	Determination of carbon monoxide (CO)
Other	
ASTM D570	Test Method for Water Absorption of Plastics

ASTM D2563	Standard Practice for Classifying Visual Defects in Glass-Reinforced Plastic Laminate Parts

CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES LLC

GHALA INDUSTRIAL AREA, WAY NO. 6428
GHALA 133, SULTANATE OF OMAN

Testing Laboratory TL-962

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date October 23, 2020

IAS ACCREDITED

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

WIMPEY LABORATORIES LLC

www. wimpeylab.com

Contact Name Dr. Mohan Kumar **Contact Phone** +968-95530438

Accredited to ISO/IEC 17025:2017 *Effective Date October 23, 2020*

AASHTO T180	Moisture Density Relationship of Soil using 4.54 kg rammer
AASHTO T277	Electrical indication of concrete's ability to resist chloride on penetration
ASTM C131/C131M	Standard test method for resistance to degradation of small-size coarse aggregate by abrasion and impact in the Los Angeles machine
ASTM C136/C136M	Standard test method for sieve analysis of fine and coarse aggregates
ASTM C142/C142M	Standard test method for clay lumps and friable particles in aggregates
ASTM C1202	Standard test method for electrical indication of concrete's ability to resist chloride ion penetration
ASTM D1556	Standard test method for density and in place by the sand-cone method
ASTM D1557	Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (MDD/OMC)
ASTM D1559	Test method for resistance of plastic flow of bituminous mixtures using Marshall apparatus
ASTM D1883	Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils
ASTM D2172/D2172M	Standard test methods for quantitative extraction of bitumen from bituminous paving mixtures (method A)
ASTM D2419	Standard test method for sand equivalent value of soils and fine aggregate
BS 812-2	Testing aggregates - methods for determination of density (clause 5.4)
BS 812-103.1	Testing aggregates - method for determination of particle size distribution sieve tests
BS 812-105.1	Testing aggregates - methods for determination of particle shape - flakiness index
BS 812-105.2	Testing aggregates - methods for determination of particle shape - elongation index of coarse aggregate
BS 812-110	Testing aggregates - methods for determination of aggregate crushing value (ACV)
BS 812-111	Testing aggregates - method for determination of ten percent fines value (TFV)

BS 812-112	Testing aggregates-method for determination of aggregate impact value (AIV)
BS 1377-2	Methods of test for soils for civil engineering purposes - classification tests (clauses 4, 5 and 6)
BS 1377-2 Cl. 8.2	Classification tests - Determination of particle density
BS 1377-2 Cl. 9.2 & 9.3	Classification tests - Wet & Dry Sieving Methods
BS 1377-2 Cl. 9.5	Classification tests - Sedimentation by the hydrometer method
BS 1377-4	Methods of test for soils for civil engineering purposes - compaction-related tests (Clauses 3.5, 3.6 and 7)
BS 1377-9	Methods for test for soils for civil engineering purposes - in-situ tests (clause 2.1, 2.2 and in-situ tests)
BS 1881-114	Testing concrete - methods for determination of density of hardened concrete
BS 1881-116	Testing concrete - method for determination of compressive strength of concrete cubes
BS 1881-122	Testing concrete – method for determination of water absorption
BS1881-208	Testing concrete – recommendations for the determination of the initial surface absorption of concrete
BS EN 196-1 Cl. 9.2	Compressive strength of cement
BS EN 196-3	Methods of testing cement – determination of setting times and soundness
BS EN 196-3 Cl. 5	Standard Consistence test of cement
BS EN 196-6	Fineness modulus of cement
BS EN 933-1	Determination of particle size distribution of aggregate - Sieving method
BS EN 12390-3	Testing hardened concrete - compressive strength of test specimens
BS EN 12390-7	Testing hardened concrete - density of hardened concrete
BS/EN 12390-8	Testing hardened concrete - depth of penetration of water under pressure
CIRIA SP 83	Density and water absorption
DIN 1048 Part 5	Testing hardened concrete - depth of penetration of water under pressure
ISO 17892-1	Determination of water content
ISRM	Suggested method for determining point load strength
NT Build 492	Chloride Migration coefficient from non-steady state migration experience

CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES LLC – SALALAH BRANCH

OPPOSITE SSDC OFFICE, INDUSTRIAL AREA
AL HERAFEYEEN STREET, PB123279
SALALAH, SULTANATE OF OMAN

Testing Laboratory TL-492

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories,* and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to January 1, 2023.

This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.

Raj Nathan
President

18-15965

SCOPE OF ACCREDITATION

IAS Accreditation Number	TL-492
Company Name	Wimpey Laboratories LLC – Salalah Branch
Address	Opposite SSDC Office, Industrial Area Al Herafeyeen Street, PB123279 Salalah, Sultanate of Oman
Contact Name	Dr. V.B. Mohan Kumar, Director
Telephone	+968 24533137
Effective Date of Scope	June 17, 2019
Accreditation Standard	ISO/IEC 17025:2017

CMT

AASHTO T180	Moisture Density Relationship of Soil using 4.54 kg rammer
ASTM C131/C131M	Standard test method for resistance to degradation of small-size coarse aggregate by abrasion and impact in the Los Angeles machine
ASTM C142/C142M	Standard test method for clay lumps and friable particles in aggregates
ASTM D5	Test Method for Penetration of Bituminous Materials
ASTM D36/D36M	Test Method for Softening Point of Bitumen (Ring-and-Ball Apparatus)
ASTM D1556/D1556M	Standard test method for density and unit weight of soil in place by sand-cone method
ASTM D1557	Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (MDD/OMC)
ASTM D1883	Test Method for California Bearing Ratio (CBR) of Laboratory-Compacted Soils
BS 812-2	Testing aggregates- methods for determination of density (clause 5.4)
BS 812-103.1	Testing aggregates- method for determination of particle size distribution- sieve tests
BS 812-105.1	Testing aggregates- methods for determination of particle shape- flakiness index

BS 812-105.2	Testing aggregates- methods for determination of particle shape- elongation index of coarse aggregate
BS 812-111	Testing aggregates-methods for determination of ten per cent fines value (TFV)
BS 812-112	Testing aggregates- methods for determination of aggregate impact value (AIV)
BS 1377-2	Methods of test for soils for civil engineering purposes-classification tests (clauses 4, 5 and 6)
BS 1377-2 Cl. 8.2	Classification tests - Determination of particle density
BS 1377-2 Cl. 9.2 & 9.3	Classification tests - Wet & Dry Sieving Methods
BS 1377-4	Methods of test for soils for civil engineering purposes-compaction-related tests (clauses 3.5, 3.6 and 7)
BS 1377-5	Methods of test for soils for civil engineering purposes-compressibility, permeability and durability tests (clause 3)
BS 1377-9	Methods for test for soils for civil engineering purposes- in-situ tests (clauses 2.1 and 2.2)
BS 1881-114	Testing concrete- methods for determination of density of hardened concrete
BS 1881-116	Testing concrete - method for determination of compressive strength of concrete cubes
BS EN 933-1	Determination of particle size distribution of aggregate - Sieving method
BS EN 12390-3	Testing hardened concrete- compressive strength of test specimens
BS EN 12390-7	Testing hardened concrete- density of hardened concrete

CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES LLC

DUQM, 133
SULTANATE OF OMAN

Testing Laboratory TL-795

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories,* and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to AUGUST 1, 2022.

This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.

Raj Nathan
President

18-15965

SCOPE OF ACCREDITATION

IAS Accreditation Number	TL-795
Company Name	Wimpey Laboratories LLC
Address	DUQM Special Economic Zone (SEZAD), Sultanate of Oman
Contact Name	Balu Sudhakaran, Technical Manager
Telephone	+968 9553043
Effective Date of Scope	February 5, 2020
Accreditation Standard	ISO/IEC 17025:2017

Concrete

AASHTO T277	Electrical indication of concrete's ability to resist chloride ion penetration
BS 1881:122	Testing concrete – method for determination of water absorption
BS 1881:208	Testing concrete – recommendations for the determination of the initial surface absorption of concrete
BSEN: 12390:3	Testing hardened concrete - Compressive strength of test specimen
BSEN: 12390:7	Testing hardened concrete - Density of hardened concrete
DIN 1048 Part 5 / BSEN 12390-8	Testing hardened concrete - depth of penetration of water under pressure

Soil

ASTM D422	Standard test method for particle size analysis of soil
ASTM D 1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D 1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D1883	Standard test method for California Bearing Ratio of laboratory compacted soils
ASTM D2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D2419	Standard test method for sand equivalent value of soils and fine aggregate

ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
BS 1377 Part 2	Soils for civil engineering purposes - Classification tests: Determination of liquid limit, plastic limit & plasticity index and determination of particle density Cl. 4, 5 & 8
BS 1377 Part 2	Soils for civil engineering purposes - Classification tests: Determination of particle size distribution (Wet & Dry) Cl. 9.2 & 9.3
BS 1377 Part 4	Methods of test for soils for civil engineering purposes-compaction-related tests: (4.5 kg rammer for soils with particles upto medium-gravel size & coarse gravel-size particles and Determination of the California Bearing Ratio) Cl. 3.5, 3.6 & 7
BS 1377 Part 9	Sand Replacement method suitable for fine and medium grained soils - Determination of in-situ density Cl. 2.1 & 2.2

Aggregate

ASTM C127	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
ASTM C128	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
ASTM C131/C131M	Standard test method for resistance to degradation of small-size coarse aggregate by abrasion and impact in the Los Angeles machine
ASTM C136/C136M	Standard test method for sieve analysis of fine and coarse aggregates
BS 812-105.1 (withdrawn)	Testing aggregates - methods for determination of particle shape- Flakiness index
BS 812-105.2 (withdrawn)	Testing aggregates - methods for determination of particle shape- elongation index of coarse aggregate
BS 812-110	Testing aggregates - methods for determination of aggregate crushing value (ACV)
BS 812-111	Testing aggregates - method for determination of ten percent fines value (TFV)
BS 812-112	Testing aggregates-method for determination of aggregate impact value (AIV) (Wet & Dry) Cl. 7.1 & 7.2
BS 812-2	Testing of Aggregates - Methods of determination of density & Water absorption

BS EN 933-1	Test for gemotrical porpoerties of aggregates - Part 1: Determination of particle size distribution - sieving method

Asphalt

AASHTO T245	Resistance to Plastic Flow of Bituminous Mixture using Marshall Apparatus
ASTM D2041	Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures
ASTM D2172	Standard Test Methods for Quantitative Extraction of Bitumen From Bituminous Paving Mixtures

CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES LLC

SOHAR INDUSTRIAL ESTATE PHASE 1, ROAD NO: 2
SOHAR 133, SULTANATE OF OMAN

Testing Laboratory TL-887

has met the requirements of AC89, *IAS Accreditation Criteria for Testing Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date April 1, 2021
Expiry Date March 1, 2024

President

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

WIMPEY LABORATORIES LLC

www.wimpeylab.com

Contact Name Mohan Kumar **Contact Phone** +968-95530438

Accredited to ISO/IEC 17025:2017 *Effective Date April 1, 2021*

Concrete	
BS 1881:122	Testing concrete – method for determination of water absorption
BS EN 12390:3	Testing hardened concrete - Compressive strength of test specimen
BS EN 12390:7	Testing hardened concrete - Density of hardened concrete
Soil	
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D1883	Standard test method for California Bearing Ratio of laboratory compacted soils
ASTM D2216	Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
BS 1377 Part 2 Cl. 4, 5 & 8	Soils for civil engineering purposes - Classification tests: Determination of liquid limit, plastic limit & plasticity index and determination of particle density
BS 1377 Part 2 Cl. 9.2 & 9.3	Soils for civil engineering purposes - Classification tests: Determination of particle size distribution (Wet & Dry)
BS 1377 Part 4 Cl. 3.5, 3.6 & 7	Methods of test for soils for civil engineering purposes- compaction-related tests: (4.5 kg rammer for soils with particles up to medium-gravel size & coarse gravel-size particles and Determination of the California Bearing Ratio)
BS 1377 Part 9 Cl. 2.1 & 2.2	Sand Replacement method suitable for fine and medium grained soils - Determination of in-situ density
Aggregate	
ASTM C131/C131M	Standard test method for resistance to degradation of small-size coarse aggregate by abrasion and impact in the Los Angeles machine
ASTM C136/C136M	Standard test method for sieve analysis of fine and coarse aggregates

BS 812-105.1	Tests for geometrical properties of aggregates - Determination of particle shape — Flakiness index
BS 812-105.2	Testing aggregates - methods for determination of particle shape- elongation index of coarse aggregate
BS 812-110	Testing aggregates - methods for determination of aggregate crushing value (ACV)
BS 812-111	Testing aggregates - method for determination of ten percent fines value (TFV)
BS 812-112 Cl. 7.1 & 7.2	Testing aggregates-method for determination of aggregate impact value (AIV) (Wet & Dry)
BS EN 933-1	Tests for geometrical properties of aggregates Determination of particle size distribution — Sieving method

P.O. Box 81, Postal Code: 100, Muscat – Sultanate of Oman ص.ب ٨١، الرمز البريدي: ١٠٠، مسقط – سلطنة عمان
تلكس: ٥٢١٢ بترو أو إن، فاكسميلي: ٢٤٦٧٥٠٩٣، ٢٤٦٧٧١٠٦ (٠٠٩٦٨)، هاتف: ٢٤٦٧٨١١١ (٠٠٩٦٨)، برقيا: بترو مسقط
Telex: 5212, Petro ON, Facsimile: (00968) 24677106, 24675093, Tel: (00968) 24678111, Cable: Petro Muscat

شركة تنمية نفط عمان
Petroleum Development Oman

Our ref: PDO/UEB/2013/001

Date: 24th September 201:

Attention:

M/S Wimpey Laboratories (Applicant)

P.O. Box 1017, Al-Khwair.PC: 133

Sultanate of Oman

Further to our assessment audit carried out on 18th September 2011 and subsequent Review of aud closeout documents, the audit team has recommended to civil CFDH to include your organization as PDO approved service provider for the services listed below. This approval is subjected to continue satisfactory performance of your field and laboratory tests meeting ISO: 9001:2008 and ISO 17025:200 requirements.

This approval in further subject to continued availability of an experienced Geotechnical/Structur Engineers and required resources stipulated in Permit to work (PTW) system of the company.

Services:

1- **Soil and Concrete Testing.**
2- **Water and Asphalts Testing.**

For Petroleum Development Oman LLC

Hilal Al-Aghbari-UEP/1C

Civil CFDH
Tel. 24672008
CC: FPS12

JSRS
joint supplier registration system

CERTIFICATE OF APPROVAL

Awarded to

WIMPEY LABORATORIES

As an Approved Supplier to the Oman Oil & Gas Industry's Joint Supplier Registration System (JSRS)

Country of Origin :	**Oman**	JSRS Supplier Code :	**OM102692**
Registration Date :	**17-02-2015**	Valid till :	**14-02-2023**
Special Status :	**NIL**	National SME Classification :	**Non-SME**

businessgateways INTERNATIONAL

MINISTRY OF OIL & GAS

This Certificate is issued for supplying Products & Services to Oil & Gas and other related Industries in Oman and is not valid to acquire permits from other Governmental or Non-Governmental agencies.

Certificate No. : JSRSOM177213434002 / Issued On : 30-06-2020

بسم الله الرحمن الرحيم

سلطنة عمان
بلدية مسقط
المديرية العامة للشؤون الفنية

Sultanate of Oman
Muscat Municipality
Directorate General of
Technical Affairs

الرقم : ب م/ش ف/٨/٣٠/١٤٥٣
التاريخ :١٩/ربيع الثاني/١٤٣٣هـ
الموافق :١٣/مارس/٢٠١٢م

الفاضل/ أحمد بن محمد البطحري
الرئيس التنفيذي لمختبرات ويمبي

المحترم

تحية طيبة وبعد ،،،

الموضوع : طلب تسجيل مختبر

بالإشارة إلى خطابكم بتاريخ ٠٥ سبتمبر ٢٠١١م حول الموضوع أعلاه، نود الإفادة بأنه تمت أعمال التدقيق الفني على المختبر من قبل المختصين بالبلدية بتاريخ ٢٠١٢/٠١/٠٢ م، وقد خص التدقيق بأنه لا مانع لدى البلدية من قيامكم بأعمال الفحص للخرسانة ومكوناتها والتربة والأسفلت لمشاريع البلدية، على أننا نوكد أن هذا التصديق خاضع لمدى التزامكم بتطبيق المواصفات العالمية المختصة بالجودة والاختبار كما أن للبلدية الحق في حضور أي اختبار يتم اجراءه لمشاريع البلدية، ويعتبر هذا التصديق لاغياً في حالة أخلالكم بأي من هذه المتطلبات.

للتكرم بالعلم والإحاطة.

وتفضلوا بقبول فائق الاحترام ،،

المهندس / الطيب بن محمد الحارثي
مدير دائرة الدراسات الفنية بالوكالة

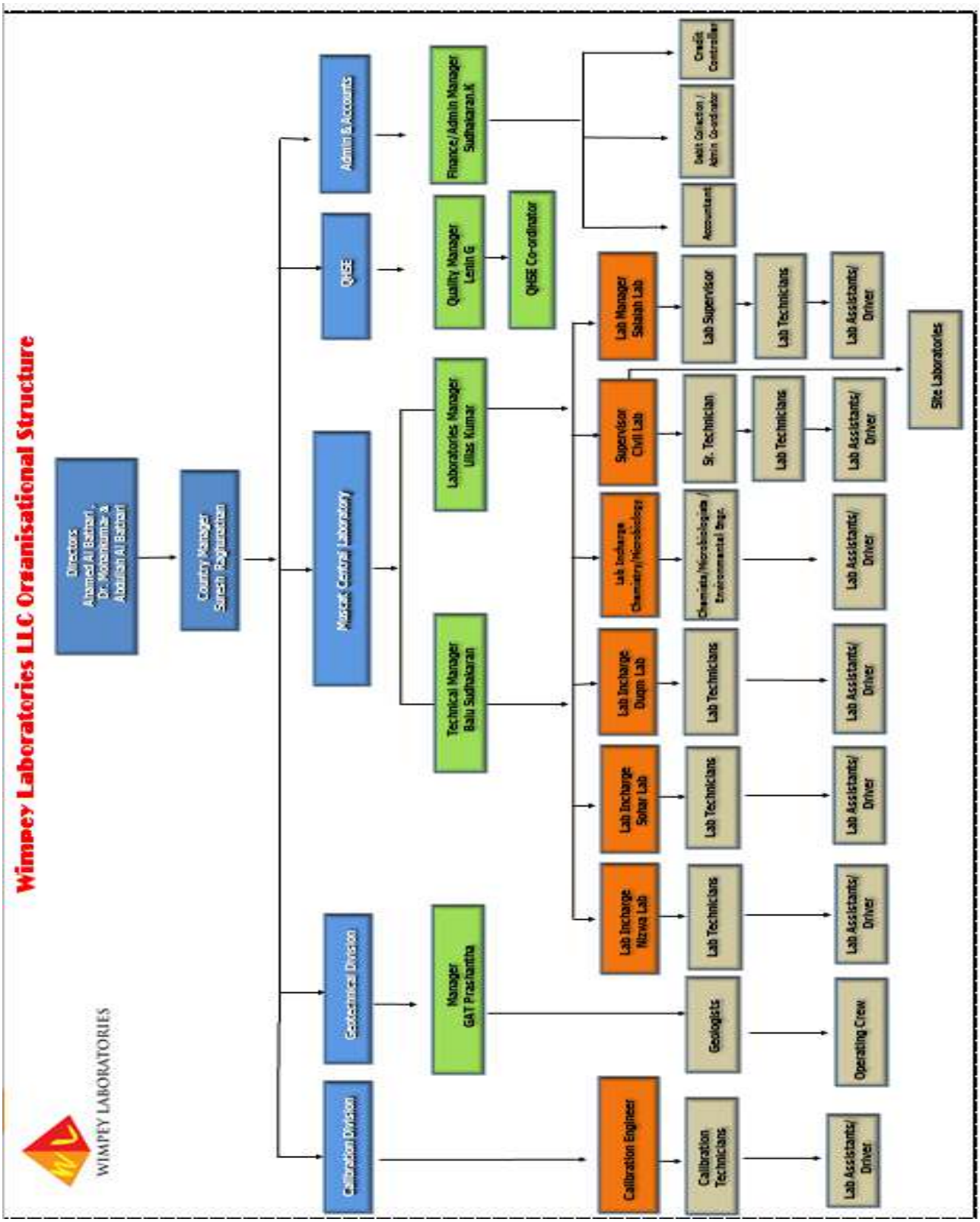
نسخة إلى:
- الفاضل/ المدير العام برئاسة البلدية المشرف على الطرق — المحترم
- الفاضل/ مساعد مدير عام الطرق بالوكالة — المحترم
- الفاضل/ الخبير الفني بمكتب المدير العام — المحترم
- الفاضل/ مدير دائرة مشاريع الطرق بالوكالة — المحترم
- الفاضل/ مدير دائرة صيانة الطرق بالوكالة — المحترم

P.O. Box: 3667, Ruwi, Postal Code: 112, Tel.: 24753000, Fax: 24753038 ص.ب : ٣٦٦٧، روي، الرمز البريدي: ١١٢، هاتف: ٢٤٧٥٣٠٠٠، فاكس: ٢٤٧٥٣٠٣٨
www.mm.gov.om

Appendix - 2

Organization Chart & List of Key Persons

Organizational Structure



WIMPEY LABORATORIES OMAN : Post Box No. 1017 : Postal Code 133: Tel. 968 24533137 : Fax. 968 24533269

Key Persons

Position	Name / Nationality	Details
Director	**Dr.V.B. Mohan Kumar Indian**	37 Years Experience in the Material Testing MSc. Chemistry Phd. In Analytical Chemistry
Country Manager-Oman	**Suresh Raghunathan Indian**	Over 30 Years Experience in Design, Construction materials testing and an experienced UKAS accredited laboratory Manager Diploma in Civil Engineering Diploma in Concrete Technology Member : 1.The association of Engineers - India 2.American Concrete Institute-India Chapter
QHSE Manager	**Ajeesh J Lal Indian**	10 Years Experience Bachelor Degree ISO 17025:2017 Lead auditor NEBOSH IGC Diploma in fire & safety engineering OSHA – Construction safety & Health ISO 17025:2017 internal auditor
Laboratory Division		
Technical Manager	**Balu.K.S Indian**	20 Years Experience in Construction Material Testing and Quality control. BSc. Chemistry Bachelor Degree in Education Diploma in Pharmacy
Laboratories Manager	**Ullas Kumar.N Indian**	25 Years experience in Chemical Analysis, materials testing and Quality control BSc. Chemistry DPACS (Computer Diploma)
Lab –in Charge Chemistry/Microbiology	**Asha Rayner Indian**	20 Years experience in the Microbiological and chemical testing field. BSc. Microbiology
Lab Supervisor - Civil	**Chandran Ramadasan Indian**	35 Years Experience in Construction Material Testing Diploma in Civil Engineering

WIMPEY LABORATORIES OMAN : Post Box No. 1017 : Postal Code 133: Tel. 968 24533137 : Fax. 968 24533269

Position	Name / Nationality	Details
Sr. Lab Technician-Civil	**Sujin Subash Chandrabose Indian**	13 Years Experience in Construction Material Testing Diploma in Civil Engineering
Senior Chemist	**Muhammed Rayees Indian**	10 Years Experience BSc. Chemistry, Bachelor Degree in Education
Microbiologist	**Rakesh Ravi Indian**	5 Years Experience MSc. Microbiology
SALALAH LAB		
Lab Manager	**Asha Narayanan Indian**	20Years Experience in Construction material and Geotechnical testing MSc. Geology
Lab Supervisor	**Abhilash Indian**	20 Years Experience in Construction Material Testing Diploma in Civil Engineering
SOHAR LAB		
Lab Incharge	**Remmy Rajendran Indian**	10 Years Experience in Construction Material Testing Diploma in Civil Engineering
Sr. Lab Technician	**Akhil S Indian**	6 Years Experience in Construction Material Testing Diploma in Civil Engineering
DUQM LAB		
Lab Incharge – Duqm	**Kevin Chandrabose Indian**	10 Years Experience in Construction Material Testing Diploma in Civil Engineering
Sr. Lab Technician	**Jinu Raghavan Indian**	6 Years Experience in Construction Material Testing Diploma in Civil Engineering
NIZWA LAB		
Lab Incharge – Nizwa	**Vishnu Das Indian**	8 Years Experience in Construction Material Testing Diploma in Civil Engineering
Sr. Lab Technician	**Midhun K Indian**	6 Years Experience in Construction Material Testing Diploma in Civil Engineering

WIMPEY LABORATORIES OMAN : Post Box No. 1017 : Postal Code 133: Tel. 968 24533137 : Fax. 968 24533269

Geotechnical Division		
Position	**Name / Nationality**	Details
Manager	**G.A.T. Prashantha Sri Lankan**	M.Sc. Engineering Geology/ Hydro Geology B.Sc Geology (Special) 18 Years Experience as Geotechnical Engineer/ Geologist
Geologist/Supervisor	**Sanjeewa Jayasekara Sri Lankan**	B.Sc. Geology 10 Year experience as Geologist/ Geotechnical Engineer
Geologist	**Nuwan Deshapriya Sri Lankan**	6 Years Experience M.Sc Geology
Geologist	**Diluka Madushankar Sri Lankan**	5 Years Experience M.Sc Geology
Calibration Division		
Lab Incharge	**Liju Gopinathan**	13 Years Experience in calibration MSc Applied Electronics
Calibration Technician	**Arun Ashok**	5 Years experience in calibration BE Mechanical Engineering
Calibration Technician	**Akash Ravi**	5 Years experience in calibration BE Electronic & Communication

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Appendix - 3

List of Major Material Testing Projects of Wimpey Laboratories.

Schedule of Tests

AGGREGATES	
Test Name	**Test Method**
Clay Lumps & Friable Particles	AASHTO T112 : 91
Clay Lumps & Friable Particles	ASTM C142 : 97
Clay, Silt and Dust – by decantation	ASTM C142 : 04
Sieve Analysis - Wet	BS 812 Sec. 103.1 : 1985 Cl 7.2, Amd 6003 : 1989
Sieve Analysis - Dry	BS 812 Sec. 103.1 : 1985 Cl 7.3, Amd 6003 : 1989
Sieve Analysis	AASHTO T27 - 93
Sieve Analysis	ASTM C136 : 96a
Sieve Analysis	ASTM D422 : 63 (R1998)
Sieve Analysis	ASTM C136 : 04
Fineness Modulus of Fine Aggregates	AASHTO M6 - 93
Fineness Modulus of Sand	ASTM C136 : 96a
Materials Finer than 75 micron sieve – decantation method	BS 812 Sec. 103.1 : 1985 Cl 7.2, Amd 6003 : 1989
Materials Finer than 75 micron sieve – decantation method	ASTM C117 : 95
Materials Finer than 75 micron sieve – decantation method	ASTM D422 : 63 (R1998)
Light Weight Pieces in Aggregates	AASHTO T113 : 96
Light Weight Pieces in Aggregates	ASTM C123 : 93
Sand Equivalent Value	ASTM D2419 : 95
Bulk Density	BS 812 Part 2 : 1995, Amd 9195 : 1996
Unit Weight & Voids in Aggregates	ASTM C29 / C29M : 91
Unit Weight & Voids in Aggregates	AASHTO T19 / T19M – 93
Flakiness Index	BS 812 Sec. 105.1 : 1989
Elongation Index	BS 812 Sec. 105.2 : 1989
Shell Content (Coarse Aggregate)	BS 812 Part 106 : 1985
Voided Shell Content	BS 812 Part 106 : 1985
Particle Density & Water Absorption	BS 812 Part 2 : 1995, Amd 9195 : 1996
Specific Gravity & Water Absorption of Coarse Aggregate	ASTM C127 : 88 (1993)
Specific Gravity & Water Absorption of Fine Aggregate	ASTM C128 : 1993
Specific Gravity & Water Absorption of Coarse Aggregate	AASHTO T85 – 91 (1996)
Specific Gravity & Water Absorption of Fine Aggregate	AASHTO T84 – 95
Specific Gravity & Water Absorption of Coarse Aggregate	ASTM C127 : 04

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Test Name	Test Method
Specific Gravity & Water Absorption of Fine Aggregate	ASTM C128 : 04
Aggregate of Crushing Value	BS 812 Part 110 : 1990
Aggregate Impact Value	BS 812 Part 112 : 1995, Amd 8772 : Aug 1995
Ten Percent Fines Value	BS 812 Part 111 : 1990
Los Angeles Abrasion Value	ASTM C131 : 03
Los Angeles Abrasion Value	ASTM C535 : 03
Soundness of Aggregates	ASTM C88 : 90
Soundness of Aggregates	BS 812 Part 121 : 1989
Soundness of Aggregates	BS 6349 Part 1 : 1984 App B
Soundness of Aggregates	ASTM C88 : 90a
Moisture Content	BS 812 Part 109 : 1990
Drying Shrinkage	BS 812 Part 120
Petrographic Examination	BS 812 Part 104
Crushed Face Analysis	BSEN 933 Part 5 : 1998
Moh's Hardness	ISRM Suggested Method/Rutleys Minerology
Moisture Content by Calcium Carbide gas pressure tester Method	ASTM D4944 : 98
Moisture Content	ASTM D2216 : 00
Point Load Index - ISRM	ISRM 1985
Unconfined Compressive Strength	ASTM D2938 : 95
Determination of Breakage Index – Drop Test	CIRIA Special Publication 83 – CUR Report 154
Potential Alkali Carbonate Reactivity	ASTM C586 : 92
Bulk Density - Saturated	ASTM C97
Density / Water Absorption	CIRIA / CUR Appendix 2, Section A2.7
Geological Classification	BS 5980 : 81
Rhilem Porosity	RILEM CPC 11.3
SOIL	
Test Name	**Test Method**
Resistivity Test	Wenner Probe Method
Liquid Limit	BS 1377 Part 2 : 1990 Cl 4.3, Amd 9027 : 1996
Plastic Limit & Plasticity Index	BS 1377 Part 2 : 1990 Cl 5 & 5.4.3, Amd 9027 : 1996
Liquid Limit	AASHTO T89 – 96
Plastic Limit & Plasticity index	AASHTO T90 – 96
Liquid Limit	ASTM D4318 : 95a

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Test Name	Test Method
Plastic Limit & Plasticity index	ASTM D4318 : 95a
Liquid Limit	ASTM D4318 : 00
Plastic Limit & Plasticity index	ASTM D4318 : 00
Linear Shrinkage	BS 1377 Part 2 : 1990, Amd 9027 : 1996
Specific Gravity	BS 1377 Part 2 : 1990, Amd 9027 : 1996
Sieve Analysis - Dry	BS 1377 Part 2 : 1990 Cl 9.3, Amd 9027 : 1996
Sieve Analysis - Wet	BS 1377 Part 2 : 1990 Cl 9.2, Amd 9027 : 1996
Sedimentation Analysis	BS 1377 Part 2 : 1990 Cl 9.5, Amd 9027 : 1996
Particle Size Analysis – Hydrometer Test	ASTM D422 : 63 (R1990)
Particle Size Analysis	AASHTO T88 : 93 (1996)
Particle Size Analysis – Hydrometer Test	ASTM D422 : 63 (R2002)
Sand Equivalent Value	AASHTO T176 – 86 (1996)
Density/ Moisture Relationship – Coarse Gravel Size Particles	BS 1377 Part 4 : 1990 Test 3.6, Amd 8259 : 1995
Density/ Moisture Relationship – Medium Gravel Size Particles	BS 1377 Part 4 : 1990 Test 3.5, Amd 8259 : 1995
Density/ Moisture Relationship	ASTM D1557 : 1991
Density/ Moisture Relationship – using 4.55kg rammer	AASHTO T180 – 95
Density/ Moisture Relationship – vibrating hammer method	BS 1377 Part 4 : 1990 Test 3.7, Amd 8259 : 1995
Density/ Moisture Relationship – using 2.5kg rammer	AASHTO T99 – 95
Density/ Moisture Relationship	ASTM D698 : 91 (1998)
Density/ Moisture Relationship	ASTM D1557 : 00
Moisture/ Density Relationship of Soil Cement Mixtures	AASHTO T134 – 95
Max-Min Density	BS 1377 Part 4 : 1990 Test 4.3 & 4.5, Amd 8259: 1995
California Bearing Ratio	BS 1377 Part 4 : 1990, Amd 8259 : 1995
California Bearing Ratio	ASTM D1883 : 1994
California Bearing Ratio	AASHTO T193 – 93
In-situ California Bearing Ratio	BS 1377 Part 9 : 1990, Amd 8264 : 1995
In-situ California Bearing Ratio	ASTM D4429 : 93
In-situ California Bearing Ratio - DCP	TRL Dynamic Cone Penetrometer
California Bearing Ratio	ASTM D1883 : 1999
In-situ Density Test – Small Pouring	BS 1377 Part 9.2.1 : 1990, Amd 8264 : 1995
In-situ Density Test – Large Pouring	BS 1377 Part 9.2.2 : 1990, Amd 8264 : 1995
In-situ Density Test	ASTM D1556 : 1996
Plate Bearing Test	ASTM D1194 : 1994

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Test Name	Test Method
Plate Bearing Test	BS 1377 Part 9 : 1990 Cl 4.1, Amd 8264 : 1995
Material Passing 75 micron sieve	BS 1377 Part 2 : 1990, Amd 9027 : 1996
Material Finer than 75 micron sieve – decantation method	AASHTO T11 – 91
Geological Examination	BS 5930 : 1981
Site Classification	BS 5328 Part 1 : 1997
Specific Gravity	ASTM D854
Soil Classification	ASTM D2487 : 00
Particle Size Distribution	BS EN 933-1 : 1997
Direct Shear Test (60x60mm specimen)	BS 1377 Part 7 : 1990
Consolidation Test - Odeometer Test	BS 1377 Part 5 : 1990
Swell Pressure Test	BS 1377 Part 5 : 1990
Soaked California Bearing Ratio – single point	BS 1377 Part 4 : 1990
Soaked California Bearing Ratio - single point	ASTM C 1881
Soaked California Bearing Ratio - 3 point	AASHTO T193 : 1999 (R2003)
Full Analysis of Soil for Agricultural Purposes	BS 1377 Part 2
Bulk Soil Sampling	BSEN 932 Part 1
Un compacted Bulk Density	BS 812 Part 2 : 1995, Amd 9195 : 1996
Particle Size Analysis	ASTM D422
Relative Density/ Water Absorption	BS 1377
CONCRETE	
Compressive Strength of Moulded Cubes	BS 1881 Part 116 : 1983, Amd 6097 : 1989, 6702 : 1991
Compressive Strength of Concrete Cylinders	ASTM C39 : 96
Indirect Tensile Strength of Cylindrical, Cubic & Prismatic Specimens	BS 1881 Part 117 : 1983, Amd 6096 : 1989
Flexural Test for Modulus of Rupture of Moulded Concrete Beam	BS 1881 Part 118 ; 1983, Amd 6095 : 1989
Flexural Test for Modulus of Rupture of Moulded Concrete Beam	ASTM C78 : 94
Density of Cubes	BS 1881 Part 114 : 1983, Amd 6098 : 1989, 6721 : 1991
Fresh Density	BS 1881 Part 107 : 1983, Amd '89 & '91
Dimensions of Concrete Blocks	BS 6073 Part 1 : 1981, Amd 3944 : 1982, 4462 : 1984
Transverse Strength of Precast Concrete Kerb	BS 7263 Part 1 : 1994
Water Absorption of Precast Concrete Kerb	BS 7263 Part 1 : 1994
Compressive Strength of Precast Concrete Blocks – Gross Area	BS 6073 Part 2 : 1981, Amd 4508 : 1984 (Appendix C)
Compressive Strength of Precast Blocks	ASTM C140

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Test Name	Test Method
Cement Content of Concrete	ASTM D806 : 00
Capillary Porosity	BS 1881 Part 124 : 1988
Total Water Content of Concrete	BS 1881 Part 124 : 1988
Water Absorption of Concrete Flags	BS 7263 Part 1 : 1994
Sampling of Fresh Concrete - Laboratory	BS 1881 Part 125 : 1986, Amd '89
Sampling of Fresh Concrete - Site	BS 1881 Part 101 : 1983, Amd '89 & '91
Sampling of Fresh Concrete - Site	BS EN 12350 Part 1 : 2000
Determination of Density of Compacted Fresh Concrete	BS 1881 Part 107 : 1983, Amd '89 & '91
Mix Design	BRE
Trial Mixes	BRE
Curing of Concrete Specimens	BS 1881 Part 111 : 1983, Amd '89
Compressive Strength of Paving Blocks	BS 6717 Part 1 : 1993
Compressive Strength of Blocks	ASTM C140 : 96b
Water Permeability	DIN 1048 Part 5
Water Absorption	BS 1881 Part 122 : 1983, Amd 6108 : 1989
Initial Surface Absorption	BS 1881 Part 208 : 1996
Modulus of Elasticity	ASTM C469 : 94
Modulus of Elasticity	BS 1881 Pat 121 : 1983
Rapid Chloride Permeability	ASTM C1202 : 97
Air Content of Concrete	ASTM C231 : 97
Air Content of Concrete	BS 1881 Part 106 : 1983, Amd 6086 : 89, 6723 : 91
Slump of Concrete	BS 1881 Part 102 : 1983, Amd 6090 : 1989, 6727 : 1991
Slump of Concrete	BS EN 12350 Part 2 : 2000
Time of Setting by Penetration Resistance	ASTM C403 : 95
Pulse Velocity	BS 1881 Part 203 : 1986, Amd 6659 : 1991, 6766 : 1991
Flow of Grout	ASTM C1339 : 96c
Flow of Grout	ASTM C939 : 94
Expansion & Bleeding of Grout	ASTM C940 : 89
Electrical Resistivity	Wenner 4 Pin Procedure
Concrete Dust Drilling	AASHTO T260 – 95
Dimensional Stone – Specific Gravity & Water Absorption	ASTM C97 : 96
Drilling Concrete Cores – Dia 200mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 150mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 125mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989

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Test Name	Test Method
Drilling Concrete Cores – Dia 100mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 90mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 75mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 65mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 50mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 40mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Drilling Concrete Cores – Dia 25mm	BS 1881 Part 120 : 1983, Amd 6109 : 1989
Cover meter Survey	BS 1881 Part 204 : 1988, Amd 6201 : 1989
Half Cell Potential Survey	ASTM C876 : 91
Rebound Hammer Test	BS 1881 Part 202 : 1986
Load Test	BS 8110 Part 1 : 85 (Concrete Structure)
Bleeding of Grout	BS 8110 Part 1 : 85 (Concrete Structure)
Volume Change of Grout	BS 8110 Part 1 : 85 (Concrete Structure)
Dry Density	ASTM C642 : 97
Free Water Cement Ratio	BS 1881 Part 124 : 1988
Crack Monitoring (Supply & Installation of Monitoring Devices)	Inhouse Method
Temperature Monitoring – Thermocouple	Inhouse Method
Setting Time	ASTM C403 : 95
Water Absorption	ASTM C413
Water Absorption	ASTM C642 : 97
Water Permeability	BS EN 12390 Part 8 : 2000
Drying Shrinkage & Wetting Expansion	BS 1881 Part 5
Drying Shrinkage of Concrete	AS 1012.13 : 1992
Dust Sampling	BS 1881 Part 124
Depth of Carbonation	Concrete Society Technical Report # 28
Transverse Strength – Paving Blocks	DMS 1 Part 4 : 2003
Flexural Strength	ASTM C140 : 96b
Density Blocks	BS 6073 Part 1 : 1981
Weight	BS 6073 Part 1 : 1981
Shrinkage in Concrete	ASTM C512 : 02
Splitting Tensile Strength of Concrete Cylinders	ASTM C496
Compressive Strength of Cores	ASTM C42
Dimension of Blocks	ASTM C936
Compressive Strength - Grout	ASTM C942
Density - Grout	ASTM C942
Density - Cores	BS 1881 Part 120 : 1988

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Test Name	Test Method
Slump of Concrete	ASTM C143
Temperature of Concrete	ASTM C1064
Making of Mortar Cube	ASTM C109 / C109M : 99
Making of Cube	BS 1881 Part 108 : 1983
Sampling of Concrete	ASTM C172 : 1999
Density of Compacted Fresh Concrete	ASTM C138 : 2001
Young Modulus of Concrete Cylinders	ASTM C469 : 1994
Moisture Content of Pre-cast Blocks	
Drying Shrinkage of Pre-cast Blocks	
Density of Pre-cast Blocks	OS 1 : 1998 / BS 6073
Dimensions of Pre-cast Blocks	OS 1 : 1998 / BS 6073
Percentage of Cavities in Pre-cast Blocks	OS 1 : 1998
Determination of Cement Type in Hardened Concrete	
De lamination Survey	In-House method
Bleeding of Fresh Concrete	ASTM C232
Temperature	BS 8110 Part 1 : 1985
Pull Off Test	BS 5980 : 1980, Amd 1989
Sample Preparation	BS 5980 : 1980, Amd 1989
Compressive Strength	ASTM C780
Sonic Pile Integrity	In-house method
Static Load Test	In-house method
Dynamic Pile Testing	In-house method
Pull Off Test	BS 1881 Part 207 : 1992
Pull-off Test	ASTM D4541
Coating Thickness	BS 729 : 1971
ASPHALT	
Test Name	**Test Method**
Bitumen Content	ASTM D4
Grading	ASTM C136
Marshall Stability	ASTM D1559
Marshall Flow	ASTM D1559
Marshall Density	ASTM D2726
Voids (VIM, VMA, VFA)	ASTM D2726
Stability	ASTM D1559
Flow	ASTM D1559
Marshall Properties	MS-2

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Test Name	Test Method
Centrifuge	Centrifugation
Thickness & Density – DBM Wearing Course	ASTM D2726
Maximum Theoretical Specific Gravity	AASHTO T209 : 1994
Percentage Refusal Density	In-house method
In-situ Density by Nuclear Gauge	BS 1377 Part 9 : 1990
Coring of Asphalt Layer	ASTM D3549
Mix Design by Marshall Method	Manual Series -2 (Marshall Method)
Extraction & Grading	ASTM D2172 / ASTM C136 : 01
Softening Point	ASTM D36
Stripping Test	AASHTO T182
Penetration @ 25°C	AASHTO T49
Penetration of Residue	AASHTO T49

CHEMISTRY

Material	Test Name	Test Method
Water Analysis (Drinking Water / Sea Water / Ground Water/ Raw Water / Treated Effluent/ Product Water)		
Water	pH Value	APHA 4500 H
Water	Electrical Conductivity (EC)	APHA 2510 B
Water	Total Dissolved Solid (TDS)	APHA 2540 C
Water	Total Suspended Solids (TSS)	APHA 2540 D
Water	Total Solids (TS)	APHA 2540 B
Water	Volatile Suspended Solids (VSS)	APHA 2540 E
Water	Total Alkalinity as $CaCO_3$	APHA 2320 B
Water	Carbonate as CO_3	APHA 2320 B
Water	Bicarbonate HCO_3	APHA 2320 B
Water	Carbonate Alkalinity (p Alkalinity)	APHA 2320 B
Water	M Alkalinity	APHA 2320 B
Water	Carbonate Hardness	APHA 2320 B
Water	Non-carbonate Hardness	APHA 2320 B
Water	Total Hardness as $CaCO_3$	APHA 2340 C
Water	Calcium Hardness as $CaCO_3$	APHA 2340 C

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Material	Test Name	Test Method
Water	Magnesium Hardness as $CaCO_3$	APHA 2340 C
Water	Color	APHA 2120 C
Water	Odour	APHA 2150
Water	Taste	APHA 2160
Water	Calcium as Ca	APHA 3500 Ca B
Water	Magnesium as Mg	APHA 3500 Mg B
Water	Sodium as Na	APHA 3120 B/ICP OES
Water	Potassium as K	APHA 3120 B/ICP OES
Water	Arsenic as As	APHA 3120 B/ICP OES
Water	Aluminum as Al	APHA 3120 B/ICP OES
Water	Barium as Ba	APHA 3120 B/ICP OES
Water	Beryllium as Be	APHA 3120 B/ICP OES
Water	Boron as B	APHA 3120 B/ICP OES
Water	Cadmium as Cd	APHA 3120 B/ICP OES
Water	Chromium as Cr	APHA 3120 B/ICP OES
Water	Cobalt as Co	APHA 3120 B/ICP OES
Water	Copper as Cu	APHA 3120 B/ICP OES
Water	Iron as Fe	APHA 3120 B/ICP OES
Water	Lithium as Li	APHA 3120 B/ICP OES
Water	Lead as Pb	APHA 3120 B/ICP OES
Water	Manganese as Mn	APHA 3120 B/ICP OES
Water	Molybdenum as Mo	APHA 3120 B/ICP OES
Water	Mercury as Hg	ICP OES
Water	Nickel as Ni	APHA 3120 B/ICP OES
Water	Phosphorous as P	APHA 3120 B/ICP OES
Water	Phosphate as PO_4	HACH 8048
Water	Sulphate as SO_4	APHA 4500 SO_4^{2-}C / HACH 8051
Water	Chloride as Cl	APHA 4500 Cl^- B

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Material	Test Name	Test Method
Water	Nitrate as NO_3/ NO_3 N	HACH 8039
Water	Nitrite as NO_2 / NO_2 N	HACH 8507
Water	Fluoride as F	HACH 8029
Water	Cyanide as CN	HACH 8027
Water	Ammoniacal Nitrogen as NH_3N	APHA 4500 NH_3 /HACH 8155
Water	Ammonia as NH_3	APHA 4500 NH_3 /HACH 8155
Water	Ammonium as NH_4	APHA 4500 NH_3 /HACH 8155
Water	Organic Nitrogen as N	APHA 4500 N_{org}
Water	Total Kjeldahl Nitrogen, TKN	APHA 4500 N
Water	Total Nitrogen as N	APHA 4500
Water	Free Chlorine	HACH 8021/ APHA 4500 Cl
Water	Total Chlorine	HACH 8167
Water	Bromine	HACH 8016
Water	Dissolved Carbon Dioxide as CO_2	APHA 4500 CO_2 C
Water	Dissolved Oxygen (DO)	APHA 4500-O C
Water	Silica as SiO_2	HACH 8185/8186
Water	Total Silica as SiO_2	APHA 3120 B/ICP
Water	Colloidal Silica as SiO_2	HACH 8185/8186/ APHA 3120 B
Water	Hydrogen Sulphide as H2S	HACH 8131
Water	Sulphide	APHA 4500 S
Water	Turbidity NTU	APHA 2130 B
Water	Salinity	APHA 2520
Water	Total Phenols	HACH 8047
Water	Oil & Grease (Total Extractable)	APHA 5520 B
Water	Biological Oxygen Demand , BOD_5	APHA 5210 B
Water	Chemical Oxygen Demand COD	APHA 5220 B
Water	Langlier Saturation Index (LSI)	Calculated Value
Water	Total Organic Carbon (TOC)	APHA 5310

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Material	Test Name	Test Method
Water	Dissolved Organic Carbon (DOC)	APHA 5310
Water	Mixed Liquor Suspended Solids (MLSS)	APHA 2540 D
Water	Mixed Liquor Volatile Suspended Solids (MLVSS)	APHA 2540 E
Water	Sodium Absorption Ratio (SAR)	Calculated Value
Water	Total Petroleum Hydrocarbons (TPH)	USEPA 8015
Water	BTEX	USEPA 524.3/5030
Water	Pesticides	USEPA 8270 / 3510
Water	Volatile Organic Compounds (VOCs)	USEPA 524.3/5030
Water	Semi Volatile Organic Compounds (SVOCs)	USEPA 8270E/3510
Water	Organo Halogens	USEPA 8270E/3510
Water	Poly Aromatic Hydrocarbons (PAHs)	USEPA 8270E/3510
Water	Phenolic Compounds	USEPA 8041
Water	Polychlorinated Biphenyls (PCB)	USEPA 8082
Water	Chlorophyll Content	APHA 10200H
Water Suitability for Concreting Purpose – BS 3148		
Water	pH	APHA 4500 H+
Water	Electrical Conductivity	APHA 2510 B
Water	Organic Matter	BS 3148 Section A.2
Water	Chloride	APHA 4500 Cl^- B
Water	Sulphate	APHA 4500 SO_4^{2-}C
Water	Carbonate & Bicarbonate	APHA 2320 B
Water	Total Dissolved Solids	APHA 2540 C
Water Suitability for Construction Purpose – BS EN 1008		
Water	Colour	BS EN 1008 Section 6.1.1
Water	Odour	BS EN 1008 Section 6.1.1
Water	Oil & Fat	BS EN 1008 Section 6.1.1
Water	Suspended Matter	BS EN 1008 Section 6.1.1
Water	Humic Matter	BS EN 1008 Section 6.1.2

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Water	Detergent	BS EN 1008 Section 6.1.1
Water	pH	APHA 4500 H+
Water	Chloride	APHA 4500 Cl^- B
Water	Sulphate	APHA 4500 SO_4^{2-}C
Water	Phosphate as P_2O_5	HACH 8048
Water	Nitrate as NO_3	HACH 8039
Water	Lead as Pb	APHA 3120 B
Water	Zinc	APHA 3120 B
Water suitability for concrete Purpose (BSEN 1008) Table D3		
Water	Total Dissolved Solids(Dried@180o)	APHA 2540C
Water	Total Suspended Matter(Dried @ 105)	APHA 2540D
Water	Alkali Carbonate& Bicabonate	APHA 2320B
Water	Sulpahate as SO4	APHA 4500 SO42-
Water suitability for concrete Purpose *(AASHTO T26)*		
Water	Sulpahate as SO4	ASTM D 516
Water	Chloride as Cl	ASTM D 512
Water	Total Inorganic Matter	AASHTO T 26
Water	Total Solis @132	AASHTO T 26
Water	Total Alkalinity	AASHTO T 26
Water	pH value	AASHTO T 26
SOIL / SEDIMENT		
Soil/ Sediment	Organic Matter	BS 1377 Part 3 Cl.4 : 2018
Soil/ Sediment	Mass loss on ignition	BS 1377 Part 3 Cl.6 : 2018
Soil/ Sediment	Water Soluble Sulphate	BS 1377 Part 3 Cl.7.3/7.6 : 2018
Soil/ Sediment	Acid Soluble Sulphate	BS 1377 Part 3 Cl.7.9/7.6 : 2018
Soil/ Sediment	Carbonate Content	BS 1377 Part 3 Cl.8 : 2018
Soil/ Sediment	Water Soluble Chloride	BS 1377 Part 3 Cl.9.2.7 : 2018
Soil/ Sediment	Acid Soluble Chloride	BS 1377 Part 3 Cl.9.3 : 2018

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Material	Test Name	Test Method
Soil/ Sediment	Total Dissolved Solids	BS 1377 Part 3 Cl.11 : 2018
Soil/ Sediment	pH Value	BS 1377 Part 3 Cl.12 : 2018
Soil/ Sediment	Total Soluble Salt	USDA No. 60/Inhouse
Soil/ Sediment	Gypsum Content	USDA No. 60
Soil/ Sediment	Electrical Conductivity	USDA No. 60
Soil/ Sediment	Sodium Absorption Ratio, SAR	USDA No. 60
Soil/ Sediment	Exchangeable Cations	USDA No. 60
Soil/ Sediment	Cation Exchange Capacity, CEC	USDA No. 60
Soil/ Sediment	Phosphate as PO_4	HACH 8048
Soil/ Sediment	Nitrate as NO_3	HACH 8039
Soil/ Sediment	Fluoride as F	HACH 8029
Soil/ Sediment	Ammoniacal Nitrogen as NH_3N	APHA 4500 NH_3 /HACH 8155
Soil/ Sediment	Organic Nitrogen as N	APHA 4500 N_{org}
Soil/ Sediment	Total Kjeldahl Nitrogen, TKN	APHA 4500 N
Soil/ Sediment	Total Nitrogen as N	APHA 4500
Soil/ Sediment	Calcium as Ca	USEPA 3050B
Soil/ Sediment	Magnesium as Mg	USEPA 3050B
Soil/ Sediment	Sodium as Na	USEPA 3050B
Soil/ Sediment	Potassium as K	USEPA 3050B
Soil/ Sediment	Arsenic as As	USEPA 3050B
Soil/ Sediment	Aluminum as Al	USEPA 3050B
Soil/ Sediment	Barium as Ba	USEPA 3050B
Soil/ Sediment	Beryllium as Be	USEPA 3050B
Soil/ Sediment	Boron as B	USEPA 3050B
Soil/ Sediment	Cadmium as Cd	USEPA 3050B
Soil/ Sediment	Chromium as Cr	USEPA 3050B
Soil/ Sediment	Cobalt as Co	USEPA 3050B
Soil/ Sediment	Copper as Cu	USEPA 3050B

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Material	Test Name	Test Method
Soil/ Sediment	Iron as Fe	USEPA 3050B
Soil/ Sediment	Lithium as Li	USEPA 3050B
Soil/ Sediment	Lead as Pb	USEPA 3050B
Soil/ Sediment	Manganese as Mn	USEPA 3050B
Soil/ Sediment	Molybdenum as Mo	USEPA 3050B
Soil/ Sediment	Mercury as Hg	ICP OES
Soil/ Sediment	Nickel as Ni	USEPA 3050B
Soil/ Sediment	Total Petroleum Hydrocarbons (TPH)	USEPA 8015
Soil/ Sediment	BTEX	USEPA 5021 A
Soil/ Sediment	Pesticides	USEPA 8270 / 3540
Soil/ Sediment	Volatile Organic Compounds (VOCs)	USEPA 5021 A
Soil/ Sediment	Semi Volatile Organic Compounds (SVOCs)	USEPA 8270E/3540
Soil/ Sediment	Poly Aromatic Hydrocarbons (PAHs)	USEPA 8270E/3540
Soil/ Sediment	Oil & Grease	IR Spectrometer
Soil/ Sediment	Total Organic Carbon	USDA No. 60
Steel		
Steel	Coating thickness of steel (zinc)	ASTM A90/ A90 M
Chemical Analysis of Food & Food Products		
(Raw Fish, Meat and Other Food & Food Products)		
Food	Total Fat	AOAC
Food	Protein	AOAC
Food	pH Value	AOAC
Food	Moisture Content	AOAC
Food	Carbohydrate	AOAC
Food	Sodium Chloride	AOAC
Food	Sodium	AOAC
Food	Ash Content	AOAC
Food	Water Soluble Ash	AOAC

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Material	Test Name	Test Method
Food	Acid Insoluble Ash	AOAC
Food	Heavy metals	AOAC/ ICP OES
Food	Formaldehyde	AOAC
Food	Histamine	ELISA
Food	Acidity	ISO 6091
Aggregate (Fine/ Coarse)		
Material	**Test Name**	**Test Method**
Aggregate	Acid Soluble Sulphate	BS 812 Part 118/ BSEN
Aggregate	Acid Soluble Sulphate	BSEN 1744 : Part 1
Aggregate	Acid Soluble Chloride	BS 812 Part 117
Aggregate	Acid Soluble Chloride	BSEN 1744 : Part 5
Aggregate	Water Soluble Chloride	BS 812 Part 117
Aggregate	Water Soluble Chloride	BSEN 1744 : Part 1
Aggregate	Organic Impurity	ASTM C40
Aggregate	Potential Alkali Silica Reactivity	ASTM C289
Aggregate	Methylene blue Absorption Value	BSEN 933-9
Concrete		
Concrete	Acid Soluble Chloride	BS 1881 Part 124 :2015
Concrete	Acid Soluble Sulphate	BS 1881 Part 124 :2015
Concrete	Lead Content	ICP OES
Concrete	Aluminium Content	ICP OES
Admixture		
Admixture	Homogeneity	Visual
Admixture	pH Value	ASTM E 70
Admixture	Water Soluble Chloride	BS EN 480-10
Admixture	Sulphate Content	Gravimetry
Admixture	Specific Gravity	ASTM C 494
Admixture	Sodium Oxide	BS 480 Part 12 : 1998

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Material	Test Name	Test Method
Admixture	Potassium Oxide	BS 480 Part 12 : 1998
Admixture	Conventional dry material content	BS 480 Part 8 : 1997
Admixture	Equivalent Alkali	BS 480 Part 12 : 1998
Admixture	Nitrate Content	Spectrophotometer
Admixture	Ash Content	IS:9103-1999
Cement		
Cement	Full Range of Chemical Analysis	BS EN-196/ ASTM C 114
Cement	Loss on Ignition , LOI	BS EN-196/ ASTM C 114
Cement	Silica as SiO_2	BS EN-196/ ASTM C 114
Cement	Iron Oxide as Fe_2O_3	BS EN-196/ ASTM C 114
Cement	Aluminium Oxide as Al_2O_3	BS EN-196/ ASTM C 114
Cement	Calcium Oxide as CaO	BS EN-196/ ASTM C 114
Cement	Magnesium Oxide as MgO	BS EN-196/ ASTM C 114
Cement	Sodium Oxide as Na_2O	BS EN-196/ ASTM C 114
Cement	Potassium Oxide as K_2O	BS EN-196/ ASTM C 114
Cement	Equivalent Alkali (Na_2O = 0.658 x K_2O)	BS EN-196/ ASTM C 114
Cement	Insoluble Residue	BS EN-196/ ASTM C 114
Cement	Sulphur Trioxide as SO_3	BS EN-196/ ASTM C 114
Cement	Chloride as Cl	BS EN-196/ ASTM C 114
Cement	Moisture Content	BS EN-196/ ASTM C 114
GGBS / Fly Ash		
GGBS / Fly Ash	Loss on Ignition , LOI	BS EN-196
GGBS / Fly Ash	Silica as SiO_2	BS EN-196
GGBS / Fly Ash	Iron Oxide as Fe_2O_3	BS EN-196
GGBS / Fly Ash	Aluminium Oxide as Al_2O_3	BS EN-196
GGBS / Fly Ash	Calcium Oxide as CaO	BS EN-196
GGBS / Fly Ash	Magnesium Oxide as MgO	BS EN-196
GGBS / Fly Ash	Sodium Oxide as Na_2O	BS EN-196

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Material	Test Name	Test Method
GGBS / Fly Ash	Potassium Oxide as K_2O	BS EN-196
GGBS / Fly Ash	Equivalent Alkali (Na_2O = 0.658 x K_2O)	BS EN-196
GGBS / Fly Ash	Insoluble Residue	BS EN-196
GGBS / Fly Ash	Sulphur Trioxide as SO_3	BS EN-196
GGBS / Fly Ash	Chloride as Cl	BS EN-196
GGBS / Fly Ash	Moisture Content	BS EN-196
Microsilica		
Microsilica	Loss on Ignition @ 750 °C , LOI	ASTM C 1240/ ASTM C 311
Microsilica	Silica as SiO_2	ASTM C 1240/ ASTM C 311
Microsilica	Iron Oxide as Fe_2O_3	ASTM C 1240/ ASTM C 311
Microsilica	Aluminium Oxide as Al_2O_3	ASTM C 1240/ ASTM C 311
Microsilica	Calcium Oxide as CaO	ASTM C 1240/ ASTM C 311
Microsilica	Magnesium Oxide as MgO	ASTM C 1240/ ASTM C 311
Microsilica	Sodium Oxide as Na_2O	ASTM C 1240/ ASTM C 311
Microsilica	Potassium Oxide as K_2O	ASTM C 1240/ ASTM C 311
Microsilica	Equivalent Alkali (Na_2O = 0.658 x K_2O)	ASTM C 1240/ ASTM C 311
Microsilica	Insoluble Residue	ASTM C 1240/ ASTM C 311
Microsilica	Sulphur Trioxide as SO_3	ASTM C 1240/ ASTM C 311
Microsilica	Chloride as Cl	ASTM C 1240/ ASTM C 311
Microsilica	Moisture Content	ASTM C 1240/ ASTM C 311
Limestone / Dolomite / Quick Lime/ Hydrated Lime		
Limestone/ Dolomite	Loss on Ignition , LOI	ASTM C 25
Limestone/ Dolomite	Silica as SiO_2	ASTM C 25
Limestone/ Dolomite	Iron Oxide as Fe_2O_3	ASTM C 25
Limestone/ Dolomite	Aluminium Oxide as Al_2O_3	ASTM C 25
Limestone/ Dolomite	Calcium Oxide as CaO	ASTM C 25
Limestone/ Dolomite	Magnesium Oxide as MgO	ASTM C 25
Limestone/ Dolomite	Sodium Oxide as Na_2O	ASTM C 25

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Material	Test Name	Test Method
Limestone/ Dolomite	Potassium Oxide as K_2O	ASTM C 25
Limestone/ Dolomite	Manganese Oxide as MnO	ASTM C 25
Limestone/ Dolomite	Titanium Dioxide as TiO_2	ASTM C 25
Limestone/ Dolomite	Calcium Carbonate as $CaCO_3$	ASTM C 25
Limestone/ Dolomite	Phosphorous as P	ASTM C 25
Limestone/ Dolomite	Sulphur Trioxide	ASTM C 25
Limestone/ Dolomite	Chloride Content	ASTM C 25
Rock / Mineral Ore (Manganese Ore, Iron Ore..)		
Rock/ Mineral Ore	Loss on Ignition , LOI	Gravimetric
Rock/ Mineral Ore	Silica as SiO_2	Gravimetric
Rock/ Mineral Ore	Iron Oxide as Fe_2O_3	ICP OES
Rock/ Mineral Ore	Aluminium Oxide as Al_2O_3	ICP OES
Rock/ Mineral Ore	Calcium Oxide as CaO	ICP OES
Rock/ Mineral Ore	Magnesium Oxide as MgO	ICP OES
Rock/ Mineral Ore	Sodium Oxide as Na_2O	ICP OES
Rock/ Mineral Ore	Potassium Oxide as K_2O	ICP OES
Rock/ Mineral Ore	Manganese Oxide as MnO	ICP OES
Rock/ Mineral Ore	Titanium Dioxide as TiO_2	ICP OES
Rock/ Mineral Ore	Calcium Carbonate as $CaCO_3$	ICP OES
Rock/ Mineral Ore	Phosphorous as P	ICP OES
Rock/ Mineral Ore	Chromium Oxide as Cr_2O_3	ICP OES
Analysis of Industrial Chemicals		
Sodium Chloride , Potassium Chloride, Sodium Hydroxide, Sodium Carbonate, Sodium Hypochlorite, ... etc		
Sodium Chloride		
Sodium Chloride	Sodium Chloride Purity	ASTM D 512
Sodium Chloride	Moisture Content as H_2O	ASTM D 534
Sodium Chloride	Density	ASTM D 534
Sodium Chloride	Water Insoluble	ASTM D 534

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Material	Test Name	Test Method
Sodium Chloride	Turbidity(10% Solution)	ASTM D 534
Sodium Chloride	Calcium as Ca	ASTM D 534
Sodium Chloride	Magnesium as Mg	ASTM D 534
Sodium Chloride	Total Iron as Fe	ASTM D 534
Sodium Chloride	Sulphate as SO_4	ASTM D 534
Sodium Chloride	Total Hardness as $CaCO_3$	ASTM D 534
Potassium Chloride		
Potassium Chloride	Appearance	Visual
Potassium Chloride	Potassium Chloride Purity	Volhard Method
Potassium Chloride	Moisture Content as H_2O	ASTM E 534
Potassium Chloride	Water Insoluble	ASTM E 534
Potassium Chloride	Calcium as $CaSO_4$	ASTM E 534
Potassium Chloride	Magnesium as $MgSO_4$	ASTM E 534
Potassium Chloride	Sodium Chloride as NaCl	ICP-OES
Calcium chloride		
Calcium chloride	Calcium Chloride Purity	ASTM D 345/ASTM E 449
Calcium chloride	Moisture Content as H_2O	ASTM D 345/ASTM E 449
Calcium chloride	Specific Gravity (41% Solution)	ASTM D 345/ASTM E 449
Calcium chloride	Water Insoluble	ASTM D 345/ASTM E 449
Calcium chloride	Turbidity (36% Solution)	ASTM D 345/ASTM E 449
Calcium chloride	Magnesium as Mg	ASTM D 345/ASTM E 449
Calcium chloride	Sulphate as $CaSO_4$	ASTM D 345/ASTM E 449
Calcium chloride	Density	ASTM D 345/ASTM E 449
Sodium Hydroxide		
Sodium Hydroxide	Sodium Hydroxide Purity	ASTM E 291-96
Sodium Hydroxide	Copper Content	ASTM E 291-96/ICP-OES
Sodium Hydroxide	Specific Gravity(5% Solution)	ASTM E 291-96
Sodium Hydroxide	pH (5% Solution)	ASTM E 291-96

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Material	Test Name	Test Method
Sodium Carbonate		
Sodium Carbonate	Moisture	ASTM E 359
Sodium Carbonate	Density	ASTM E 359
Sodium Carbonate	Insoluble Matter	ASTM E 359
Sodium Carbonate	pH Value	ASTM E 359
Sodium Carbonate	Iron as Fe	ASTM E 359/ICP-OES
Sodium Carbonate	Sodium Carbonate Purity	ASTM E 359
Sodium Hypochlorite		
Sodium Hypochlorite	Weight Percentage NaClO	KFDA
Sodium Hypochlorite	Available Chlorine	KFDA
Analysis of Plastic/ Glass Reinforced Plastic (GRP)		
Plastic/ GRP	Thickness	BS 4549
Plastic/ GRP	Chemical Resistance	ASTM C581
Plastic/ GRP	Loss on Ignition	ASTM D 2584
Plastic/ GRP	Axial Tensile strength	ASTM D638
Plastic/ GRP	Water Absorption	ASTM D 570
Plastic/ GRP	Visual Defects in GRP laminate plate	ASTM D 2563
Plastic/ GRP	Barcol Hardness	ASTM D 2583
Plastic/ GRP	Flexural Strength	ASTM D 790
Analysis of Fertilizer		
Analysis of Organic Fertilizer *(Compost from dropping of Cows, goat, horse, Poultry dropping, dry blood, bones powder, Slaughterhouse waste…etc)*		
Organic Fertilizer	pH Value (1:5 Extract)	GSO 556
Organic Fertilizer	Electrical Conductivity (1:10 Extract)	GSO 556
Organic Fertilizer	Moisture Content (%wt)	GSO 556
Organic Fertilizer	Organic Matter Content (%wt)	GSO 556
Organic Fertilizer	Total Organic Carbon Content (%wt)	GSO 556
Organic Fertilizer	Total Nitrogen Content (%wt)	GSO 556
Organic Fertilizer	Carbon Nitrogen Ratio	GSO 556

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Material	Test Name	Test Method
Organic Fertilizer	Sodium Chloride (%wt)	GSO 556
Organic Fertilizer	Total Phosphorous as P_2O_5 (%wt)	GSO 556
Organic Fertilizer	Potassium as K (ppm/ %Wt)	ICP OES
Organic Fertilizer	Lead as Pb	ICP OES
Organic Fertilizer	Chromium as Cr	ICP OES
Organic Fertilizer	Cadmium as Cd	ICP OES
Organic Fertilizer	Nickel as Ni	ICP OES
Organic Fertilizer	Mercury as Hg	ICP OES
Organic Fertilizer	Zinc as Zn	ICP OES
Organic Fertilizer	Boron as B	ICP OES
Analysis of Organic Fertilizer *(Composts from Cities Waste and Sewage)*		
Organic Fertilizer	pH Value (1:5 Extract)	GSO 556
Organic Fertilizer	Electrical Conductivity (1:10 Extract)	GSO 556
Organic Fertilizer	Moisture Content (%wt)	GSO 1167
Organic Fertilizer	Organic Matter Content (%wt)	GSO 1167
Organic Fertilizer	Total Organic Carbon Content (%wt)	GSO 1167
Organic Fertilizer	Total Nitrogen Content (%wt)	GSO 556
Organic Fertilizer	Carbon Nitrogen Ratio	Calculation
Organic Fertilizer	Sodium Chloride (%wt)	GSO 556
Organic Fertilizer	Total Phosphorous as P_2O_5 (%wt)	GSO 556
Organic Fertilizer	Potassium as K (ppm/ %Wt)	ICP OES
Organic Fertilizer	Total Coliforms	GSO 556
Organic Fertilizer	Pathogenic colons (e-coli)	GSO 556
Organic Fertilizer	Salmonella	GSO 556
Organic Fertilizer	Lead as Pb	ICP OES
Organic Fertilizer	Chromium as Cr	ICP OES
Organic Fertilizer	Cadmium as Cd	ICP OES
Organic Fertilizer	Nickel as Ni	ICP OES

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Material	Test Name	Test Method
Organic Fertilizer	Mercury as Hg	ICP OES
Organic Fertilizer	Zinc as Zn	ICP OES
Organic Fertilizer	Copper as Cu	ICP OES
Organic Fertilizer	Bulk Density	BS 1377 Part 2
Organic Fertilizer	Humic Acid (HA) % Wt	Extraction Method
Analysis of Chemical Fertilizer		
Chemical Fertilizer	Total Nitrogen Content	AOAC 955.04
Chemical Fertilizer	Moisture Content	AOAC 950.01
Chemical Fertilizer	Phosphorous	ICP OES
Chemical Fertilizer	Metals	ICP OES
Analysis of Bitumen & Bituminous Emulsions		
MC 70		
MC 70	Water Content	ASTM D 95
MC 70	Kinematic Viscosity @ 60°C	ASTM D 2170
MC 70	Saybolt Furol Viscosity @ 50°C	ASTM D 88
MC 70	Flash Point	D 3143
MC 70	Distillation Volume %	ASTM D 402
MC 70	Residue from distillation to 360 °C	ASTM D 402
MC 70	Absolute Viscosity @ 60°C	ASTM D 2171
MC 70	Penetration @ 25°C	ASTM D5
MC 70	Ductility @ 15 °C	ASTM D 113
MC 70	Solubility in Trichloroethylene	ASTM D 2042
Bitumen 60/70		
Bitumen 60/70	Ash Content	D 482
Bitumen 60/70	Ductility @ 25 °C	ASTM D 113
Bitumen 60/70	Flash Point	D 92
Bitumen 60/70	Kinematic Viscosity @ 135°C	ASTM D 2170
Bitumen 60/70	Kinematic Viscosity @ 145°C	ASTM D 2170

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Material	Test Name	Test Method
Bitumen 60/70	Kinematic Viscosity @ 155°C	ASTM D 2170
Bitumen 60/70	Kinematic Viscosity @ 165°C	ASTM D 2170
Bitumen 60/70	Mixing Temperature (170+20 cSt)	ASTM D 2493
Bitumen 60/70	Compaction Temperature (170+20 cSt)	ASTM D 2493
Bitumen 60/70	Penetration @ 25°C	ASTM D5
Bitumen 60/70	Softening Point	ASTM D 36
Bitumen 60/70	Solubility in Trichloroethylene	ASTM D 2042
Bitumen 60/70	Specific Gravity @ 25°C	ASTM D 70
Bitumen 60/70	Thin film oven test	ASTM D 1754
Bitumen 60/70	Loss on heating	ASTM D 1754
Bitumen 60/70	Retained Penetration as Percentage Original	ASTM D 5
Bitumen 60/70	Ductility of residue@ 25 °C	ASTM D 113
Bitumen Emulsion – Grade SS-1h		
SS-1h	Viscosity Saybolt Furol method @ 25°C	ASTM D 88
SS-1h	Storage Stability, 24 Hrs	ASTM D 6930
SS-1h	Cement Mixing Test	ASTM D 6935
SS-1h	Sieve Test	ASTM D 6935
SS-1h	Residue from distillation to 260 °C	ASTM D 6997
	Test on Residue from Distillation:	
SS-1h	Solubility in Trichloroethylene	ASTM D 2042
SS-1h	Ductility @ 25 °C	ASTM D 113
SS-1h	Penetration @ 25°C	ASTM D5
OIL (PETROLEUM PRODUCTS) ANALYSIS		
Transformer Oil Analysis		
Transformer Oil	Appearance	Visual
Transformer Oil	Color	ASTM D 1500
Transformer Oil	Dissolved Gas Analysis (DGA)	ASTM D 3612
Transformer Oil	Corrosive Sulphur	ASTM D1275

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Material	Test Name	Test Method
Transformer Oil	Dielectric Break Down Voltage (BDV)	ASTM D1816
Transformer Oil	Dissipation Factor (Power Factor)	ASTM D 924
Transformer Oil	Dielectric Constant (Relative Permittivity)	ASTM D 924
Transformer Oil	Interfacial Tension	ASTM D 971
Transformer Oil	Water Content	ASTM D 6304
Transformer Oil	Water Content	ASTM D 1533
Transformer Oil	Furanic Compounds	ASTM D 3837
Transformer Oil	Total Acid Number (Neutralization No)	ASTM D 974
Transformer Oil	Total Base Number (TBN)	ASTM D 2896
Transformer Oil	Sediment/ Sludge	ASTM D 2709
Transformer Oil	Pour & Cloud Point	ASTM D 97
Transformer Oil	Dielectric Constant	ASTM D 924
Transformer Oil	Resistivity	ASTM D 924
Transformer Oil	Kinematic Viscosity	ASTM D 445
Transformer Oil	Sulphur Content	ASTM D 4294
Transformer Oil	Flash Point	ASTM D 93
Transformer Oil	Density	ASTM D 4052
Transformer Oil	Particle Count	ISO 4406
Transformer Oil	Insolubles	ASTM D 893
Lubricating / Hydraulic Oil Analysis		
Lubricating / Hydraulic Oil	Appearance	Visual
Lubricating / Hydraulic Oil	Viscosity @40 °C	ASTM D 445
Lubricating / Hydraulic Oil	Viscosity @100 °C	ASTM D 445
Lubricating / Hydraulic Oil	Viscosity Index	ASTM D2270
Lubricating / Hydraulic Oil	Total acid No. (mgKOH/g)	ASTM D 664
Lubricating / Hydraulic Oil	Flash Point Closed Cup (°C)	ASTM D 3828
Lubricating / Hydraulic Oil	Flash Point Open Cup (°C)	ASTM D 92
Lubricating / Hydraulic Oil	Water Content	ASTM D 6304

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Material	Test Name	Test Method
Lubricating / Hydraulic Oil	Water Content	ASTM D 95
Lubricating / Hydraulic Oil	Insolubles	ASTM D 893
Lubricating / Hydraulic Oil	Total Base Number (mgKOH/g)	ASTM D 2896
Lubricating / Hydraulic Oil	Fuel Dilution	ASTM D 3524
Lubricating / Hydraulic Oil	Particle counts (ISO Code)	ISO 11500
Lubricating / Hydraulic Oil	Particulate Contamination	ASTM C 6217
Lubricating / Hydraulic Oil	Metals	ASTM D 5185
Fuel Oil Analysis		
Fuel Oil	Appearance	Visual
Fuel Oil	Color	ASTM D 1500
Fuel Oil	Density @ 15c	ASTM D 1298
Fuel Oil	Total Acid Number	ASTM D 974
Fuel Oil	Viscosity Kinematic @ 400C	ASTM D 7052
Fuel Oil	Cloud Point	ASTM D 2500
Fuel Oil	Pour Point	ASTM D 97
Fuel Oil	Sulphur	ASTM D 5453
Fuel Oil	Copper Corrosion 3 hrs @ 1000C	ASTM D 130
Fuel Oil	Carbon Res Ramsbottom	ASTM D 189
Fuel Oil	Water content	ASTM D 95
Fuel Oil	Ash Content	ASTM D 482
Fuel Oil	Sediment	ASTM D 2709
Fuel Oil	Flash Point Closed Cup	ASTM D 93
Fuel Oil	Strong Acid No	ASTM D 974
Fuel Oil	Distillation Rec @ 2500C	ASTM D 86
Fuel Oil	Distillation Rec @ 3500C	ASTM D 86
Fuel Oil	Cetane Index	ASTM D 4737
Fuel Oil	Particulate Matter	ASTM D5452
Fuel Oil	Particle counts (ISO Code)	ISO 11500

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Material	Test Name	Test Method
Fuel Oil	Total Bacterial Count @22°C 72hr	ASTM D 6974-4
Fuel Oil	Total Fungal Count @25°C 120hr	ASTM D 6974-4
Crude Oil		
Crude Oil	Salt in Crude	ASTM D 3230
Analysis of Cosmetics and Detergents		
Hair cream		
Hair cream	Visual inspection	GSO 1155
Hair cream	pH Value	GSO 1155
Hair cream	Total non-aqueous content	GSO 1155
Hair cream	Water content	GSO 1155
Hair cream	Peroxide value	GSO 1155
Hair cream	Microbiological test	US FDA BAM
Hair shampoo		
Hair shampoo	Visual inspection	GSO 395
Hair shampoo	Active matter	GSO 395
Hair shampoo	Volatile matter	GSO ISO 672
Hair shampoo	pH Value	GSO 395
Hair shampoo	Non-volatile alcohol soluble matter	GSO 395
Hair shampoo	Microbiological test	US FDA BAM
Hand wash/ liquid soap		
Hand wash liquid soap	Visual inspection	GSO 2018
Hand wash liquid soap	Combined Alkali, Total anhydrous soap	GSO 2018
Hand wash liquid soap	Free alkali and free acid	GSO 2018
Hand wash liquid soap	Total matter insoluble in alcohol	GSO 1098
Hand wash liquid soap	Matter insoluble in water	GSO 2018
Hand wash liquid soap	Chlorides	GSO 1095
Hand wash liquid soap	Sulphates	GSO 2018
Hand wash liquid soap	Unsaponifiable, unsaponified, and unsaponified saponifiable matter	GSO 1067

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Material	Test Name	Test Method
Hand wash liquid soap	Titer test of mixed fatty acids	GSO 2018
Hand wash liquid soap	Acid number of mixed fatty acids	GSO 2018
Hand wash liquid soap	Resin	GSO 2018
Hand wash liquid soap	pH Value	GSO 4316
Hand wash liquid soap	Biodegradability	GSO 1099
Hand wash liquid soap	Antimony	ICP OES
Hand wash liquid soap	Arsenic	ICP OES
Hand wash liquid soap	Cadmium	ICP OES
Hand wash liquid soap	Lead	ICP OES
Hand wash liquid soap	Mercury	ICP OES
Hand wash liquid soap	Anionic active agents	GSO 2271
Hand wash liquid soap	Borax	GSO 2018
Hand wash liquid soap	Total bacterial count	US FDA BAM
Hand wash liquid soap	Staphylococcuse aureus	US FDA BAM
Hand wash liquid soap	Pseudomonas aeruginosa	US FDA BAM
Hand wash liquid soap	Yeast and molds	US FDA BAM
Shaving cream		
Shaving cream	Visual inspection	GSO 1116
Shaving cream	Cream stability	GSO 1116
Shaving cream	Water-insoluble matter	GSO 1116
Shaving cream	Lather volume	GSO 1116
Shaving cream	Ethanol-insoluble matter content	ISO 673
Shaving cream	Free alkali content	GSO 685
Shaving cream	Unsaponifiable fatty matter content	GSO 1067
Shaving cream	Free fatty matter content	GSO 685
Shaving cream	Total fatty matter content	GSO 685
Shaving cream	Moisture and volatile matter content	GSO 672
Shaving cream	Microbiological test	GSO 1116

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Material	Test Name	Test Method
Toilet Soap		
Toilet Soap	Visual inspection	GSO 1098
Toilet Soap	Moisture and volatile matters	GSO ISO 672
Toilet Soap	Ethanol insoluble matter	ISO 673
Toilet Soap	Water insoluble matters content	GSO 1098
Toilet Soap	Total fatty matters content	GSO ISO 685
Toilet Soap	Unsaponifiable matters content	GSO 1067
Toilet Soap	Chloride content	GSO 1095
Toilet Soap	Free caustic alkali content	GSO ISO 456
Toilet Soap	Total free alkali	GSO 684
Toilet Soap	Acid number of fatty matters	GSO 1098
Toilet Soap	Rosin	GSO 1098
Toothpaste		
Toothpaste	Visual inspection	GSO 691
Toothpaste	Determination of stability	GSO 691
Toothpaste	pH Value	GSO 691
Toothpaste	Fluoride content	GSO 691
Toothpaste	Lead content	GSO 691
Deodorants		
Deodorants	Visual inspection	GSO 1224
Deodorants	Ethanol content	GSO 1224
Deodorants	Essential oil content in spray liquid	GSO 1224
Deodorants	Ethanol in semi solid and semi liquid	GSO 1224
Deodorants	Essential oil in semi-solid and semi-liquid	GSO 1224
Deodorants	Antibacterial substance	GSO 1224
Deodorants	Formaldehyde content	GSO 2499

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MICROBIOLOGY

Material	Test Name	Test Method
Microbiological Analysis of Water and Waste water		
Water	Total Coliforms	APHA 9222 B
Water	Total Coliforms	APHA 9221 B
Water	Fecal Coliforms	APHA 9222 D
Water	Fecal Coliforms	APHA 9221 E
Water	Escherichia coli	APHA 9222 G
Water	Escherichia coli - MPN	APHA 9221 F
Water	Pseudomonas aeruginosa	APHA 9213 E
Water	Pseudomonas aeruginosa	CCFRA Method 2.5.2
Water	Heterotrophic Plate Count / Aerobic Plate Count/ Standard Plate Count /Total Viable Count - Pour Plate Method	APHA 9215 B
Water	Heterotrophic Plate Count / Aerobic Plate Count/ Standard Plate Count /Total Viable Count - Spread Plate Method	APHA 9215 C
Water	Yeasts and Mould	CCFRA Method 2.1.1
Water	Fecal Streptococci	APHA 9230 C
Water	Fecal Streptococci, MPN	APHA 9230 B
Water	Enterococci	APHA 9230 C
Water	Salmonella Species	CCFRA Method 3.1.2
Water	Staphylococcus aureus	APHA 9213 B
Water	Staphylococcus aureus	CCFRA Method 3.5.1
Water	Algae	APHA 10200 F / Microscopic
Water	Sulphate Reducing Bacteria - MPN Method	APHA 9240 D, 22th edition / SRB BART Method
Water	Legionella Species	ISO 11731, 2017-05
Water	Legionella Species	CCFRA Method 3.9.1
Water	Viable Nematode Ova	APHA 10750
Water	Vibrio species	APHA 9260 H

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Microbiological Analysis of Food, Food Products, Vegetables, Fish, Meat and Animals feeds		
Food	Total Viable Count	CCFRA 1.1.1
Food	Total Viable Count	FDA-BAM Chapter 3
Food	Yeasts and Moulds	CCFRA 2.1.1
Food	Coliforms	CCFRA 2.2.1
Food	Coliforms	FDA-BAM Chapter 4
Food	Coliforms - Membrane Filtration Technique	CCFRA Method 2.2.4
Food	Enterobacteriaceae	CCFRA 2.3.1
Food	Escherichia coli	CCFRA 2.4.2
Food	Escherichia coli	FDA-BAM Chapter 4
Food	Salmonella Species	CCFRA 3.1.2
Food	Salmonella Species	FDA-BAM Chapter 5
Food	Listeria Species	CCFRA 3.2.4
Food	Listeria monocytogenes	CCFRA 3.2.4
Food	Listeria monocytogenes	FDA-BAM Chapter 10
Food	Staphylococcus aureus	CCFRA 3.5.1
Food	Staphylococcus aureus	FDA-BAM Chapter 12
Food	Clostridium perfringens	CCFRA Method 3.6.1
Food	Clostridium perfringens	FDA-BAM Chapter 16
Food	Bacillus cereus	CCFRA Method 3.7.1
Food	Bacillus cereus	FDA-BAM Chapter 14
Food	Vibrio cholerae	CCFRA Method 3.8.1
Food	Vibrio cholerae	FDA-BAM Chapter 9
Food	Vibrio parahaemolyticus	CCFRA Method 3.8.1
Food	Vibrio parahaemolyticus	FDA-BAM Chapter 9
Food	Escherichia coli 0157	CCFRA 3.4.1
Microbiological Analysis of Environmental Samples		
Indoor Air Quality	Indoor Microbial air quality	Micro /002 Rev-01 OMN
Swabs	Personnel / Surface Swabs	Micro /003 OMN

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Environmental Condition Monitoring
Air Quality Monitoring
Stack Emission Monitoring
Flue Gas Monitoring
Noise/ Sound Monitoring
Lux / Light Monitoring

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Appendix - 5

List of Major Material Testing Projects of Wimpey Laboratories.

LIST OF MAJOR MATERIAL TESTING PROJECTS OF WIMPEY GROUP OF LABORATORIES

#	Client Name & Project Client	Project Name	Service Rendered
1	CCC-Tav JV	Airport-Muscat Project	Physical and chemical testing of Concrete, Asphalt, Water, Soil…etc
2	Larsen and Toubro	Airport – Salalah/ Various projects Muscat	Construction material testing - Concrete
3	The Wave Muscat	Real Estate	Physical and chemical testing of Concrete, Asphalt, Water, Soil…etc
4	CCC	Al Seeb sewage collection & Conveyance system	Construction materials testing
5	HMR Consultants, Oman	Various Environmental Impact Study projects	Water / Sediments Chemical Analysis
6	Galfar Engineering	Various Projects	Physical and chemical testing of Concrete, Asphalt, Water, Soil…etc
7	Ministry of Education	Various Projects	Concrete Investigation
8	Bauer Nimr	Water Treatment project at Nimr	Air quality monitoring/ Sediment, Soil, Water Analysis
9	Bhawan Veolia Water	Water Treatment	Lube Oil Analysis
10	Nomac Oman/ Aqua Power	Power & Desalination Project	Water Analysis- Chemical/ Bacteriological Analysis
11	Byuskan Eng. Co.Ltd	Ship repair yard at Duqum	Stack emission monitoring, STP Water Analysis
12	Amiantit Oman	Pipe Factory	Environmental Monitoring – Air Quality Monitoring
13	Geosol Engineering	Various Geotechnical Investigation Projects	Construction material testing- Physical and Chemical Testing
14	Unique Construction	Various Building Construction Projects	Construction material testing- Physical and Chemical Testing
15	Al Turki Enterprises	Various PDO Projects	Drinking Water Analysis- Chemical/ Bacteriological Analysis
16	Shanfari Readymix LLC	Various projects	Construction material testing-Concrete , Aggregate, Cement, Water
17	STS	Various Projects	Construction material testing-Concrete , Aggregate..etc
18	Teejan Trading & Contracting	Various Projects	Construction material testing- Physical and Chemical Testing
19	Al Gubrah South	PDO Projects at Nimr	Construction material testing
20	Ahammed Salam Trad.& Cont.	PDO Projects at Marmul	Construction material testing

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21	Larsen & Tubro Electromech	PDO Projects Lekhwir	Drinking Water, STP Water Analysis- Chemical/ Bacteriological Analysis
22	Rubu Al Maha Trad.& Cont.	PDO Projects at Nimr	Construction material testing
23	ONIEC	Various PDO Projects	Drinking Water Analysis- Chemical/ Bacteriological Analysis
24	Automatic Terrazo Tiles	Various projects	Construction material testing- Terrazo tiles
25	Al Khaleej Trading	Various projects	Construction material testing- Polystyrene foams
26	Bhawan Engineering	DMIA Airport Muscat Project	Water Analysis
27	Bhawan Engineering	Various projects	Physical & Chemical Analysis of Construction Materials
28	Oman Methanol	Methanol Production - Sohar	Transformer Oil Analysis
29	Assarin Concrete products	Various projects	Construction material testing-Precast Concrete structures
30	Voltas Oman	Water Treatment	Chemical & Bacteriology Analysis of Water
31	CCC Wood Group	PDO Nimr Project	Concrete Testing
32	Oriental Concrete Products	Various projects	Construction material testing-Precast Concrete structures
33	Jan de Nul	Environmental Projects	Chemical Analysis of Water/ Soil/ Sediment
34	Ministry of Defense	Various projects	Construction material testing- Concrete
35	BEC	Adam Substation	Construction material testing- Concrete
36	Oman Terminal Towage Co.	Sohar	Diesel Analysis
37	Schlumberger	Various Projects	Lube Oil, Hydraulic Oil, Fuel Oil – Chemical and Physical Analysis
38	Vatec Wabag	Water Treatment Projects	Chemical and Bacteriological Analysis of Water / Chemicals
39	Nomac Oman	Power Project Barka	Water Analysis – Chemical/Microbiological
40	Lalbuksh Voltas	Water Treatment	Chemical and Bacteriological Analysis of Water
41	Al Ghubra Power& Desalination	Power Plant	Transformer Oil Analysis – Chemical and Physical
42	Jindal Shadeed Steel	Steel Factory	Chemical and Bacteriological Analysis Water Analysis
43	Muscat Lab	Various projects	Construction material testing-Soil
44	Majan Glass	Sohar	Environmental Monitoring

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45	Special Oil field services	Mawella	Construction material testing-Soil
46	United National Factory	Pipe Manufacturing	Materials Testing – Physical/ Chemical
47	Durat Al Sahil	Various Construction Projects	Material Testing – Physical/ Chemical
48	Atlantic Construction	Various Construction Projects	Material Testing – Physical/ Chemical
49	Worley Parsons	BP Projects	Chemical Analysis of Soil
50	International Bitumen	Various Projects	Bitumen Analysis
51	Al Ghobra Heights	Various Projects	Water /GRP Analysis – Chemical/ Microbiological
52	Capital Engineering	Sandan City	Material Testing – Physical/ Chemical
53	Evolution Overseas	Various Projects	Material Testing- Physical/ Chemical
54	National Fiber Glass Factory	Al Amerat Waste Water Project(A3+A4)	GRP Analysis – Chemical/ Physical
55	Ghantoot Transport & Cont	Adam-Thumirait Road/Various Projects	Material Testing- Physical/ Chemical
56	Strabag Oman	Various Projects	Material Testing – Physical/ Chemical
57	Al Sarooj Construction	Khazzan/ Various Projects	Material Testing – Physical/ Chemical
58	Asian Paints	Various Project	Chemical Analysis of Water/Paint
59	Oman Oil Exploration	Various Projects	Chemical/ Bacteriological Analysis of Water, Oil Analysis
60	Oasis grace	Various Projects	Material Testing – Physical/ Chemical
61	Al Hashmi Al Rawasi	Various Projects	Material Testing – Physical/ Chemical
62	Al Subhiya	Various Projects	Material Testing – Physical/ Chemical
63	Al Hajiry	Various Projects	Material Testing – Physical/ Chemical
64	Atlantic Construction	Various Projects	Material Testing – Physical/ Chemical
65	Douglas OHI	Barka Power Plant	Material Testing – Physical/ Chemical
66	Khimji Ramdas	Ruwi Police Station	Material Testing – Physical/ Chemical
67	Union Integrated Company	Various Project	Chemical Analysis of Water
68	Towell Construction	Jotun Paints	Material Testing – Physical/ Chemical
69	Maltauro –ICGM	MOD Hospital	Material Testing – Physical/ Chemical

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70	Oman Shapoorji Construction	ROHM/Convention center	Material Testing – Physical/ Chemical
71	Quick Logistics	Various Projects	Material Testing – Physical/ Chemical
72	Roadline	Various Projects	Material Testing – Physical/ Chemical
73	Ministry of Sports	Al Amal Sports Complex	Material Testing – Physical/ Chemical
74	Hussain Fadhil & Partners	Various Projects	Material Testing – Physical/ Chemical
75	Ali & Co	Various Projects	Material Testing – Physical/ Chemical
76	Celar Water Equipments Co.LLC	Water Treatment Projects Duqm	Chemical Analysis of Water
77	Said al Barwani Readymix	Various Projects	Material Testing – Physical/ Chemical
78	Al Dariz Readymix	Various Projects	Material Testing – Physical/ Chemical
79	Dolphin Trading & Investment	Various Projects	Material Testing – Physical/ Chemical
80	Al Kamil Power Plant	Power Plant -Sur	Flue Gas Monitoring
81	Gharbia Enterprises	98 Housing Complex Al Ansab	Material Testing – Physical/ Chemical
82	Tawoos Industrial Services	Al Mouj Project	Chemical & Bacteriology Analysis of Water
83	Al Tasnim Asphalt Division	Various Projects	Material Testing – Physical/ Chemical
84	Powertech	Various Projects	Construction Material & Water Testing – Physical/ Chemical
85	Technibuild Contracting	Various Projects	Material Testing – Physical/ Chemical
86	Zawawi Colas	Various Projects	Material Testing – Physical/ Chemical
87	Swan Foods LLC	Various	Bacteriology Analysis of food & water /Air Monitoring/Swab Analysis
88	Al Jarwany Hospitality	MC 3 Airport Project	Bacteriology Analysis of food/Swab Analysis
89	Marmul Contracting	Various Projects	Material Testing – Physical/ Chemical
90	Matra Insofoam	Various Projects	Polystyrene – Physical/ Chemical
91	Reem Batteries & Power	Various Project	Chemical Analysis of Water
92	Rawasi Colas	Various Projects	Material Testing – Physical/ Chemical
93	Al Barami Group	Masirah Power Plant	Material Testing – Physical/ Chemical
94	Ray International	Environmental Projects	Chemical Analysis of Water/Sediment
95	Al Adrak	Various Projects	Material Testing – Physical/ Chemical
96	Khalid Bin Ahmed & Sons	Various Projects	Material Testing – Physical/ Chemical
97	Boat Manufacturing Company	Haya Water Project	GRP Analysis
98	Service & Trade	Various Projects	Material Testing – Physical/ Chemical
99	Shakshy Engineering	Various Projects	Material Testing – Physical/ Chemical
100	Switz International L.L.C	Various	Bacteriology Analysis of food & water /Air Monitoring/Swab Analysis

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101	Kayson Al Omania LLC	Various Projects	Material Testing – Physical/ Chemical
102	Galfar Aspire Readymix	Various Projects	Material Testing – Physical/ Chemical
103	Scot Badar	Various Project	GRP - Chemical AnalysisAnalysis
104	Readymix Muscat	Various Projects	Material Testing – Physical/ Chemical
105	Wadi Al Ghubhaitah	Drinking Water Plant	Chemical & Bacteriology Analysis of Water
106	Ferrovial Agraman - FSA Batco	Batinah Expressway	Material Testing – Physical/ Chemical
107	Osmoflow LLC	Barka Power Project	Chemical Analysis of Water
108	Al Thabat Holding	Various Projects	Material Testing – Physical/ Chemical
109	United Golden Construction	Various Projects	Material Testing – Physical/ Chemical
110	Phoenix	Power & Desalination	Transformer Oil Analysis Chemical/ Physical
111	Al Ansari Construction	Various Projects	Material Testing – Physical/ Chemical
112	National Pharmaceutical	Pharmaceutical	Chemical Analysis of Pharmaceutical Products
113	Simplex Infrastructure	Batinah Express Way	Material Testing – Physical/ Chemical
114	Yuksel	Various Projects	Material Testing – Physical/ Chemical
115	Al Nasser Business & Services Company	MS Contract B5 Project	GRP Analysis Chemical/Physical
116	Assaud National	Various Projects	Material Testing – Physical/ Chemical
117	Gulf International Chemicals	Various Projects	Material Testing – Physical/ Chemical
118	Detoneter Blasting & Contracting	Various Project	Used Oil – Chemical and Physical Analysis
119	Jotun Paints	Various Project	Chemical Analysis of Water/Paint
120	Gulf Land Interntaional	Various Project	Material Testing-Chemical & physical

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WIMPEY LABORATORIES

GEOTECHNICAL SERVICES

Rotary Core Drilling Rig (KLR-CDR-30)

Rotary Core Drilling Rig (KLR-CDR-50)

WIMPEY LABORATORIES

GEOTECHNICAL SERVICES

Rotary Core Drilling Rig (KLR-CDR-100)

Rotary Core Drilling Rig (KLR-CDR-150)

LIST OF MAJOR GEOTECHNICAL INVESTIGATION WORKS

Sl.No	Project	Location	Client	Remark
1	**Geotechnical Investigation for Al Sharqiya Transmission System.**	Al Sharqiya	Khathib and Alami and Partners (Public Authority of Electricity and Water)	168Nos Borehole, 146Nos Trial Pits & 661Nos. ERT Tests
2	**Geotechnical Investigation for Proposed Oman Hospital at Khasab**	Khasab	Carillion Alawi L.L.C (Ministry of Health)	12Nos Borehole, 15Nos Trial Pits & Seismic Refraction Tests
3	**Geotechnical Investigation for Proposed Oman Hospital at Salalah**	Salalah	Carillion Alawi L.L.C ((Ministry of Health)	12Nos Borehole, 25Nos Trial Pits & Seismic Refraction Tests
4	**Geotechnical Investigation for Salalah Reverse Osmosis Desalination Plant**	Salalah-Taqa	Ital Engineering Middle East F.Z.L.L.C	17Nos Borehole, 23Nos Trial Pits & Seismic Refraction Tests
5	**Geotechnical Investigation for Design and Supervision of Construction of Upgrading of Wadi Bani Omar.**	Wadi Bani Omar	Renardet S.A. & Partners Consulting Engineers L.L.C	08Nos Borehole, 16Nos Trial Pits & Seismic Refraction tests
6	**Core Drilling Works at Quarry Locations in Duqm.**	Dqum	Khalid Bin Ahmed & Sons L.L.C	4Nos Boreholes
7	**Geotechnical Investigation Design of Muscat Mixed Use Development 15-1552-PRDE at Seeb**	Seeb	KEO International Consultants	54Nos Borehole, 28Nos Trial Pits & 4Nos Downhole

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Sl.No	Project	Location	Client	Remark
				Seismic Test
8	**Geotechnical Investigation for Design of Water Transmission System from Sohar to Dahirah Region.**	Sohar to Ibri	Khathib and Alami and Partners (Public Authority of Electricity and Water)	125Nos Borehole & 11Nos Trial Pits
9	**Soil Investigation For Construction Of Interface Roadway – (Section -04) At Duqm**	Duqm	Al Hajri Trading L.L.C & Renardet S.A & Partners L.L.C	32 Trial Pits and 400Nos DCP test
10	**Geotechnical Investigation for Khulud Gas Development Off Plot Project (FEED+DD).**	Khulud	Special Technical Services & Tebodin LLC (Petroleum Development Oman)	06Nos Borehole & 24Nos Trial Pits
11	**Geotechnical Investigation survey for the alignment of proposed OHL from Yibal to Musallam.**	Yibal	Powertech	66Nos Borehole & 44Nos Trial Pits
12	**Geotechnical Investigation for Lekhwair Upper Shuaiba Phase - 1 Mazkhour RMS Project FEED + DD.**	Lekhwair	Special Technical Services & Tebodin LLC (Petroleum Development Oman)	33Nos Borehole & 27Nos Trial Pits
13	**Geotechnical Investigation for Ras Al Hadd Development Project.**	Ras Al Hadd	KEO and Qatari Diar Ras Al Hadd Development Company	40Nos Borehole & 35Nos Trial Pits
14	**Geotechnical Investigation for Proposed 132kv OHL from Yibal to Mussallam**	Yibal	(Petroleum Development Oman) Powertech Engineering LLC	66Nos Borehole & 44Nos Trial Pits

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Sl.No	Project	Location	Client	Remark
15	**Geotechnical Investigation for Lekhwair Upper Shuaiba Development Phase 1 FEED + DD**	Lekwair	(Petroleum Development Oman) Special Technical Services & LLC	7Nos Bore hole and 14 Trial Pits
16	**Geotechnical Investigation for Proposed Military Camp at Aydem.**	Aydem	Ministry of Defence /Aydem	30Nos Trial Pits and 40 Nos. Boreholes
17	**Geotechnical Investigation for Lekhwair Upper Shuaiba Development Phase 1 FEED + DD**	Lekwair	(Petroleum Development Oman) Special Technical Services & LLC	49Nos Trial Pits and 66 Nos. Boreholes
18	**Royal Oman Police Station Complex at Thumrait**	Thumrait	Royal Oman Police	20Nos.Trial Pits and 20Nos.Bore holes
19	**Geotechnical Investigation for Sector 6, Phase 2**	Wave Muscat	The Wave	14Nos.Trial Pits and 29Nos. Boreholes
20	**Design for SQU access, Links and Wadi structure upgrading**	Al Khoud	KEO International	29Nos Bore Holes
21	**Geotechnical Investigation at BP Khazzan switchyard area and 132kv OHL from Khazzan to Mussallam**	Khazzan Block 61	Galfar Engineering Contracting SAOG {BP Exploration (Epsilon) Limited}	14Nos Trial Pits and 13 Nos. Boreholes
22	**Early Works Civil Pack 2 General Early Civil Works for BP Oman Khazzan Project**	Khazzan	Galfar Engineering Contracting SAOG {BP Exploration (Epsilon) Limited}	20Nos Trial Pits ,275DCP Tests & 12 Plate load Tests
23	**Consultancy services for open Storage area for vehicle**	Sohar	Tebodin Consultants	6Nos Trial Pits
24	**Geotechnical investigation for the proposed Pumping Station**	Al Ghubrah	GPS Oman	5Nos Boreholes

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Sl.No	Project	Location	Client	Remark
	at Al Ghubrah			& 7Nos. Trial Pits
25	**Soil Investigation for the proposed Feed for CCGT Power Plant**	Lekwair (PDO)	Petroleum Development Oman Special Technical Services & Tebodin LLC	6Nos Boreholes , 3Nos Trial Pits ,1Nos Down hole Seismic & 3Nos.Electrical Resistivity Test
26	**Propose Police Station Complex at Quraiyat**	Quraiyat	Royal Oman Police	14Nos Boreholes & 10Nos. Trial Pits
27	**Propose Police Station Complex at Khaboorah**	Khaboorah	Royal Oman Police	15Nos Boreholes & 15Nos. Trial Pits
28	**Propose Police Station Complex at Liwa**	Hasik	Royal Oman Police	12Nos Boreholes & 10Nos. Trial Pits
29	**Propose Police Station Complex at Liwa**	Liwa	Al Adrak Trading & Royal Oman Police	20Nos Boreholes & 15Nos. Trial Pits
30	**Proposed STF Complex at Sa'adha**	Salalah	Royal Oman Police	25Nos Boreholes & 10Nos. Trial Pits
31	**Proposed Terminal Building at Wattaya**	wattaya	Hoehler + Partner LLC	5Nos Boreholes & 4Nos Trial Pits.
32	**Geotecnical investigation – Hirweeb Al-Mayzonah and link to Habroot Asphalt Road**	Mayzonah	Al - Manarah Engineering Consultancy	7Nos Trial Pits
33	**Design and Construction Supervision of Mitan Al Hashman-Shasar Asphalt Road.**	Hashman	Renardet S.A & Partners LLC	62Nos Trial Pits
34	**Soil investigation for the proposed building at Mabela**	Mabela	Abdhulllah Bin Saif Al Husani	3Nos Boreholes &
35	**Electrical resistivity test at Raysut, Salalah.**	Salalah	Associated industries	3Nos electrical

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Sl.No	Project	Location	Client	Remark
			Limited SFZ	resistivity tests
36	**USO Tower Project.**	Yitti	Al Thabat Holding LLC	3Nos Boreholes
37	**Geotechnical investigation for the Development and widening of Al Nahdah**	Salalah	Renardet S.A & Partners LLC	4Nos Boreholes
38	**Geotechnical investigation for the proposed structure at the Cattle Feed Mill, Salalah.**	Salalah	Dofar Cattle Feed Co. S.A.O.G	4Nos Boreholes & 1No Trial Pit
39	**Earth hole drilling for Earthing works at Existing Desalination Plant, Lakbi.**	Lakbi	Al Ansari Trading Enterprise LLC	6Nos Boreholes
40	**Raysut Terminal Revamp Project at Salalah.**	Salalah	Oman Oil Refineries and Petroleum Industries Company	6Nos Boreholes , 5Nos electrical resistivity tests &5 Nos Thermal resistivity test
41	**Construction of sewerage net work & upgradation of sewage treatment plant for Baraka South-Al Batinah**.	Baraka	Ministry of Regional Municipalities & Water Resources	3Nos Boreholes, 3Nos Trial Pits & 1 No Electrical Resistivity Test.
42	**Geo Technical investigation at Mina Al Fahal site – Walk way project**	Mina Al Fahal	Petroleum Development Oman	7Nos Boreholes & 1No Trial Pit
43	**Soil Investigation – Hamdan Interchange Project.**	Salalah	Dhofar Municipality, Oman Roads and Impresa JV.	9Nos Boreholes & 4Nos Trial Pits.
44	**Soil investigation survey for the Lekhwair Power System Upgrade Project- OHL and Feed.**	Lekwair – Yibal (PDO)	Petroleum Development Oman Power Tech Engineering	30Nos Boreholes & 45Nos Trial Pits

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Sl.No	Project	Location	Client	Remark
45	**Construction of Dualization of Taqah-Mirbat road.**	Taqah-Mirbat at Salalah	Al Manarah Engineering Consultancy. Ministry of transport and Communicatio n.	27Nos Boreholes & 30Nos Trial Pits
46	**Royal Oman Police Hospital**	Seeb	Al Manarah Engineering Consultancy. Royal Oman Police.	16Nos Boreholes , 6Nos Trial Pits & 2 Nos Down hole Seismic tests
47	**Construction of Mahal-Ghubbrat al Tam-Ismaiyah Road**	Ibra, Oman	Ministry of transport and Communicatio n	14Nos Boreholes & 1No Trial Pits
48	**EPC for Extension of Existing Desalination Plant**	LAKBI in Governorate of Wusta	Public Authority for Electricity and Water	5Nos Boreholes & 4Nos Trial Pits
49	**Proposed 132KV OHL Reinforcement YIBAL 2PS - FAHUD - NAHADA**	YIBAL - FAHUD – NAHADA (PDO)	Petroleum Development Oman Power Tech Engineering	12Nos Boreholes & 20Nos Trial Pits
50	**Nimr Generation Station upgrade works for transformer foundations and steel towers**	Nimr (PDO)	Petroleum Development Oman Power Tech Engineering	14Nos Boreholes & 14Nos Trial Pits
51	**SAIH RAWL PDO camp Project**	SAIH RAWL(PDO)	Petroleum Development Oman Special Technical Services & Tebodin LLC	4Nos Boreholes, 4Nos Trial Pits & 4 Nos Electrical test
52	**Project Salalah; Hotel complex**	Salalah	Ominvest	88Nos Boreholes , 57Nos Trial Pits & 16 Nos CBR Test

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Sl.No	Project	Location	Client	Remark
53	**Soil Investigation for Remote Manifold Station - II**	Burhan North/ Qarn Al Alam(PDO)	Petroleum Development Oman	1No Borehole, 5Nos Trial Pits ,1 Nos Down hole Seismic tests & 1 No Electrical Resistivity test
54	**Soil Investigation Survey for the Hail Al Ghaf Trunk Sewer and Treatment System**	Hail Al Ghaf/Quriyat	Haya Waer Al Ansari Trading Enterprise LLC	2Nos Boreholes, 2Nos Trial Pits & 1 No Electrical Resistivity
55	**Exhibition Building**	Niswa, Oman	Nazir Hamood Al Malki	4Nos Boreholes & 2Nos Trial Pits

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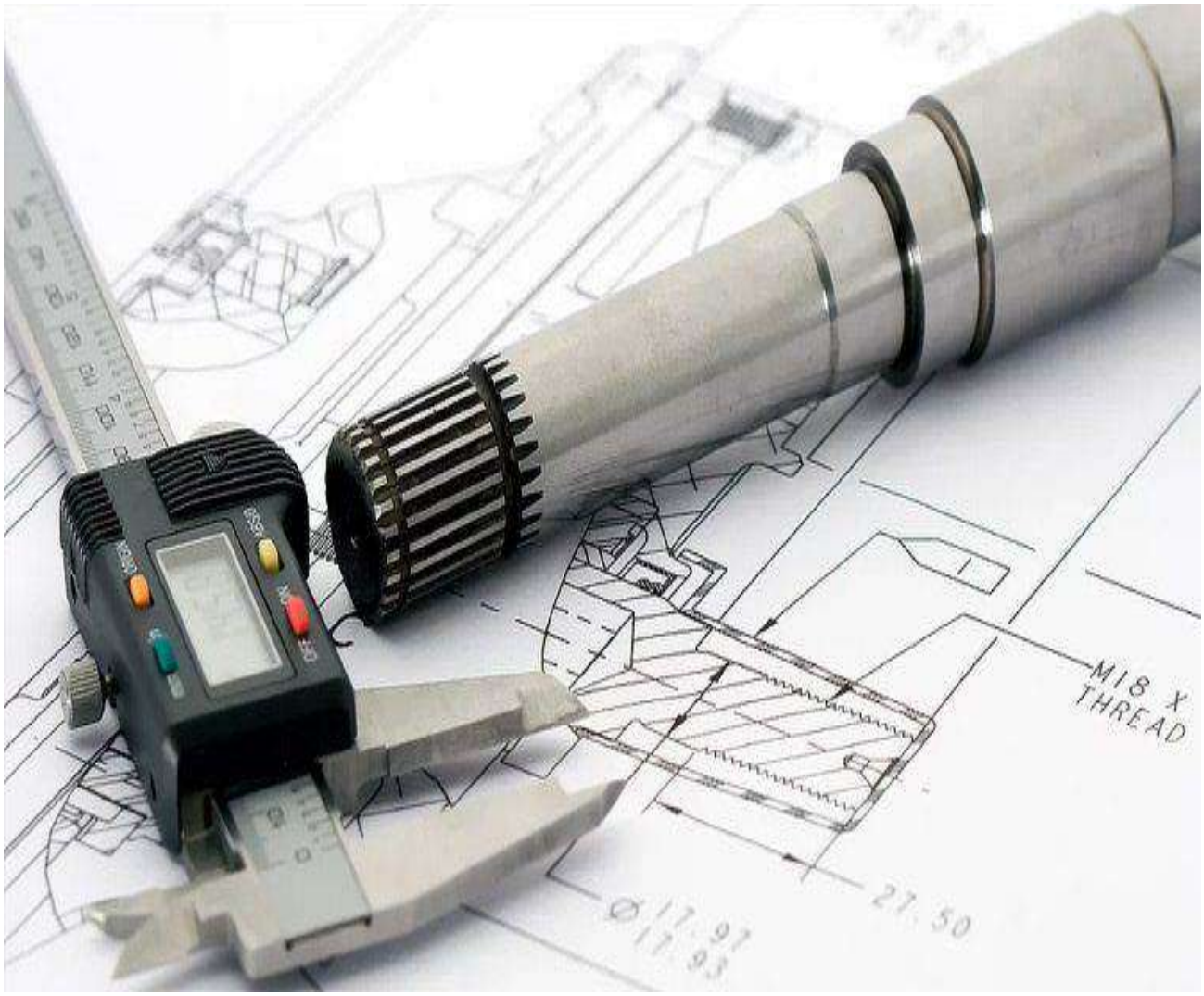
مختبرات ويمبي
WIMPEY LABORATORIES



CALIBRATION SERVICES

1. Services Offered

Wimpey Laboratories Calibration Division offers services for calibration, repair, servicing and supply of pressure, mass, dimension, temperature, electrical, torque, force, vibration, sound and volume measuring equipment.

- Calibration Services
- Equipment Maintenance & Services
- Equipment sales
- Technical Investigations
- Calibration training and Consultancy
- Calibration management solutions
- Instrument pick-up and delivery services

2. CALIBRATION CAPABILITIES

2.1. TEMPERATURE (-25 to 1200°C)

- Digital thermometers
- Dial Thermometers
- Thermo hygrometers
- Chillers
- Freezers
- Temperature Baths
- Dry Blocks
- Ovens
- Temperature Data Loggers
- Infrared Thermometers
- Pyrometers
- Temperature switches
- Temperature Chart recorders
- Temperature installations accuracy tests
- Temperature validation
- Thermocouple calibration
- Liquidin Glass Thermometers
- Max Min Thermometers

2.2. PRESSURE (-0.8 to 1200 Bar)

- Pressure Gauges
- Digital Indicators
- Vacuum Gauges
- Manometers
- Pressure Transducers
- Pressure Transmitters
- Dead Weight Testers
- Hydraulic Pressure Gauges
- Pneumatic Pressure Gauges
- Pressure Switches
- Pressure Pumps
- Chart Recorders
- Differential Pressure Gauges
- Pressure Calibrators

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2.3. ELECTRICAL

- Multimeters
- Clamp meters
- Voltmeters
- Ammeters
- Resistance Meters
- Insulation Meters
- RCD testers
- Frequency Counters
- High Voltage Testers
- Decade Resistance boxes
- Micro Ohmmeters
- Capacitance Meters
- Precision Multimetes
- Documenting Process Calibrators

2.3.1. Voltage	:	0 to 1020 V (Ac & Dc)
2.3.2. Current	:	1025 A (Ac & Dc)
2.3.3. Resistance	:	0 MΩ to 1100 MΩ
2.3.4. Capacitance	:	220 pF to 110 mF
2.3.5. Frequency	:	10kHz
2.3.6. Insulation	:	0.01Ω to 100GΩ/ up to10KV

2.4. MASS (1mg to 500 kg)

- Weighing Balances
- Test Weights
- Batching Plants
- Dynamometers
- Crane Scales
- Spring Balances
- Force Gauges
- Mechanical Weighing Scales
- Moisture Balances
- Load cells with Indicator

2.5. DIMENSIONAL (UP TO 1000MM)

- Calipers
- Micrometes
- Depth gauges
- Dial Indicators
- Thickness Gauges
- Feeler Gauges
- Thread Pitch Gauges
- Profile Gauges
- Test Sieves
- Flakiness Gauges
- Elongation Gauges
- Telescopic Gauges
- Gauge blocks
- Ring Gauges
- Plain Plug Gauges
- LVDTs

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- Setting Rods

2.6. TORQUE (Up to 1500 Nm)

- Torque Wrenches
- Torque Screwdrivers
- Torque Testers
- Torque Multipliers
- Hydraulic Torque Testers
- Digital Torque Wrenches
- Nut Runners
- Pneumatic Torque Tools

2.7. FORCE (Up to 3000kN)

- Compression Testing Machines
- Universal Testing Machines
- Marshall Machines
- Proving Rings
- Flexural Machines
- Hardness Testing Machines
- Tension Meters

2.8. OTHERS

- Vibration Meters
- Non-Contact Tachometers
- Vibration Meters
- Sound Level Meters

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ACCREDITATION CERTIFICATES - CALIBRATION DIVISION

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CERTIFICATE OF ACCREDITATION

This is to attest that

WIMPEY LABORATORIES LLC

Al Khuwair
Muscat, MS 133
Oman

Calibration Laboratory CL-201

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with the ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories*. This organization is accredited to provide the services specified in the scope of accreditation maintained on the IAS website (www.iasonline.org).

This certificate is valid up to August 1, 2022.

(See laboratory's scope of accreditation for fields of calibration and accredited calibration.)

This accreditation certificate supersedes any IAS accreditation bearing an earlier effective date. The certificate becomes invalid upon suspension, cancellation or revocation of accreditation. See www.iasonline.org for current accreditation information, or contact IAS at 562-364-8201.

Raj Nathan
President

18-15965

INTERNATIONAL ACCREDITATION SERVICE

SCOPE OF ACCREDITATION

IAS Accreditation Number	CL-201
Accredited Entity	Wimpey Laboratories, LLC
Address	Al Khuwair, Muscat, MS 133, Oman
Contact Name	Balu Sudhakaran
Telephone	+968 95530438
Effective Date of Scope	July 16, 2018
Accreditation Standard	ISO/IEC 17025:2005

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)[1,2]

CALIBRATION AREA	RANGE	EXPANDED UNCERTAINTY[3] (±)	TECHNIQUE, REFERENCE STANDARD, EQUIPMENT
Dimensional			
Digital / Vernier Caliper	0 mm to 600 mm	0.008 mm	BSEN ISO 13385-1-2011 Comparison method using Gauge Block Set (Grade 0) & Ring Gauges
Outside Micrometer	0 mm to 25mm	0.0011 mm	BS 3611-2010 Comparison method using Gauge Block Set (Grade 0)
Dial / Digital Indicator	0 mm to 25 mm	0.003 mm	BS 907:2008 / BS 463:2006 Comparison method using Calibration Tester (0.001 mm)
Feeler Gauge	0 mm to 2 mm	0.0015 mm	BS 957:2008 Comparison method using Digital Micrometer(0.001 mm)
Mechanical			
Pressure Gauge / Digital Pressure Gauge	0 bar to 20 bar 1 bar to 35 bar 35 bar to 1200 bar	0.019 bar 0.011 bar 0.12 bar	BSEN 837-1:1998;DKD R6-1 using Digital Pressure Calibrator BSEN 837-1:1998;DKD R6-1 using Dead Weight Tester
Vacuum Gauge	-0.80 bar to 0 bar	0.008 bar	ISO 3567:2005/DKD R6-2 using Digital Pressure Calibrator
Electronic Weighing Balance	1 mg to 220 g 220 mg to 6200 g 6200 g to 20 kg 20 kg to 500 kg	0.048 mg 0.018 g 0.34 g 30 g	ASTM E898-88 Comparison method using Precision Test Weights (F1) ASTM E898-88 Comparison method using Test Weights (M1)

INTERNATIONAL ACCREDITATION SERVICE

SCOPE OF ACCREDITATION

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)[1,2]

CALIBRATION AREA	RANGE	EXPANDED UNCERTAINTY[3] (±)	REFERENCE STANDARD/ EQUIPMENT
Test Weights	1 mg 2 mg 5 mg 10 mg 20 mg 50 mg 100 mg 200 mg 500 mg 1 g 2 g 5 g 10 g 20 g 50 g 100 g 200 g 5 kg	0.086 mg 0.088 mg 0.088 mg 0.088 mg 0.090 mg 0.10 mg 0.10 mg 0.11 mg 0.11 mg 0.12 mg 0.12 mg 0.13 mg 0.13 mg 0.14 mg 0.14 mg 0.18 mg 0.26 mg 82 mg	OIML R -111-2 Comparison method using Test Weights (F1)
Thermal			
Digital / Dial Thermometer	-25 °C to 150 °C	0.05 °C	BSEN 13190:2001 / BS 5074:1974 Comparison method using Digital Thermometer & Field metrology well
	150 °C to 400 °C	1.1 °C	BSEN 13190:2001 / BS 5074:1974 Comparison method using Digital Thermometer & Dry Block Calibrator
Infrared Thermometer	50 °C to 500 °C	1.2 °C	ASTM E- 2847-14. Comparison method using Infrared Calibrator and Digital Thermometer
Temperature Installations – Ovens, Incubators, Stirred Water baths, Fridges and Freezers	−20 °C to 250 °C	1.0 °C	DKD_R_5_7_e (Calibration of Climatic Chambers). Comparison method using Digital Thermometer

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INTERNATIONAL ACCREDITATION SERVICE

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CALIBRATION AND MEASUREMENT CAPABILITY (CMC)[1,2]

CALIBRATION AREA	RANGE	EXPANDED UNCERTAINTY[3] (±)	REFERENCE STANDARD/ EQUIPMENT
	Electrical/DC/Low Frequency		
DC Voltage	1 mV to 1V 1 V to 100 V 100 V to 1000 V	0.20 % 0.0022 % 0.0023 %	Direct Method using Fluke 5522A
AC Voltage (@ 50Hz)	1 mV to 1V 1 V to 100 V 100 V to 1000 V	0.72 % 0.026 % 0.036 %	Direct Method using Fluke 5522A
DC Current	100 µA to 100 mA 100 mA to 1 A 1 A to 3 A 3 A to 20 A 20 A to 1000 A	0.71 % 0.03 % 0.07 % 0.13 % 0.21 %	Direct Method using Fluke 5522A and Current coil
AC Current	10 mA to 200 mA 200 mA to 3 A 3 A to 20A 20 A to 1000 A	0.069 % 0.15 % 0.17 % 0.21 %	Direct Method using Fluke 5522A and Current coil
DC Resistance	1 Ω to 100 Ω 100 Ω to 1 kΩ 1 kΩ to 100 kΩ 100 kΩ to 100 MΩ	0.11 % 0.0049 % 0.0041 % 0.063 %	Direct Method using Fluke 5522A
Capacitance	50 nF to 100 nF 100 nF to 1 µF 1µF to 100 µF 100 µF to 9 mF	0.33 % 0.41 % 0.65 % 0.65 %	Direct Method using Fluke 5522A
Frequency	10 Hz to 1 MHz	0.0003 %	Direct Method using Fluke 5522A
Temperature (Simulation) Temperature Indicator/Controller /Recorder/Test Kit/ universal calibrators	-200 °C to 1300 °C	0.47 °C	Simulation Method using Fluke 5522A

[1]The uncertainty covered by the Calibration and Measurement uncertainty (CMC) is expressed as the expanded uncertainty having a specific coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than that provided in the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[2]If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the use of the International System of units (SI)" apply.

CL-201
Wimpey Laboratories LLC

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SCOPE OF ACCREDITATION

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)[1,2]

CALIBRATION AREA	RANGE	EXPANDED UNCERTAINTY[3] (±)	REFERENCE STANDARD/ EQUIPMENT

[3]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to percent of instrument reading or instrument output, as appropriate, unless otherwise indicated.

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LIST OF MAJOR CLIENTS

Sl. No.	Client Name
1	Matra Cold Storage (Enhance) LLC
2	Burj Al Sahwa Catering LLC
3	Como facilities Management Services LLC
4	IBN Sina Pharmacy LLC
5	Muscat Horizon LLC
6	Muscat Pharmacy LLC
7	OIG Facility Management Services SAOC
8	Al Turki Enterprises, Salalah
9	Masaco Trading Enterprises
10	SJ Abed Al Sulaimi LLC
11	Oriental Concrete Products Co.LLC
12	Hepworth - Corys Pipe Industries
13	Suhul Fayha Trading LLC
14	Zubair Furniture Factory LLC
15	Khalid Bin Ahmed & Sons LLC
16	UNFCF, Sohar
17	Volt Amp SAOG
18	Muscat Thread Mill SAOG
19	Barzman National LLC
20	Gulf Structural Steel LLC
21	Galfar, Salalah

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Sl. No.	Client Name
22	Interior Readymix, Nizwa
23	Global Industrial Services LLC
24	Al Arabiya Readymix LLC
25	Petroleum Devolopement Oman
26	AA Catering Services LLC
27	Amal Petroleum Service Co
28	Mohd abdul fatah al shehhi trading LLC
29	Hotel Mysk by Shaza
30	Newrest Catering LLC (Waleed Catering)
31	Renaissance SAOG
32	Shaher United Trading & Cont. Co
33	ILS Logistics Services SAOG
34	MBM Trading LLC, Sohar
35	Urich Asphalt LLC
36	Al Habib LLC
37	Al Mudan Group
38	Al Ariq Equipment LLC
39	Al Asaffah Logistics
40	Al Naba Services LLC
41	Chain Link Fencing LLC
42	Euro Postech International LLC
43	Al Naba Supplies & Catering Services LLC
44	Hurmoz Grand Hotel
45	Renaissance Catering Services LLC

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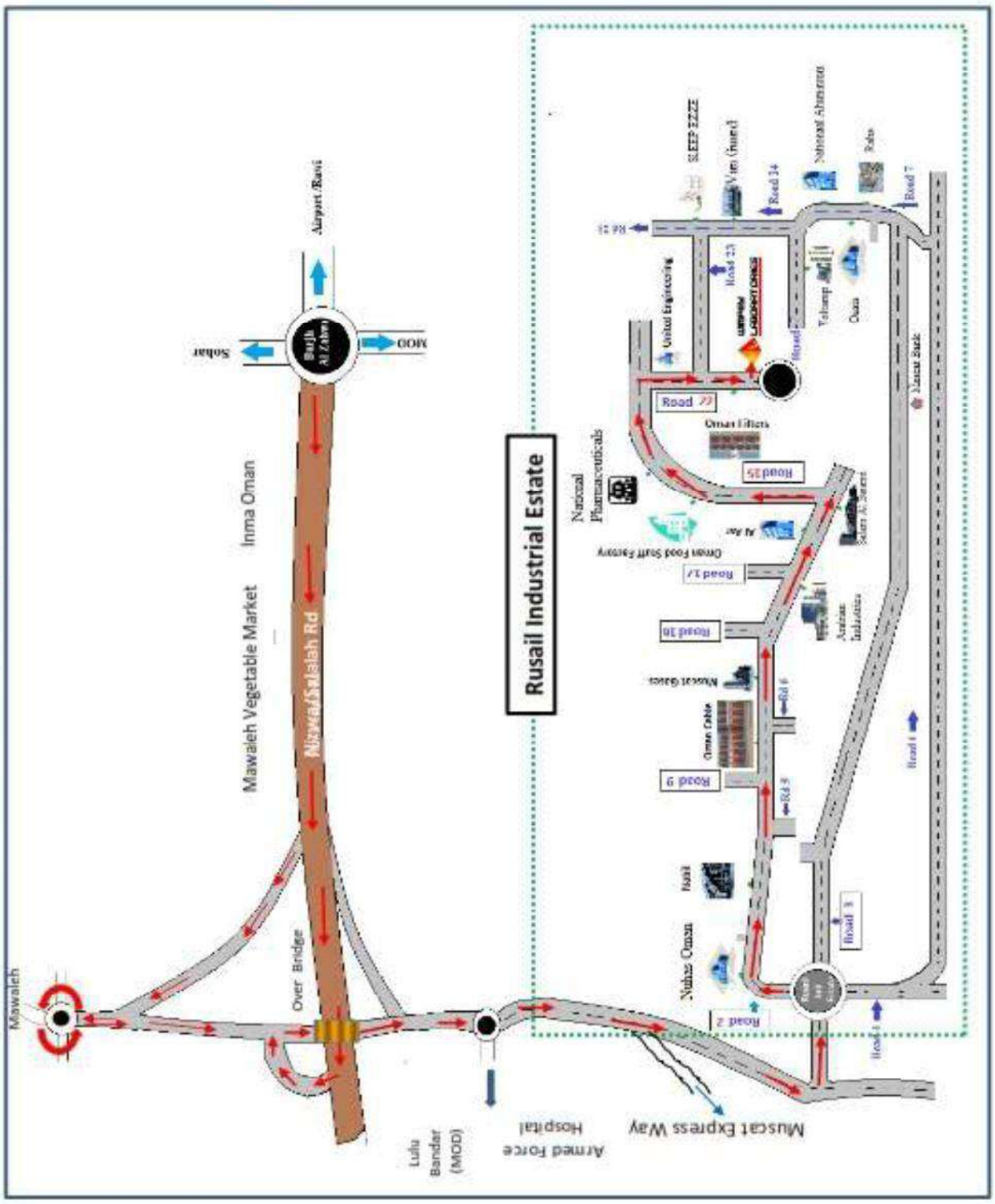
Appendix - 6

Location Maps

Wimpey Laboratories Muscat- Rusail Industrial Estate , Road No 22



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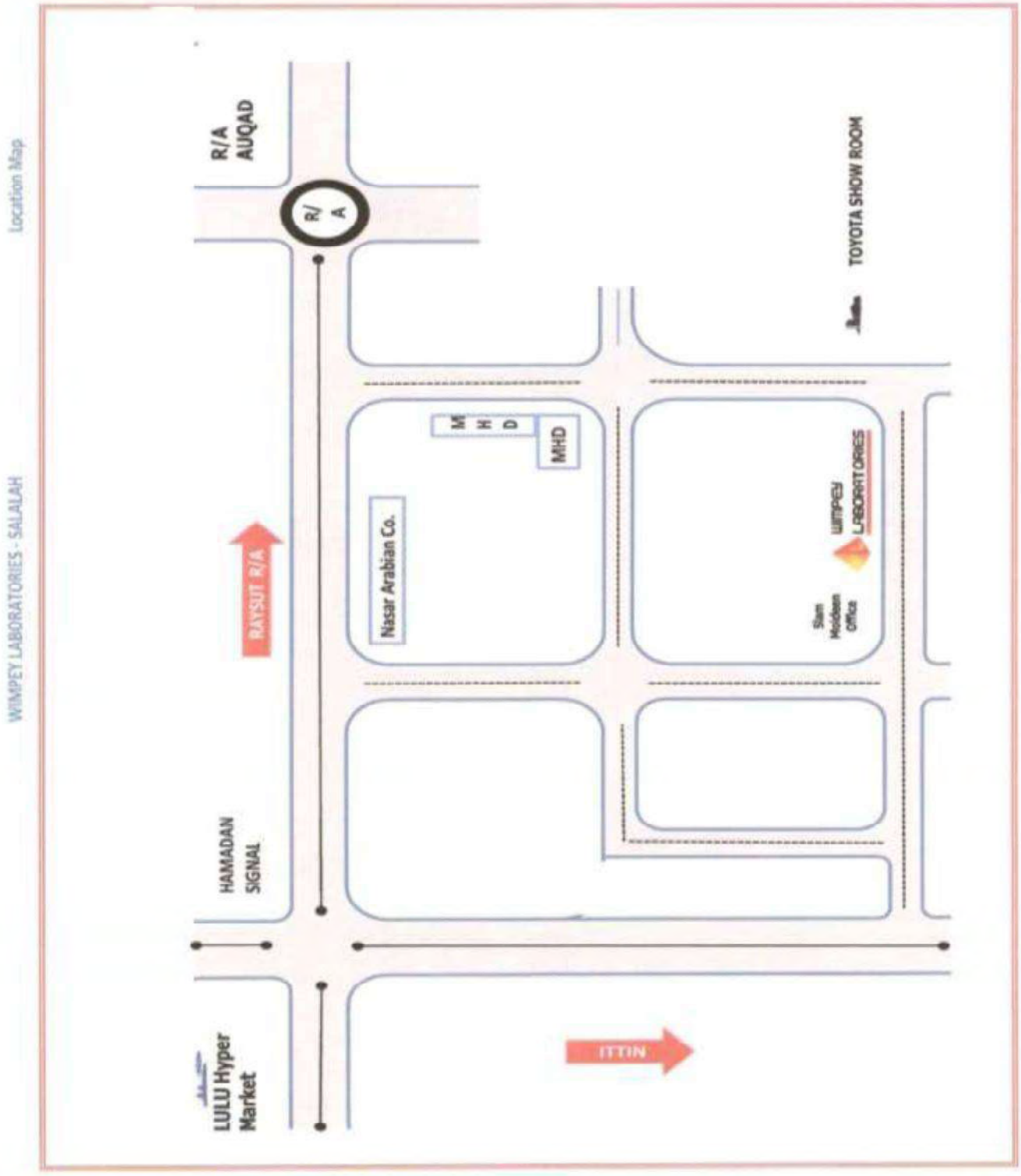
Location Map Wimpey Lab - Salalah



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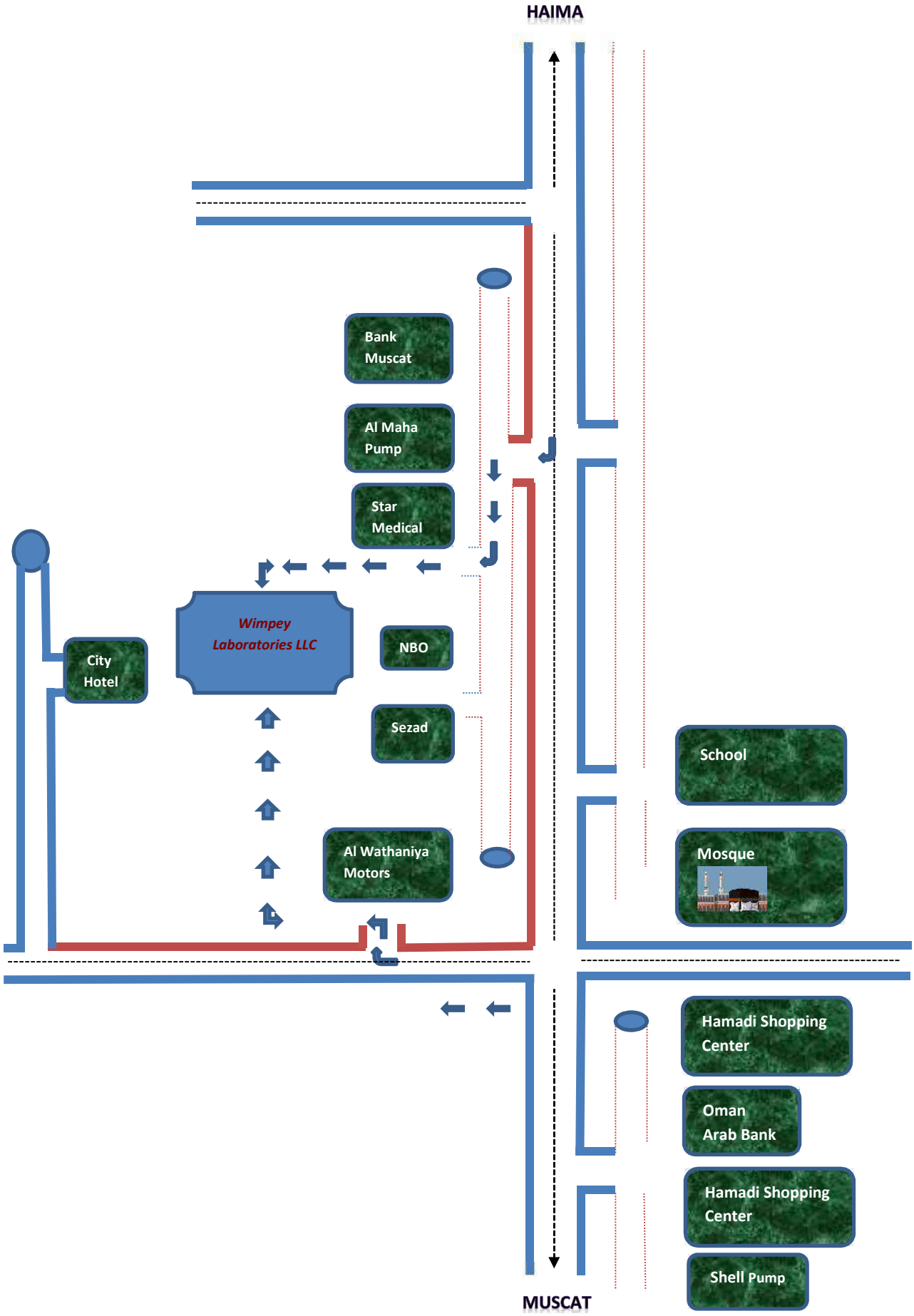
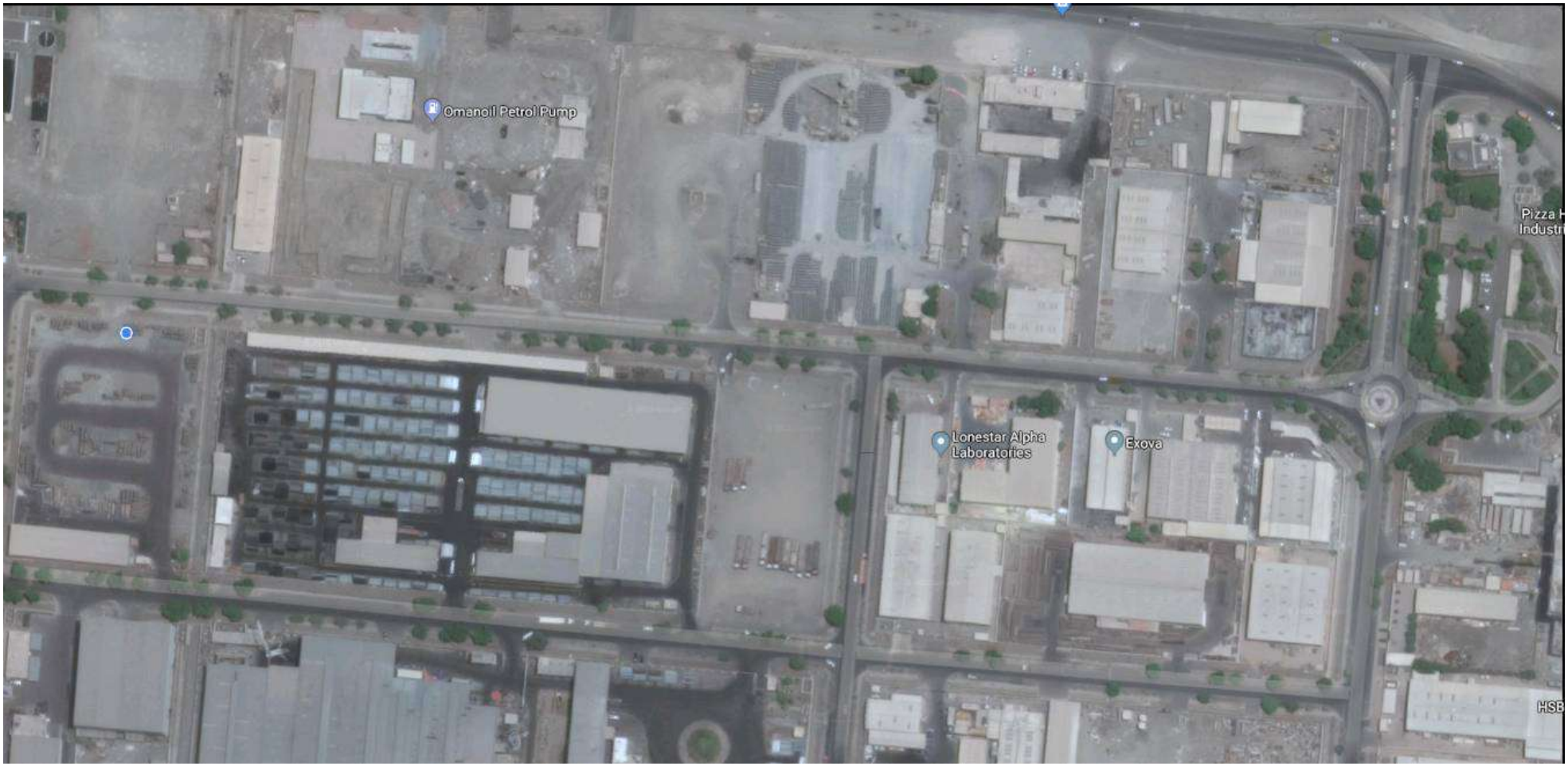
Location Map Wimpey Laboratories LLC - Duqm



Google Maps wimpey lab route map



Imagery ©2018 DigitalGlobe, Map data ©2018 Google 50 m

QEC CERTIFICATION

CERTIFICATION

Quality Management System

Certificate of Approval

This is to certify that the QMS of

WIMPEY LABORATORIES

P.O. Box: 115086, Musaffah M-34, Abu Dhabi,
P.O. Box: 123279 Warehouse No. 1 & 2, Wimpey Warehouse Building,
AL Quoz Industrial Area-1, Dubai UAE.

Has been assessed and found to meet the requirements of

ISO 9001:2015

This certificate is valid for the following scope of operations

Provision of Construction Material, Oil, Chemical & Microbiological Testing, Geo-technical Investigation, Environmental Monitoring and Calibration Services

Authorised by:

R N Cooke
Director

Date of Certificate Issue: 09 November 2020
Surveillance Due Date: 08 November 2021

Recertification Audit before 09 October 2023. Certified since 09 November 2017.
This certificate is the property of SN Registrars (Holdings) Limited and remains valid subject to satisfactory annual Surveillance Audits.

SN Registrars (Holdings) Limited
Registration House, 22b Church Street,
Rushden, Northamptonshire,
NN10 9YT, UK
Tel: +44 (0) 1933 383261
Email: enquiries@qec.co.uk
Web: www.qec.co.uk
Company Number: 07659067

Certificate Number: QEC 35250633/23/Q Rev: 001

MEMBER OF MULTILATERAL RECOGNITION ARRANGEMENT IAF

CERTIFICATION ISO 9001 Trading name of SN Registrars (Holdings) Ltd

UKAS MANAGEMENT SYSTEMS 8327