

WORK INSTRUCTIONS FOR ENGINEERS

Compiled by : _____ KCM

Checked by : _____ LPT

Approved by : _____ TYC

**CH-030. CHECKLIST FOR DRAFT
SUBSURFACE INVESTIGATION
FACTUAL REPORT**

~~CHECKLIST FOR DRAFT S.I. FACTUAL REPORT~~

No.	CHECKLIST ITEMS	CHECKED BY G&P GEOTECHNICS	Remarks
	Project No. : _____ Project : _____ S.I. Contractor : _____ Checked by : _____ Date : _____ Note: - This checklist is meant for common S.I. works carried out. - Any amendment made to the draft report shall use PENCIL. - Comments on the draft report shall be extended to the S.I. Contractor within one week from the date of receipt.	Tick (✓) if done, or else mark cross (X) if not available.	
1.0	GENERAL / INTRODUCTION		
1.1	Title page shall generally consists of the following: (a) S.I. Contractor's company name and contact (b) Title of the report (inclusive of project title) (c) Client's company name and contact (d) Consultant(s)'s company name and contact (e) Report no. and volume (if any) (f) Date of issue (g) Other _____	• • • • • • •	
1.2	The contents of each volume of report shall be listed in the main text for ease of reference.	•	
1.3	The scope of works including types and quantities of field / laboratory tests shall be in accordance to the scope of works specified by the Consultant.	•	
1.4	The dates of commencement and completion of the S.I. field works shall be stated herein.	•	
1.5	Summary of laboratory test schedule (e.g. schedule no., date issued/received, types of test, etc.) shall be checked accordingly (if any).	•	
1.6	The S.I. works shall be carried out in accordance to BS 5930: 1981 and BS 1377:1999. Make sure that the method of testing, sequence of testing, size of equipment/sampler, etc. as elaborated in the report are as the condition executed at the site and laboratory (Engineer to check with Supervising Geologists/Engineers or refer to the site report).	•	
2.0	RECORD OF BORING		
2.1	The following information shall be made available and reported correctly in every borelog (<i>check the specified quantities</i>): (a) Borehole no./ref. (b) Location / chainage & offset (if applicable) (c) Reduced level (RL) (d) Coordinates (northing and easting) (e) Measured groundwater level (daily records) (f) Date of testing	• • • • • •	
2.2	The soil description shall be according to "British Soil Classification System" from the laboratory soil classification tests (i.e. Particle size distribution and Atterberg limits).	•	

~~CHECKLIST FOR DRAFT S.I. FACTUAL REPORT~~

2.3	The depths of testing (e.g. SPT, vane shear tests, permeability tests, etc) and sampling (i.e. disturbed and undisturbed sampling) are as the depths executed at site.	•	
2.4	SPT'N' values SPT'N' plot are in order.	• •	
2.5	Borehole terminated depth is recorded. Installation of instrumentation (standpipe, inclinometer, etc.) is recorded.	•	
2.6	Measured groundwater levels according to borehole depths and casing depths are recorded.	•	
3.0	FIELD TEST RESULTS		
3.1	<u>Piezocone (CPT/CPTU)</u> The following information shall be made available and reported correctly in every test result (<i>check the specified quantities</i>): (a) Piezocone no./ref. (b) Location / chainage & offset (if applicable) (c) Raw data of piezocone results (inclusive of depth, q_c, f_s, FR, p_w and soil description, etc.) (d) Graphical plots for depth vs q_c / f_s / FR / p_w (e) Raw data (e.g. depth, time, dissipation of pore pressure) and graphical plot for dissipation test (if any) (f) Calibration Chart and certificates + checklists for Piezocones (G&P Form)	• • • • •	
3.2	<u>Field Vane Shear Test</u> The following information shall be made available and reported correctly in every test result (<i>check the specified quantities</i>): (a) Field vane test no./ref. (b) Location / chainage & offset (if applicable) (c) Depth of test (d) Dimension of vane (e) Raw data inclusive of degree, gauge reading and vane shear strength for both undisturbed and remoulded conditions (f) Graphical plot for vane shear strength vs angle of shearing (if any) (g) Summary of results (i.e. maximum vane shear strength (for disturbed and remoulded) and sensitivity) (h) Calibration chart	• • • • • • • •	
3.3	<u>Mackintosh / JKR Probe</u> The following information shall be made available and reported correctly in every test result (<i>check the specified quantities</i>): (a) MP no./ref. (b) Location / chainage & offset (if applicable) (c) Raw data (i.e. depth, nos. of blows) and graphical plot for MP (d) Details of Probes e.g., dimension of probes and rod, etc.	• • •	
3.4	<u>Permeability Test</u> The following information shall be made available and reported correctly in every test result (<i>check the specified quantities</i>): (a) Borehole no./ref. (b) Method of testing (e.g. falling head, rising head) (c) Depth of testing (d) Description of soil at tested depth (if any) (e) Groundwater level (m b.e.g.l.) (f) Diameter of casing (g) Length of test area (h) Length of casing above e.g.l. (i) Raw data (e.g. elapsed time, reading/water head) and interpreted data (e.g. $\log_e (H_1/H_2)$ and permeability) (j) Graphical plot Items (c), (e), (f), (g) and (h) are preferably indicated in figure.	• • • • • • • • •	
4.0	LABORATORY TEST RESULTS		

~~CHECKLIST FOR DRAFT S.I. FACTUAL REPORT~~

4.1	Summary of Laboratory Test Results Check the availability of test results in according to the specified quantities at particular borehole and depth.	•	
4.2	Soil Classification Tests (i.e. Moisture Content, Specific Gravity, Atterberg Limits and Particle Size Distribution) Check the tabulated test results against the results in attachments.	•	
4.3	Strength Tests (i.e. UU, CIU, UCT, Direct Shear Box Test) • Check the description of soil sample. • Check the tested normal stresses are of the range of in-situ stress. (e.g. $0.5\sigma'$, σ', $2\sigma'$). • Check the interpreted c_u, c' and ϕ' values and compare with typical values of the particular subsoil condition. • Graphical plots should include t-s plot, Dev. Stress and excess PWP vs. ϵ, vol. Change and PWP vs. Sq. Root time, • Sketches of Form of Failure / Shearing, etc.	• • •	
4.4	Compressibility Tests (i.e. Oedometer Test, Secondary Compression Test, Collapsible Test) • Check the description of soil sample. • Check the tabulated values for initial and final stages. • Check the interpreted c_c, c_v and p_c values and compare with typical values of the particular subsoil condition. • Graphical plots should include e vs LogP, C_v vs. Log P, M_v vs. LogP, C_α vs. Log P, Stress/Pressure vs. strain.	• • •	
4.5	Soil Chemical Test (i.e. Organic Matter, pH value, SO_3, Cl_2) • Check the tabulated test results against the results attachments. • Compare the results with typical values of the particular subsoil condition. (e.g. normal subsoil usually should not of acidic condition, in which pH > 5.5 for normal soil)	• •	
4.6	Rock Test (i.e. UCT, PLT) • Check the tabulated test results against the result attachments. • Sketches of form of Failure	• •	
5.0	S.I. LAYOUT AND AS-BUILT		
5.1	Check the executed quantities of SI works.	•	
5.2	Ensure the as-built location (e.g. reduced level, coordinates, chainage, offset) is correct. If possible, overlying the as-built to the original designated location. The reduced level shall not deviate too far from the contour survey of topography plan.	•	
5.3	The symbols used are in accordance to the legend.	•	
5.4	The as-built inclusive of borehole no., location/offset, reduced level and coordinates are preferable in table form.	•	
6.0	PHOTOGRAPHS		
6.1	The photographs showing the following shall be made available for every test (if necessary): (a) Field testing (b) Undisturbed sample extruded in the laboratory (c) Rock core sample Ensure the relevant information (e.g. borehole no., depth) is clearly indicated.	• • • •	
7.0	ELECTRONIC COPY		
7.1	The electronic copies in AGS format shall be submitted.	•	

~~CHECKLIST FOR DRAFT S.I. FACTUAL REPORT~~

7.1.1	Ensure all the data for both field and laboratory tests are included.	•	
7.1.2	Ensure the AGS data is checked and is the same as the hard copy.	•	
7.2	Photos in soft copy shall be included as well (if necessary).	•	
7.3	The soft copy for CPT/CPTU is required for ease of interpretation.	•	
7.4	Digital data for CIU test (confining stress, deviator stress, porewater response, axial strain and volumetric changes in consolidating and shearing stages)	•	
Signature by Project Engineer :-		G&P	Date