Wood Thilsted Partners

Alastair Muir Wood

Founding Director & Geotechnical Engineer

Positions held

- Director
  Wood Thilsted Partners Ltd,
  January 2016 -present
- Lead Geotechnical Engineer,
  DONG Energy, 2014-2015
- Geotechnical Specialist,
  DONG Energy, 2012-2014
- Head of Renewables Consultancy - Slough, GL Noble Denton, 2011-2012
- Senior Geotechnical Engineer,
  GL Noble Denton, 2009-2011
- Geotechnical Engineer, Ramboll,
  2005-2009
- Member of 526 Infrastructure Support Specialist Team Royal Engineers,
  2006-09
- Graduate Trainee, WS Atkins 2000-01

Qualifications

- MEng Masters in Civil Engineering,
  University of Southampton (First class)
- Chartered Civil Engineer

Contact details

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Nationality

British

Summary

Alastair is a chartered geotechnical engineer with experience in design, management and construction of a large variety of civil engineering projects both offshore and onshore. He is also one of the two founding partners of Wood Thilsted Partners Limited. Prior to starting WT Alastair was leading the geotechnical detailed design of monopile foundations for all DONG Energy (now Orsted) offshore wind projects. This included development of in-house design tools, and implementation of quality control and assurance procedures on all projects. It has also included obtaining project certification and third party approvals a large number of projects.

From 2012 to 2015, Alastair founded and provided the technical leadership for the international joint industry PISA project, which will develop new design guidance for offshore piles specifically for offshore wind turbine foundations. Alastair is chairman of the steering committee of the Imperial College and University of Oxford research project ALPACA.

Specialisations

- Design and analysis of offshore piled structures for wind turbines and substations
- Development of novel and improved design methods
- Obtaining consent / approval / certification for design
- Pile testing and geotechnical monitoring equipment
- Contract management and tendering
- Development of ground models, and specification and supervision of ground investigations
- Management of projects including planning, resourcing and financial management
- Expert support to dispute resolution cases

Project highlights

Vesterhav Nord and Vesterhav Syd Offshore Wind farms(2017-present)
Reviewer of geotechnical design bases for these two monopile projects. Implementing of advanced cyclic degradation design approaches, and soil reaction curves.

Independent Expert in Arbitration Case UK (2017)
Provision of expert opinion on soil interpretation and foundation stiffness for arbitration case between a designers and windfarm operator.

Various offshore wind projects in Taiwan (2016-present)
Due diligence support during project purchases. Technical support to environmental impact assessment – included attendance at EIA panel sessions. Feasibility design options for various projects.

Professional memberships

- Member, Institution of Civil Engineers
- Member, Society for Underwater Technology & Offshore Site Investigation and Geotechnics Committee
- Member, Institution of Royal Engineers
- Member of British Geotechnical Association

Other professional activities

- Voting member for UK on International Society for Soil Mechanics and Geotechnical Engineering Technical Committee 209 Offshore Geotechnics
- Speaker at numerous international conferences

Honours and awards

Fleming Award (British Geotechnical Association) recognising excellence in the practical application of geotechnics (2017)

RS Jenkins Prize for outstanding performance in Structural Mechanics (2005)

Trant Construction Prize for the best project in Geotechnical Engineering (2004)

Steel Construction Institute Piling Project Prize (2004)

Undergraduate sponsorship from Balfour Beatty Civil Engineering Ltd (2002-2003)

Publications

Author of numerous publications please see attached list for details.

Triton Knoll Offshore Wind Farm (900MW) (2016)
Geotechnical Engineer for the FEED design of monopile foundations for the Triton Knoll Offshore Wind Farm. Consultancy work included in-house design of monopile foundations and evaluation of cost optimization potentials.

Boiler House (7 storey mixed use building) (2016)
Approving geotechnical engineer for design of raft foundation for this mixed use building in west London. On appointment to the project, the foundation solution was a piled foundation WT developed a more economic raft foundation which was adopted by the client.

Offshore Wind Farm (confidential project) (2016)
Lead geotechnical engineer for the FEED design of monopile foundations for an offshore wind farm Consultancy work included ground modelling, ground risk assessment, preparation of site assessment, concept design of monopile foundations and evaluation of cost optimization potentials.

Envision Energy A/S (2016)
Alastair wrote design brief documentation to enable this Chinese turbine manufacturer to develop their own foundation design software.

Le Treport Offshore Windfarm (2016)
Technical review of the foundation scheme design, and site investigation and pile testing strategy for this French offshore windfarm.

Prior to starting Wood Thilsted
Hornsea Project 1 Offshore Windfarm (1200MW) (2010 – 2015)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations and jacket on bucket foundations. Technical review and high level supervision of site investigations for detailed design. Development of site investigation strategy and detailed ground modelling for the offshore wind farm. Technical support to project development team through consenting of windfarm and 140km cable route. Preliminary site investigation interpretation and ground modelling.

PISA Project (2013 – 2015)
Founder and Technical Lead of £3m joint industry project to develop new pile design methods. Project partners include Carbon Trust, DONG Energy, EDF, Iberdrola, RWE, SSE, Statkraft, Statoil, Vattenfall, Alstom and VanOord. Working closely with Academic Workgroup from University of Oxford, Imperial College London and University College Dublin. Undertook most comprehensive lateral pile test campaign ever.

Walney Extension Offshore Windfarm (600MW) (2012 – 2015)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations. Geotechnical FEED design for piled jackets and substation foundations. Technical review and high level supervision of site investigations Preliminary SI interpretation and ground modelling

Race Bank Offshore Windfarm (580MW) (2014 – 2015)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations. Supervision of geotechnical design of substation foundations in chalk. Prior to purchase, review of ground conditions and ground modelling.

Burbo Extension Offshore Windfarm (580MW) (2012 – 2015)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations for the 8MW turbines. Technical review and high level supervision of site investigations

Gode Wind Offshore Windfarm (582MW) (2012 – 2015)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations.

Borkum Riffgrund I Offshore Windfarm (312MW) (2012-15)
Lead geotechnical engineer for the in-house detailed design of the monopile foundations and design review of the demonstration Suction Bucket Jacket.

Westermost Rough Offshore Windfarm (210 MW) (2012-14)
Geotechnical engineer for the detailed design of the monopile foundations. Development of new pile design methods for monopiles in chalk.

Triton Knoll (2010)
Feasibility design for foundation concepts for windfarm

East Anglia Offshore Wind (2010-11)
Development of site investigation strategy for whole zone. Specification and supervision of site wide geophysical and geotechnical investigation. Advising on choice of project areas within wider zone.

Galloper Offshore Wind (2010)
Geotechnical design study and feasibility design for offshore wind foundations.

Gwynt y Mor Offshore Wind Farm (2010)
Lead geotechnical engineer for the detailed design of the monopile foundations. Developer of the Ramboll Offshore Analysis Package.

Fehmarn Belt Fixed Link (2009-10)
Scoping of offshore site investigations and Resident Engineer supervising offshore site investigation for new link between Denmark and Germany.

Lincs, Thanet, Greater Gabbard, Sherringham Shoal Offshore Windfarms (2009-10)
Geotechnical Engineer for detailed design of offshore windfarms. Driveability installation analysis. Development of new design methods, including first introduction of the S-y toe shear spring.

BBC W1 Project Phase II (2005-2009)
Technical design of an 86400m3 basement, associated temporary works, raft and all associated geotechnical design works, within central London – adjacent to an on top of four tube lines. Liaising closely with the Contractor and using 3D numerical models to obtain 3rd party approvals, value engineer the scheme and advise on construction methodology. Reuse of existing retaining walls into new structure.

Abbey Mill House, Reading (2007-2008)
Design of retaining walls and foundations for city centre office/residential building. Obtained approval from English Heritage for undermining Grade II listed medieval arch. Advised contractor on temporary propping scheme / construction sequencing.

University of East London (2005-2008)
Construction of new building over the tunnels for the Channel Tunnel rail link. Designed foundation solution, and obtained consent for site investigation, and then subsequent development from asset owner/operator.

Alastair Muir Wood

List of Publications

Burd, H.J., Byrne, B.W., McAdam, R.A., Houlsby, G.T., Martin, C.M., Beuckelaers, W.J.A.P., Zdravkovic, L., Taborda, D.M.G., Potts, D.M., Jardine, R.J., Gavin, K., Doherty, P., Igoe, D., Skov Gretlund, J., Pacheco Andrade, M. and **Muir Wood, A.** (2017). *Design aspects for monopile foundations.* Proceedings of TC209 Workshop: Foundation design of offshore wind structures, 19th ICSMGE, Seoul Korea

Byrne, B.W., McAdam, R., Burd, H.J., Houlsby, G.T., Martin, C.M., Beuckelaers, W.J.A.P., Zdravkovic, L., Taborda, D.M.G., Potts, D.M., Jardine, R.J., Ushev, E., Liu, T., Abadias, D., Gavin, K., Igoe, D., Doherty, P., Skov Gretlund, J., Pacheco Andrade, M., **Muir Wood, A**., Schroeder, F.C., Turner, S. and Plummer, M.A.L. (2017) *PISA: New design methods for offshore wind turbine monopiles.* Proceedings of the 8th International Conference on Offshore Site Investigation and Geotechnical Engineering. Society for Underwater Technology, London.

Byrne, B.W., McAdam, R., Burd, H.J., Houlsby, G.T., Martin, C.M., Zdravkovic, L., Taborda, D.M.G., Potts, D.M., Jardine, R.J., Sideri, M., Schroeder, F.C., Gavin, K., Doherty, P., Igoe, D., **Muir Wood, A**., Kellahave, D., and Skov Gretlund, J. (2015) *Field testing of large diameter piles under lateral loading for offshore wind applications* Proceedings of the 16th European Conference on Soil Mechanics and Geotechnical Engineering, Edinburgh.

Byrne, B.W., McAdam, R., Burd, H.J., Houlsby, G.T., Martin, C.M., Zdravkovic, L., Taborda, D.M.G., Potts, D.M., Jardine, R.J., Sideri, M., Schroeder, F.C., Gavin, K., Doherty, P., Igoe, D., **Muir Wood, A.,** Kellahave, D., and Skov Gretlund, J. (2015). *New design methods for large diameter piles under lateral loading for offshore wind applications* in Meyer eds. *Frontiers in Offshore Geotechnics III* Taylor & Francis Group, London, vol 1 pp 705-710.

Cook M., Barwise A., Cleverly W., Hobbs R., Hodgson T., James L., Jenner C., **Muir Wood A**., Orren R., Rowland R. and Wark C. (2014) *Guidance notes for the planning and execution of geophysical and geotechnical ground investigations for offshore renewable energy developments.* Society for Underwater Technology, London.

Doherty P., Igoe D., Gavin K., Preston J., McAvoy C., Byrne B.W., Mcadam R., Burd H.J., Houlsby G.T., Martin C.M., Zdravkovic L., Taborda D.M.G., Potts D.M., Jardine R.J., Sideri M., Schroeder F.C., **Muir Wood A**., Kallehave D. and Skov Gretlund J. (2015) *Field validation of fibre Bragg grating sensors for measuring strain on driven piles* Geotechnique Letters vol 5 pp 74-79

Knight P and **Muir Wood A** (2015) *Scientific selection of cone penetration test Nk correlation factors* Proceedings of the 16th European Conference on Soil Mechanics and Geotechnical Engineering, Edinburgh.

Muir Wood A. and Knight P. (2013) *Site investigation and geotechnical design strategy for offshore wind development* Proceedings of the 18th International Conference on Soil Mechanics and Geotechnical Engineering, Paris 2013 pp 2375-2378

Muir Wood A., Mackenzie B., Burbury D., Rattley M., Clayton C.R.I., Mygind M., Wessel Andersen K., LeBlanc Thilsted C. and Alberg Liingaard M. (2015) *Design of large diameter monopiles in chalk at Westermost Rough offshore wind farm* in Meyer eds. *Frontiers in Offshore Geotechnics III* Taylor & Francis Group, London, vol 1 pp 723-728.

Schroeder, F.C., Merritt A.S., Sorensen K.W., **Muir Wood, A**., LeBlanc Thilsted C and Potts D.M. (2015). *Predicting monopile behaviour for the Gode Wind offshore wind farm* in Meyer eds. *Frontiers in Offshore Geotechnics III* Taylor & Francis Group, London, vol 1 pp 735-740.

Zdravkovic, L., Taborda, D.M.G., Potts, D.M., Jardine, R.J., Sideri, M., Schroeder, F.C., Byrne, B.W., McAdam, R., Burd, H.J., Houlsby, G.T., Martin, C.M., Gavin, K., Doherty, P., Igoe, D., **Muir Wood, A**., Kellahave, D., and Skov Gretlund, J. (2015). *Numerical modelling of large diameter piles under lateral loading for offshore wind applications* in Meyer eds. Frontiers in Offshore Geotechnics III Taylor & Francis Group, London, vol 1 pp 759-764.