Appendix A: Large bored tunnel survey

Name	Length	Diameter	Bores	Status	Period	Soils	Function
I-710 Option A3	4.12 mi	58 ft	triple (1 x 58' and 2 x 46')	proposed		shale, sandstone, siltstone, and conglomerate, with soft alluvial soils	Road
I-710 Option A1	4.12 mi	57 ft	twin	proposed		shale, sandstone, siltstone, and conglomerate, with soft alluvial soils	Road
Shanghai River Crossing 15.5 meter Soft Ground (Bouygues Job) (just finished)	4.6 mi	50.6 ft	twin	tunnels completed	2008	sand, clay, rubble	Road
Madrid M-30 - north tunnel (left carriageway) of the south bypass	2.2 mi	50 ft	single	completed	2004 - 2008	marly clays of the Madrid Tertiary penuela and gypsum	Road
Nanjing Yangtze Crossing	1.8 mi	49 ft	twin	contract awarded	- 2013	oft river deposits of clay, silt and sand	Road
Groene Hart Tunnel	5.3 mi	48 ft	single	completed	2000-2006	highly permeable sand below a very soft peaty clay layer	Rail
Zaryzino Tunnel	1.5 mi	46.6 ft	single	proposed	no data	*no data*	Road
Serebryany Bor Tunnel	1.5 mi	46.6 ft	twin	tunnel complete	-2007	*no data*	Road+/Metro
Lefortovo, Moscow	1.3 mi	46.6 ft	twin	complete	2000 - 2005	Fine to coarse sand, clay, limestone (medium strength, partially very fissured)	Road
4th Tube of the Elbe Tunnel, Hamburg	1.6 mi	46.5 ft	single	complete	1997 - 2002	sand and mud, rock and pebbles, marly till and mica schist	Road
SMART Tunnel, Kuala Lumpur, Malaysia	1.86 mi	43.3 ft	single	completed	- 2007		Water/ Road
Tyson' Corner	3.38 mi	43.3 ft	single	proposed	*no data*	residual soil, decomposed rock, and rock	
Inntalquerung	3.6 mi	42.6 ft	single	in construction	*no data*	Pebble stones, sand, coarse clay, brash, gravel	Rail
Airport Link Brisbane	3.3 mi	41 ft	twin	tendered	- 2012	*no data*	Road
San Vito	0.6 mi	40.3 ft	*no data*	*no data*	*no data*	*no data*	Rail
Rennsteigtunnel	5.6 mi	40.3 ft	twin	complete	1998 - 2003	*no data*	Road
Metro Barcelona Line 9	5.3 mi	39.6 ft	single	completed	no data	Granite, sand, clay, gravel, gravel with boulders	Metro

Name	Length	Diameter	Bores	Status	Period	Soils	Function
Hsuehshan (also known as Pinglin), Taiwan	8.0 mi	38.5 ft	twin	complete	1993 - 2006	strong, hard, abrasive and intensely fractured Szeleng Sandstone on the east and indurate sandstone and siltstone on the west	Road
Wesertunnel, Kleinensiel, Germany	1 mi	38.3 ft	twin	complete	2000 - 2001	clay, sand, turf, till, silt	Road
Wuhan, China	1.7 mi	37.3 ft	twin	in construction	2004 - 2008	sand stratum, gravel, and shale rock.	Road
Westerschelde, Terneuzen, Netherlands	4.1 mi	37 ft	twin	complete	1998 - 2002	soft, permeable ground	
Katzenberg	5.6 mi	36.5 ft	twin	complete	2003 - 2008	Mudstone, marl, limestone and sandstone, approx. 800m of Oxford Coral Limestone	Rail
Port of Miami Tunnel	3900 ft	36 ft	twin	proposed	no data	no data	Road
A-86W West, Paris	4.7 mi	35.8 ft	single	in construction	2007 - 2010	limestone, sand, clay, marl, chalk	Road
Finnetunnel	4.23 mi	35.5 ft	twin	in construction	2008 - 2009	loose rock formations in the first section of around 1,500-m-long and unsupported rock on the remaining line (sandstone, claystone)	Rail
New Southern Railway Project	3 mi	35 ft	single	complete	1996 - 2000	Clay, sandstone	Metro
Metrotren Gijon	2.4 mi	34.6 ft	single	completed	- 2006	Clay, dolomit, limestone	Metro
A-86W East	6.2 mi	34 ft	single	complete	2003 - 2008	limestone, sand, clay, marl, chalk	Road
Sophiaspoortunnel, Rotterdam, Netherlands	2.6 mi	32 ft	twin	complete	2001 - 2002	clay, sand, till	Rail
Pannerdenschkanaal Tunnel, Netherlands	1 mi	32 ft	twin	tunnel structure complete	2000 - 2003	sand, clay	Rail
Sao Paulo metro , Linea 4	4.7 mi	31 ft	single	in construction	- 2008	no data	Metro
Leipzig , Germany	0.9 mi	29.5 ft	no data	in construction	2006 - 2008	no data low subsidence requirement below existing buildings	Rail
Beacon Hill Tunnel	4,300 ft	21 ft	twin	in construction	-2009	glacial soils	Metro