

Please acknowledge receipt of this letter by signing on this page and returning by fax to the Authority at **2588 2586**.

Authorized Signature (with Company Chop)  
Name: \_\_\_\_\_

Date \_\_\_\_\_



**CONFIDENTIAL**

Our ref: FD/IT/D/09/730A1/20072216

14 August 2020

Dear Sirs/Madams,

**Invitation to Tender for the Provision of Design and Build services for Digital Works  
Supervision System Platform with Mobile App ("Services")**

You are invited to submit a tender for the above Services for the Urban Renewal Authority ("the Authority").

**1. Collection of Document**

Please refer to our website <https://www.ura.org.hk/en/announcement/other-tender-invitation-notice> for tender document download.

**2. Conditions of Tender and Scope of Services**

You should refer to the Document when preparing your tender.

The Document explains the conditions of tendering and the scope of the above Services. By submission of your tender, you shall be deemed to have accepted and agreed to the terms and conditions contained in the Document.

**3. Tender Submission**

You should submit your tender **not earlier than 21 August 2020 and no later than 12:00 noon, 26 August 2020** to the **designated tender box** identified with the same tender box number **5** in Dark Brown (499C) color and also labelled for the subject tender in the Authority's office in accordance with the requirements as stipulated in "Section 5 – Method of Submission" of the Document.





Our ref: FD/IT/D/27-31/106/20080128 (cont'd)

3. **Tender Submission (Cont'd)**

You should note that **a full and complying submission is required** as all the submissions will form the basis of the Authority's overall assessment. **Late submission, non-complying submission or submission not deposited into the designated tender box will not be considered.**

This invitation shall not in any way be construed as an offer of appointment on the part of the Authority. Furthermore, the Authority is not bound to accept any tender at all and is not bound to award the tender to any company.

All communication between you and the Authority shall be in writing and addressed to the Authority for the attention of the undersigned and in accordance with the requirements as stipulated in the Document.

If you have any queries regarding the collection of the Document, you may contact our Ms. Melanie Law at 2588 2858.

Yours faithfully,  
For and on behalf of  
URBAN RENEWAL AUTHORITY



Christopher Hui  
Director, Finance

Enclosure



**CONFIDENTIAL**

**URBAN RENEWAL AUTHORITY**

**INVITATION TO TENDER  
FOR THE PROVISION OF DESIGN AND  
BUILD SERVICES FOR DIGITAL WORKS SUPERVISION  
SYSTEM PLATFORM WITH MOBILE APP**



**(August 2020)**

**Urban Renewal Authority  
26/F, COSCO Tower  
183 Queen's Road Central  
Hong Kong**

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**Name of the Service Provider** : \_\_\_\_\_

**Date** : \_\_\_\_\_

**INVITATION TO TENDER FOR THE PROVISION OF DESIGN AND BUILD SERVICES FOR DIGITAL WORKS SUPERVISION SYSTEM PLATFORM WITH MOBILE APP**

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**I. NOTES FOR TENDERERS**

- 1.1 This “Invitation to Tender” document (this “Document”) is an invitation to offer and is made by the Urban Renewal Authority (“the Authority”) to invite the prospective tenderers to submit offers for the provision of design and build services for Digital Works Supervision System platform (DWSSP) with Mobile App (APP) of the Authority (collectively called “the Services”), as briefly described in paragraph 2.6 of Section II below for the period (“the Period”) described in paragraph 2.8 of Section II below in accordance with the terms of this Document.
- 1.2 This Document sets out the terms of the tender. The Authority makes no representation or warranty, whether express or implied, as to the accuracy or completeness of the information contained in this Document. It is the responsibility of the prospective tenderer which submits a tender (“the Service Provider”) to ascertain the feasibility of the Services and to establish the accuracy or completeness of any information relating to this Document and the Services. The Service Provider should ensure that the fees quoted are full and accurate before submitting the offer and the Authority will not accept any request by the Service Provider for adjustment of the fee quotes contained in the offer submitted by the Service Provider.
- 1.3 Unless expressly incorporated into this Document by the Authority by way of supplemental document or otherwise, all discussions, clarifications, correspondence and communications between the Authority and the Service Provider regarding this Document shall have no legal and binding effect.
- 1.4 The Authority is not bound to accept any tender at all and is not bound to award the tender to any Service Provider and the Authority shall not be required to give any reason or justification for its decision.
- 1.5 After appointment, the Authority may, at its sole discretion, instruct the Service Provider, which has been awarded the contract of the Services (the “Successful Service Provider”), to provide all or part of the Services listed in the Document at the fee(s) quoted in Section VIII for the respective services. No claim by the Successful Service Provider to proceed with only part of the Services will be entertained by the Authority.
- 1.6 During the tender evaluation period, the Service Provider may be requested to make presentations and demonstrations of its technical proposal to the Authority free of charge.
- 1.7 Any request for clarification or additional information should be made in writing and directed to Mr. Jack Lau, Senior Manager, Information Technology of the Authority.

- 1.8 All written information and correspondence between the Authority and the Service Provider in relation to the Services shall be marked “Confidential”. Any disclosure or publicity in this regard is strictly prohibited except with the prior written approval of the Authority.

## **II. BACKGROUND AND SCOPE OF SERVICES**

### **Background**

- 2.1 The Government is leading the construction industry to make change by implementing “Construction 2.0” advocating “Innovation”, “Professionalisation” and “Revitalisation” to uplift the capacity and sustainability of the industry, increase productivity, enhance regulation and quality assurance, improve site safety and reduce environmental impact.
- 2.2 With the overwhelming support from the construction industry and the successful trials in the pilot projects, the Government will put forward the wider adoption of the Digital Works Supervision System (DWSS).
- 2.3 A Technical Circular (Works) No. 3/2020 from Development Bureau was issued to all Government departments and related parties to set out the policy and requirements on the adoption of the Digital Works Supervision System (DWSS) in capital works contracts under the Capital Works Programme on or after 1 April 2020.
- 2.4 Urban Renewal Authority, which is one of the statutory bodies and committed to the Government Policy and therefore to adopt DWSS to the upcoming construction projects.

### **Scope of Services**

- 2.5 The Authority would like to invite a competent Service Provider to provide the Services for Digital Works Supervision System platform (DWSSP) with Mobile App (APP) based on the scope and requirements set out in the “Scope of Services” attached as Appendix I.
- 2.6 The key deliverables by the Successful Service Provider and a tentative schedule is listed below. The tentative schedule is subject to further review by the Authority as necessary.

<b>Key Deliverables</b>		<b>Tentative Schedule (no. of Working Days* from contract award)</b>
i	Project kick-off meeting after award of the contract	Within 5 days
ii	Submission of the conceptual designs by the Successful Service Provider to the Authority	20 days
iii	Confirmation of conceptual designs by the Authority	25 days
iv	Completion of all design and build work	95 days

v	User Acceptance Testing (“UAT”)	86 – 95 days
vi	Provision of training to staff of the Authority	96- 99 days
vii	Sign-off acceptance	100 days

*\*Working Day” means a day other Saturdays, Sundays and public holidays and on which banks are open for business in Hong Kong.*

Note: The tentative date of completion of the Services will be 1 February 2021, which is indicative only, and no claim by the Successful Service Provider in connection with the difference between the tentative date and the actual date will be entertained.

- 2.7 The Services shall cover a period from the award of the contract up to the completion of the Services to the satisfaction of the Authority.

### III. **TENDER INVITATION**

#### 3.1 **Tender**

3.1.1 The Service Provider’s submission shall consist of a **Technical Proposal** and a **Fee Proposal** together with same covers.

3.1.2 The **Technical Proposal** shall contain the following:

- a) **Appendix II** – Form of Declaration of Interests duly completed and signed.
- b) DWSS adoption design.
- c) System architecture of the proposed backend system.
- d) System architecture of the proposed front end including mobile App.
- e) Security framework.
- f) Workflow builder.
- g) e-Form builder.
- h) Report builder.
- i) Content Management System.
- j) Information on the proposed project team, including the CVs and experience of each proposed team members.
- k) Past projects reference.

The Service Provider shall ensure that its technical proposal shall be duly completed, self-explanatory and in strict compliance with the above requirements together with any other information considered necessary by the Service Provider. Should there be any omissions or ambiguities in the Service Provider’s submission, the Authority may only ask for further clarifications/ substantiations from the Service Provider at the sole discretion of the Authority.

3.1.3 The Service Provider is required to complete and sign Section VIII (TENDER OFFER) and submit the **whole** of this Document as the **Fee Proposal**.

3.1.4 The fees quoted in Section VIII in respect of the Services shall cover all professional fees involved and all disbursements, inclusive of all out-of-pocket expenses, incurred by the Successful Service Provider in carrying out the Services including but not limited to the following:

- a) applying and obtaining all necessary permits and copyright of the materials, photos and music as required for the Services;
- b) travelling and courier service expenses;
- c) prints / photocopies of drawings / correspondence / documents / reports / photographs issued to the Authority / relevant government departments;
- d) photocopying and printing of all drafts;
- e) presentation drawings and materials;
- f) fees and charges payable to obtain relevant information in Hong Kong;
- g) any sub-contractor services commissioned by the Service Provider as permitted under this Document; and
- h) all labour, technical supports, materials, equipment and tools, etc. not mentioned above but required for the Services.

3.1.5 The quoted fee will be a fixed lump sum payable by the Authority in respect of the Services. Apart from the quoted fee, no other disbursements associated with the Services will be payable by the Authority unless prior written consent has been obtained from the Authority.

3.1.6 All tenders must be submitted in Hong Kong Dollars (HK\$).

3.1.7 The Service Provider must submit the quoted fees in the spaces in Section VIII below. The Service Provider shall not revise, edit or delete any contents herein. Any unauthorized alteration of any terms in the tender may cause the Service Provider's tender submission to be disqualified.

### 3.2 Validity of Fee Quoted

All fees quoted shall, upon acceptance by the Authority, be valid from the date of appointment until the completion of all the Services as described in this Document.

### 3.3 Acceptance of Tender

The Service Provider should submit an irrevocable offer in Section VIII together with the required particulars and information (which shall form part of the offer). All tenders submitted by the Service Provider shall be valid for acceptance for a period of ninety (90) calendar days from and including the tender closing date and it shall remain binding upon the Service Provider and may be accepted by the Authority at any time before the expiration of this period.

### 3.4 Payment of Fees



- 3.4.1 No invoice will be processed and cleared for payment until the specific job to which it relates has been fully and properly completed to the satisfaction of the Authority.
- 3.4.2 The Authority will pay to the Successful Service Provider the quoted fees as stated in Section VIII within 30 calendar days after the receipt of the invoice based on the schedule in para. 3.4.3 below.
- 3.4.3 The payment schedule for the Services is listed as follows:-

<b>Item</b>	<b>Stage Payment (% of the Total Fee)</b>
a) Upon the Authority's approval of conceptual design	50%
b) Upon completion of the system (as described in paragraph 2.6.1) and staff training to the satisfaction of the Authority	40%
c) Upon completion of the maintenance and technical support services for the 12-month warranty period (as described in Appendix I) to the satisfaction of the Authority	10%
<b>Total</b>	<b>100%</b>

### 3.5 Variation

The Authority may issue variation instructions to add, remove or vary the scope of the Services, which addition, removal or variation shall be binding and conclusive on the Successful Service Provider. The value of the authorised variations resulting from such instructions shall be determined by the Authority based on the Successful Service Provider's estimate of the variations and with reference to the fee quoted in Section VIII and the payment schedule in paragraph 3.4.3 as appropriate. No addition, removal or variation required by the Authority shall vitiate the Tender Offer in Section VIII.

## IV. OTHER REQUIREMENTS

### 4.1 Undertaking

The Successful Service Provider undertakes to perform and complete the Services in accordance with the terms of this Document.

### 4.2 Warranty

- 4.2.1 The Successful Service Provider represents and warrants that all necessary and reasonable skill, care and diligence shall be used in the discharge of the Services and the Services shall be provided in a timely, careful and professional manner.

- 4.2.2 The Successful Service Provider represents and warrants that all information provided by the Successful Service Provider to the Authority has been verified to be true and correct and contains no material omission, which is relevant to the tender or the Services.

4.3 Declaration of Interest

- 4.3.1 The Service Provider shall declare to the Authority any interest where there may be real or apparent conflict, direct or indirect, with any of the duties to be performed by the Service Provider during the tendering process or after the award of the tender for the Services. The Service Provider shall be required to sign a Form of Declaration of Interest in the form attached hereto as **Appendix II** for the Services when submitting the tender.
- 4.3.2 On appointment, the Successful Service Provider should require its employees involved in the Services to declare in writing to it any conflict of interest in connection with the Services provided under this assignment. If a conflict of interest situation occurs, the Successful Service Provider should take measures to mitigate or remove the conflict so disclosed. It should also be required to record the conflict of interest declared and such records should be subject to inspection by the Authority.

4.4 Conduct of the Successful Service Provider

- 4.4.1 The Successful Service Provider shall comply with all reasonable instructions of the Authority so far as they relate to the Services.
- 4.4.2 The Successful Service Provider shall keep the Authority informed of all matters relating to the Services within or coming within the knowledge of the Successful Service Provider and shall promptly and properly answer all enquiries received from the Authority and render regular progress reports, whenever necessary or deemed appropriate by the Authority.
- 4.4.3 The Successful Service Provider shall duly and promptly attend all meetings convened by the Authority and shall advise and offer all assistance to the Authority on all matters relating to the Services.
- 4.4.4 The Successful Service Provider is advised that its performance in the Services will be monitored and may be taken into account by the Authority when its future tenders or quotations are evaluated by the Authority.

4.5 No Sub-contracting of the Services

Unless with the prior written approval of the Authority, the Successful Service Provider shall not assign, transfer or sub-contract the Services or any part thereof to any third party and the Services shall be carried out personally by the Successful Service Provider. Without limiting the foregoing, no sub-advisory services are to be commissioned by the Successful Service Provider, even at its own cost, unless with the prior written approval of the Authority. To avoid any doubt, all sub-contractors to the Successful Service Provider shall comply with the requirements stated in this Document, particularly in respect of paragraphs 4.3, 4.6 and 4.11.

4.6 Confidentiality and Publicity

- 4.6.1 The Service Provider shall not during the tendering period or the Period or at any time thereafter for any reason whatsoever disclose to any person or otherwise make use of any information relating to the Authority or this tender or the Services which the Service Provider has or may in the course of preparing the tender or in the course of performing the Services come into possession or become accessible by any means whatsoever; nor shall any provision or otherwise contained in the Document be disclosed without prior written approval of the Authority.
- 4.6.2 All information and documents supplied to the Service Provider in connection with this tender or the Services shall be kept in complete confidentiality, whether or not the Service Provider has submitted any tender or the tender submitted by the Service Provider is successful.
- 4.6.3 Any attempted publicity of any information in connection with this tender or the Services by the Service Provider shall not be made, unless prior written consent is obtained from the Authority.
- 4.6.4 On appointment, the Successful Service Provider will be required to sign undertakings on independence (i.e. no conflict of interest) and confidentiality before starting work in the form attached hereto as **Appendix III**.
- 4.7 Consent to Disclosure

The Authority shall have the right to disclose whenever it considers appropriate or upon request by any third party (written or otherwise) any information on this Document, any of the Service Provider's tender proposal, the Services or any other related information without any reference or notification to the Service Provider.
- 4.8 Ownership, Copyright of Materials and Intellectual Property Rights
  - 4.8.1 All information and materials in whatever form or media prepared / produced in connection with this tender and/or in the performance of the Services shall, save as in respect of information that is publicly available, remain the property of the Authority. The copyright of such information and materials shall be vested in the Authority who shall have the exclusive right to use such information and materials at any times and places and in any forms.
  - 4.8.2 The Successful Service Provider shall only use such information or materials in the performance of the Services and for no other purpose unless prior written consent has been obtained from the Authority.
  - 4.8.3 Upon termination or completion of the Services, all hard copies and soft copies, if any, of the data and information supplied by the Authority shall, at the Authority's discretion, be returned to the Authority immediately or destroyed by the Successful Service Provider directly.
  - 4.8.4 The ownership and all intellectual property rights (including without limitation any patent, copyrights, registered design or trademark) in all web pages, project deliverables, reports, plans, customized software or other materials prepared by the Successful Service Provider or received by the Successful Service Provider in the course of providing the Services described in this Document shall be vested in and belong to the Authority and the Successful Service provider shall not use

any such web pages, documents, customized software, materials or disclose the contents thereof to any third person, in any manner outside the course of the Services, without prior express approval in writing from the Authority.

4.8.5 The Successful Service provider warrants that all hardware, software, design, images and materials supplied by the Successful Service Provider for the development and operation of the Website do not and will not infringe any letters patent, copyrights, registered designs or other industrial or intellectual property rights of any third party whatsoever.

4.8.6 The Successful Service Provider shall fully indemnify the Authority against all liabilities, costs, charges, claims, demands and expense of whatsoever nature arising out of or in connection with any claims that in respect of the Services described in this Document, the use or possession of any material, including without limitation any software or any part thereof, infringe the intellectual property rights of any third party.

#### 4.9 System Acceptance

The Authority will carry out UAT to assess whether the Website as a whole operates in accordance with the accepted design.

#### 4.10 Indemnity

The Successful Service Provider undertakes to indemnify the Authority and keep the Authority fully and effectively indemnified against any and all losses, claims, damages, costs, charges, expenses, liabilities, demands, proceedings, and actions which the Authority may sustain or incur or which may be brought or established against it by any person arising out of or in relation to or by reason of the Successful Service Provider's negligence, recklessness, default or wilful misconduct or the negligence, recklessness, default or wilful misconduct of its employees, agents, consultants or sub-consultants in the provision of the Services or relating to the Services.

#### 4.11 Offering, Soliciting or Acceptance of Advantages

4.11.1 The Authority is a public body under the Prevention of Bribery Ordinance ("POBO") (Cap. 201). The Authority does not permit any of its employees, contractors, consultants, service providers and agents to accept any advantage in connection with the award of this tender. The offer of an advantage to any employee, contractor and agent of the Authority with a view to influencing the award of the tender may constitute an offence under the POBO. Any such offence committed by the Service Provider or its employee(s) or sub-consultants(s) or agent(s) will render the tender null and void. The Authority may also terminate the Services granted to the Successful Service Provider and hold the Successful Service Provider liable for any loss or damages which the Authority may thereby sustain or incur. The Successful Service Provider shall also caution its employees and sub-contractors against soliciting or accepting any excessive hospitality, entertainment or inducements which could impair their impartiality in the performance of the Services.

4.11.2 The Successful Service Provider should prohibit its employees, sub-consultants and agents from offering, soliciting or accepting any advantage as defined in the POBO from any person in relation to the Services. If the Successful Services

Provider or its employee(s) or sub-consultants(s) commits any offence under the POBO in relation to the Services, the Authority shall be entitled to terminate the Services and hold the Successful Service Provider liable for any loss or damages the Authority may sustain.

#### 4.12 Termination

4.12.1 The Authority is entitled to terminate the Services at any time during the Period after awarding the tender to the Successful Service Provider for whatever reasons by giving the Successful Service Provider one week's prior written notice. Without prejudice to the aforesaid, the Authority is entitled to terminate the Services at any time during the Period without notice if there is any breach or non-performance or non-observance of any of the terms of the Services.

4.12.2 Upon the termination of the Services, the Successful Service Provider shall immediately deliver to the Authority all documents, media and information held or received by the Successful Service Provider relating to the Services together with the electronic copies thereof in compact disks or any other form of storage as the Authority may specify and, except in case of termination due to any breach or non-performance or non-observance of any of the terms and conditions contained in the Document, the Authority shall value and pay any fees payable to the Successful Service Provider with reference to the fees quoted in Section VIII.

4.12.3 Upon the termination of the Services, the Authority shall not be liable to the Successful Service Provider for any loss or damages arising out of or in connection with such termination.

#### 4.13 Laws

4.13.1 This Document shall be governed by the laws of the Hong Kong Special Administrative Region. The Authority and the Service Provider agree to submit all disputes in connection herewith to the non-exclusive jurisdiction of the Hong Kong Courts.

4.13.2 Nothing in this Document confers or purports to confer on any third party any benefit or any right to the Contracts (Rights of Third Parties) Ordinance to enforce any terms of the Document.

#### 4.14 Anti-collusion

The Service Provider shall not engage in any form of collusion or communication with the other Service Providers that compromises competition among the Service Providers for this contract. If the Authority discovers that the Service Provider has violated this requirement or there is any suspected violation of section 6 of POBO, then the Authority may take any or all of the following actions:

- (a) invalidate the tender submitted by the Service Provider;
- (b) terminate the contract after the award of the tender to the Service Provider;
- (c) suspend the Service Provider from tendering either forever or for a period of time; and
- (d) report the case to the relevant enforcement authorities for investigation.

**V. SUBMISSION OF TENDER**

5.1 The Service Provider's tender should be prepared according to paragraph 3.1 above and must be submitted in the following manner:

5.1.1 The **Technical Proposal** and **Fee Proposal** together with same covers and in sealed envelopes marked **“CONFIDENTIAL”** and affixed with the following address labels provided:

a) **Proposal** for the Provision of Design and Build services for Digital Works Supervision System platform with Mobile App

5.1.2 The said proposal shall be **deposited by hand not earlier than the earliest return date and on or before the tender closing date and time** (or any extended closing date), both stipulated in the letter of invitation into **the designated tender box** identified with the same tender box number and the same colour tag as the provided address label and also labelled for the deposit of the subject tender situated in **the Authority, 26/F, COSCO Tower, 183 Queen's Road Central, Hong Kong.**

5.2 In the event of a black rainstorm warning or a typhoon signal No. 8 or above being in force at any time between the hours of 9:00 a.m. and 12:00 noon on the day on which tenders are intended to close, the specified closing time of the tender will be extended to 12:00 noon on the next working day which is not a Saturday and on which no black rainstorm warning or typhoon signal No. 8 or above is in force.

5.3 Late submission of tenders or tenders not deposited in the designated tender box or tenders not submitted in the above manner will not be accepted.

**VI. ASSESSMENT CRITERIA**

6.1 The technical assessment areas are stated as follows:

6.1.1 Understanding of objectives & identification of constraints and requirements.

6.1.2 Design of the Digital Works Supervision System Platform and the Mobile App

6.1.3 Innovative ideas/smart features to enhance overall user experience and performance via breakthrough design.

6.1.4 Relevant experience and team structure

6.2 The total fee

6.3 The Authority is not bound to accept any tender at all and is not bound to award the tender to any Service Provider.

**VII. CANCELLATION OF INVITATION TO TENDER**

7. The Authority has the right to cancel the invitation to offer and the tender exercise at any time without giving any reasons, which decision shall be binding and conclusive on all tenderers or potential tenderers.

**VIII. TENDER OFFER**

- 8.1 The Service Provider submits an offer to render the Services in accordance with the terms and conditions contained in the Document within the Period for the Total Fee as stipulated in the following table:

Item as described in the Scope of Services for the Website in Appendix I	Fee (HK\$)
Digital Works Supervision System Platform with Mobile App	
<b>Total Fee (HK\$)</b>	

Name of the Service Provider: \_\_\_\_\_

For and on behalf of the Service Provider

\_\_\_\_\_  
(Authorised Signature with Company Chop)

Date: \_\_\_\_\_

Name and Title of Signatory: \_\_\_\_\_

**Scope of Services of Design and Build Services  
for Digital Works Supervision System Platform (DWSSP)  
with Mobile App (APP)**

The Successful Service Provider is required to design, develop, deploy, testing and commissioning of the Digital Works Supervision System Platform (DWSSP) and Mobile App (APP) for iOS and Android OS by completing all the tasks of the following:

**PART A – General Requirements for Digital Works Supervision System Platform (DWSSP)**

1. Design, develop and implement the responsive website of DWSSP both desktop and mobile versions by delivering conceptual designs and producing web layouts and content in two languages (English and Traditional Chinese), based on the objectives provided by URA according to the following requirements and tasks:

- a) establish the DWSSP following the Technical Circular (Works) No. 3/2020 issued by the Development Bureau of the HKSAR Government;
- b) full implementation of Content Management System architecture;
- c) user profile with multi-factor authentication;
- d) GUI workflow engine for the administrator to create, modify and delete document workflow;
- e) GUI e-form builder for the administrator to create, modify and delete form for data collection;
- f) GUI report builder for the administrator to create, modify and delete report template;
- g) develop web service, API and JSON for data exchange according to the reports created;
- h) system architecture shall complied and ready to adopt “Blockchain” technology in future;
- i) accessible through secure network;
- j) deliver creative design and user-friendly web navigation in accordance with the World Wide Web Consortium (“W3C”) Web Content Accessibility Guidelines (“WCAG”) 2.0;
- k) responsive design (desktop, laptop and mobile versions);
- l) produce interactive and multimedia design where appropriate;
- m) download, share and print-friendly web page;
- n) avoidance of using frame;
- o) use of Cascading Style Sheets (“CSS”) and HTML5
- p) avoid using Adobe Flash;
- q) all web content in English and Traditional Chinese; and
- r) Search function.

**2. System Implementation:**

- a) Provide technical support and perform development for production rollout;
- b) Provide training on the administration and content management DWSSP;
- c) Provide all source codes / files of the DWSSP including but not limited to HTML, graphics, images files, programs, video clips, etc.; and
- d) Provide the following documentation: (1) System implementation guide; (2) Change control procedure; and (3) Training manual and administration guide.



### 3. **Warranty Services:**

- a) On-site nursing period (9:00am – 6:00pm from Mondays to Fridays) for the first two weeks after production launch if necessary;
- b) Provide on-site support to fix any error, bug, fault or problem, as and when required by URA during the 24-month warranty period; and
- c) Refer to Part C of this Annex I for details.

### **The Design and Features DWSSP**

4. The design should be modern, clear and user-friendly for the youth with the adoption of smart features commonly adopted in webpage design. The design should include but not limited to the following requirements.
  - a) **User Interface:** User interface should adopt a modern design, e.g., flat design, to present content in a neat and tidy way.
  - b) **Navigation:** The design and information presentation should simple and suitable to all leave on construction site worker.
  - c) **Search Engine:** Able to search documents within the system
  - d) **Content Management System (CMS):** Develop a user-friendly CMS or ride on commonly used operating system for CMS. The CMS should be compatible with the setting of URA, whenever automatic or manual updates are available.
  - e) Provide the following documentation: (1) Visual design (e.g. layout, artwork); and (2) Site wireframe (e.g. web page navigation), etc.

## **PART B - Technical Requirements, Testing, Training, Maintenance and Other Requirements for the Digital Works Supervision System Platform (DWSSP)**

1. The DWSSP shall consists of website and CMS either seat together or separate into two servers, the Successful Service Provider shall coordinate with URA Information Technology Department in arranging the configuring, setting up and loading of the DWSSP soonest appropriate.
2. **Technical Environments**
  - a) The DWSSP website and CMS facilities/servers shall host on Microsoft Azure cloud and provided by URA (no cost of hosting to the Success Service Provider). Requirement of the proposed architecture shall be provided by the Success Service Provider in due caused.
  - b) The design of production server, where appropriate including the email services and database system, and the CMS server for the DWSSP website shall allow for high availability implementation.
  - c) All desktop clients shall be OS independent.
  - d) All servers architecture shall fully compatible to Microsoft Azure, end-to-end communication encryption required, compatible to Blockchain upgrade/enhancement
3. Propose maintenance plan of DWSSP.
4. All servers are firewall and anti-spam gateway protected for the perimeter security. The Successful Service Provider shall recommend security solution where necessary and appropriate, to enhance the protection of all data maintained by and obtained through the DWSSP. The Successful Service Provider shall liaise with URA Information Technology Department for the consent of the additional security measurements.
5. For the proper control of quality and timing, the Successful Service Provider shall agree with URA to deploy a Project Management Framework Methodology (“PMFM”) as shown below:

- Software Development Life Cycle (“SDLC”)
6. Perform testing of all kinds during the development of the DWSSP website, including but not limited to:
    - Unit test
    - Functional test
    - Integration test
    - Prototyping
    - Stress test
    - User acceptance test (with scenario and test guide to users)
  7. Provide on-site training to the staff of URA including but not limited to the following topics:
    - a) structure of the DWSSP;
    - b) administration of the DWSSP;
    - c) web content update procedures;
    - d) generation of workflow;
    - e) generation of e-form;
    - f) generation of report;
    - g) use of content update facilities; and
    - h) administration and maintenance of the web online/ database facility.
  8. Carry out maintenance and technical support services for the DWSSP for a 12-month warranty period after acceptance, including but not be limited to the following:
    - a) Notify URA any works required in technical aspect.
    - b) Provide technical assistance (including hotline services during normal office hours
    - c) Provide emergency repair and maintenance to any
    - d) Provide system performance report (e.g. traffic utilization, number of user accesses, and pages hit rate, etc.).
    - e) Provide content updates and maintenance for the DWSSP as it has not CMS aware.
  9. The Successful Service Provider shall submit, upon the completion of the DWSSP and relevant acceptance test by URA, the following deliverables and documentation:
    - a) The production website that conforms to the stipulated requirements;
    - b) Package software licenses (if applicable);
    - c) Package software user guides (if applicable);
    - d) One copy of all program sources codes, webpage templates and HTML files in physical media;
    - e) One copy of technical manual – to provide an overview of the hardware and software environment of the DWSSP, site structure, directory structure and file naming convention, and other technical details;
    - f) One copy of operation manual – to provide procedural guidelines in carrying out routine content updating and uploading of modified website, control procedures on changes and additions to the website, report generation procedures such as performance statistics and web access statistics, and administration procedures (including backup, archiving, restore, monitoring and tuning) of the online/database facilities;
    - g) Site flow diagrams and design/layout documents.
  10. The Successful Service Provider shall fully understand and follow, wherever applicable, the following policies and requirements for IT security and website design, and the tender and proposal submitted are deemed to be in full compliance with all these requirements where it is applicable:
    - a) Government’s IT security policy and guidelines which can be downloaded from the following web link:  
[http://www.ogcio.gov.hk/en/information\\_security/policy\\_and\\_guidelines/](http://www.ogcio.gov.hk/en/information_security/policy_and_guidelines/)

- b) “Tips for Improving Accessibility of Webpages” under the following web link:  
[http://www.ogcio.gov.hk/en/community/web\\_accessibility/handbook/](http://www.ogcio.gov.hk/en/community/web_accessibility/handbook/)

**Part C – Design and Build Services of DWSSP Mobile App (APP) for iOS and Android OS**

**1. Functions of the DWSSP mobile App shall include the following:**

- a) Design and develop a creative and user-friendly UI/UX APP for all level on construction site worker.
- b) Information of DWSSP’s designed forms can be download automatically.
- c) Push notification.
- d) Single hand operation (simple operation).
- e) Real-time data retrieval.
- f) Less mobile data consumption.
- g) Less mobile app version update (Apple App store and Google Play Store)
- h) May use of GPS for multiple site implantation approach
- i) Bilingual in English and Traditional Chinese.
- j) Support services shall equivalent to DWSSP

**Appendix II**

**Tender for the Provision of Design and Build Services for Digital Works Supervision System Platform (DWSSP) with Mobile App (APP)**

**FORM OF DECLARATION OF INTERESTS**

The Service Provider hereby declares to the Authority any interest where there may be real or apparent conflict, direct or indirect, with any of the duties to be performed by the Service Provider during the tendering process or after the award of a contract.

The Service Provider is required to provide a **“Nil” declaration if there is no such conflict.**

The Service Provider’s Declaration of Interest: \_\_\_\_\_ (Please state ‘Yes’ or ‘Nil’)

**If the above declaration is ‘Yes’, the Service Provider is required to provide details.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of the Service Provider: \_\_\_\_\_

Signed by: \_\_\_\_\_  
(Authorised Signature with Company Chop)

Name of Signatory: \_\_\_\_\_

Date: \_\_\_\_\_

**PROVISION OF DESIGN AND BUILD SERVICES  
FOR DIGITAL WORKS SUPERVISION SYSTEM PLATFORM  
WITH MOBILE APP**

**DECLARATION OF NO CONFLICT OF INTEREST  
AND  
CONFIDENTIALITY UNDERTAKING**

To : Urban Renewal Authority  
26<sup>th</sup> Floor, COSCO Tower,  
183 Queen's Road Central  
Hong Kong

WE, \_\_\_\_\_, a firm carrying on  
its business at \_\_\_\_\_

\_\_\_\_\_, declare that we are not aware of any conflict of interest or other reason which would prevent us from acting as the service provider on behalf of the **Urban Renewal Authority** ("the Authority") in respect of the **provision of design and build services for Digital Works Supervision System Platform with Mobile App** (collectively called "**the Assignment**") and in consideration of the Authority having appointed us as its service provider in the Assignment and providing us now and from time to time in future with information ("Information") in respect of the Assignment, hereby agree and undertake with the Authority as follows:

1. To maintain confidential all the Information and all reports, results and other materials generated by us in providing our consultancy services to the Authority ("Materials"). We agree that the Information and the Materials and all intellectual property rights subsisting therein are the property of the Authority and we shall respect the proprietary rights therein of the Authority. We shall use the Information and Materials only for the purpose of providing our consultancy services to the Authority in respect of the implementation of the Assignment and shall disclose the Information and Materials only to those of our staff members which are assigned to carry out the said consultancy services and to whom such disclosure is necessary for that purpose, to partners of our firm on a need to know basis, to other persons to the extent necessary in providing our consultancy services as described in the letter of appointment, or as directed by you. In addition, we further agree and undertake that under no circumstances will we use or disclose the Information and Materials, whether or not for monetary rewards or for personal gain, to any person or party and for any purpose other than to those persons or parties and for such purposes as provided above.

(Page 2 of 3)

2. We shall procure that all of our staff member, those partners of our firm and other persons as described in paragraph 1 above having access to the Information and Materials are made aware of our obligations described herein and we shall also instruct each such person to act accordingly.
3. Upon your request in writing at any time, we shall forthwith return to the Authority the Information and Materials and all copies and preliminary drafts thereof. We shall thereafter cease to have any right to use the Information and Materials and for the avoidance of doubt our obligations set out herein shall remain in place. Notwithstanding the foregoing, we may retain one copy of the Information and Materials solely for the purposes of recording the work carried out, or opinion rendered by us or in order to comply with our professional indemnity insurance policies and we shall not retain or use any such copy of the Information and Materials for any other purpose. We hereby acknowledge that our obligations set out herein will continue to apply in respect of any retained copy of the Information and Materials.
4. The foregoing obligations cease to or do not apply to the Information and Materials:
  - (i) if the Information and Materials is legitimately in our possession and at our free disposal prior to our receipt thereof from Urban Renewal Authority, or is legitimately published or is otherwise in the public domain; or
  - (ii) if the Information and Materials is disclosed to us by a third party having no obligations to you in respect of the Information and Materials of which we have reasonable cause to be aware at the time of the disclosure to us; or
  - (iii) which is requested or required to be disclosed by law, regulation, supervisory authority, judicial or governmental order or our professional body; or
  - (iv) with the prior consent of the Authority the disclosure of which is considered necessary by us to defend or respond to any claim or other action against us.
5. To secure the confidentiality attaching to the Information and Materials, we shall:
  - (i) keep separate all physical Information and Materials from all documents and other records of our firm;
  - (ii) keep all documents and any other material bearing or incorporating any of the Information and Materials at our usual place of business in Hong Kong, namely

\_\_\_\_\_  
\_\_\_\_\_  
or at our permanent storage facility at \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

- (iii) not use, reproduce, transform, or store any of the Information or Materials in an external computer or electronic information retrieval system outside the computer network of our firm or transmit the same in any form or by any means whatsoever outside the computer network of our firm;

(iv)

**(Page 3 of 3)**

- (v) make copies of the Information and Materials only to the extent that the same is strictly required for the purposes of the consultancy services to be undertaken by us in respect of the Assignment.

6. This Undertaking shall be governed by the laws of Hong Kong and the Authority and we agree to submit all disputes in connection herewith to the non-exclusive jurisdiction of the Hong Kong Courts.
7. Nothing in this Undertaking confers or purports to confer any third party any benefit or any right pursuant to the Contracts (Rights of Third Parties) Ordinance to enforce any terms of this Undertaking.

Signed by

---

For and on behalf of

---

Date

**NON-COLLUSIVE TENDERING CERTIFICATE**

To : Urban Renewal Authority ("URA")  
26<sup>th</sup> Floor, COSCO Tower  
183 Queen's Road Central  
Hong Kong

1. WE,  
\_\_\_\_\_, a firm carrying on its business at  
\_\_\_\_\_  
\_\_\_\_\_, refer to the tender for consultancy,  
implementation and subscription services for cloud based enterprise resource planning  
system (the "Tender") and our tender in relation to the Tender.

**Non-collusion**

2. We represent and warrant that in relation to the Tender:
- (a) Our tender was developed genuinely, independently and made with the intention to accept the contract for the services under the Tender ("the Contract") if awarded;
  - (b) Our tender was not prepared with any agreement, arrangement, communication, understanding, promise or undertaking with any person (including any other tenderer or competitor) regarding:
    - (i) prices;
    - (ii) methods, factors or formulas used to calculate prices;
    - (iii) an intention or decision to submit, or not submit, a tender;
    - (iv) an intention or decision to withdraw a tender;
    - (v) the submission of a tender that does not conform with the requirements of the Tender;
    - (vi) the quality, quantity, specifications or delivery particulars of the products or services to which the Tender relates; and
    - (vii) the terms of the Tender,
- and we undertake that we will not, prior to the award of the Contract, enter into or engage in any of the foregoing.



3. Paragraph 2(b) of this certificate shall not apply to agreements, arrangements, communications, understandings, promises or undertakings with:
- (a) the Authority;
  - (b) a joint venture partner, where joint venture arrangements relevant to our tender exist and which are notified to the Authority;
  - (c) consultants or sub-contractors, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular consultancy arrangement or sub-contract;
  - (d) professional advisers, provided that the communications are held in strict confidence and limited to the information required for the adviser to render their professional advice in relation to the Tender;
  - (e) insurers or brokers for the purpose of obtaining an insurance quote, provided that the communications are held in strict confidence and limited to the information required to facilitate that particular insurance arrangement; and
  - (f) banks for the purpose of obtaining financing for the Contract, provided that the communications are held in strict confidence and limited to the information required to facilitate that financing.

**Disclosure of subcontracting**

4. Without prejudice to any provisions in the Tender and the terms of the Contract concerning subcontracting, we understand that we are required to disclose all intended sub-contracting arrangements relating to the Tender to the Authority, including those which are entered into after the Contract is awarded. We warrant that we have duly disclosed and will continue to disclose such arrangements to the Authority.

**Consequences of breach or non-compliance**

5. We understand that in the event of any breach or non-compliance with any warranties or undertakings in this certificate, the Authority may, at its discretion, invalidate our tender, exclude us in future tenders, pursue damages or other forms of redress from us (including but not limited to damages for delay, costs and expenses of re-tendering and other costs incurred), and/or (in the event that we are awarded the Contract) terminate the Contract.
6. Under the Competition Ordinance, tender-rigging is serious anti-competitive conduct. We understand that the Authority may, at its discretion, report all suspected instances of tender-rigging to the Competition Commission (the "Commission") and provide the Commission with any relevant information, including but not limited to information on our tender and our personal information.

Signed by

\_\_\_\_\_  
For and on behalf of

\_\_\_\_\_  
Date

**PROVISION OF DESIGN AND BUILD SERVICES  
FOR DIGITAL WORKS SUPERVISION SYSTEM PLATFORM  
WITH MOBILE APP**

**TECHNICAL CIRCULAR (WORKS) No. 3/2020 DIGITAL WORKS  
SUPERVISION SYSTEM  
AND  
REFERENCE SPECIFICATION FOR DWSS  
(ATTACHMENT 24 PAGES)**

香港特別行政區政府  
The Government of the Hong Kong Special Administrative Region

政府總部  
發展局  
工務科

香港添馬添美道 2 號  
政府總部西翼 18 樓



Works Branch  
Development Bureau  
Government Secretariat

18/F, West Wing,  
Central Government Offices,  
2 Tim Mei Avenue, Tamar,  
Hong Kong

Ref : DEVB(PSGO)/38/2  
Group : 5

27 March 2020

Development Bureau  
**Technical Circular (Works) No. 3/2020**

**Digital Works Supervision System**

**Scope**

This Circular sets out the policy and requirements on the adoption of the Digital Works Supervision System (DWSS) in capital works contracts under the Capital Works Programme, with pre-tender estimate exceeding \$300 million and to be tendered on or after 1 April 2020.

**Effective Date**

2. This Circular takes immediate effect.

**Effect on Existing Circulars and Circular Memoranda**

3. This Circular shall be read in conjunction with ETWB TC(W) No. 12/2004.

## **Background**

4. The Government is leading the construction industry to make change by implementing “Construction 2.0” advocating “Innovation”, “Professionalisation” and “Revitalisation” to uplift the capacity and sustainability of the industry, increase productivity, enhance regulation and quality assurance, improve site safety and reduce environmental impact.

5. The 2019-20 Budget announced that the Government would promote digitisation of the supervision system and conduct trials in pilot projects in order to enhance the standard and efficiency of works supervision.

6. With the overwhelming support from the construction industry and the successful trials in the pilot projects, the Government will put forward the wider adoption of the DWSS.

## **Policy**

7. Capital works contracts, including capital subventions contracts under Head 708, shall adopt the DWSS with an aim of enhancing the standard and efficiency of works supervision as well as the quality and safety of works. Bureaux/Departments are encouraged to adopt the DWSS in other works contracts, such as maintenance and term contracts, with a view to strengthening works supervision.

## **Adoption of the DWSS**

8. The DWSS is essentially a web-based centralised portal of collecting construction works information and managing the workflows of site activities to enhance efficiency, safety and quality performance. The DWSS shall be accessible through secure network and operated on desktop and laptop computers and mobile devices.

9. The captured data shall be synchronised automatically across all devices and servers to support efficient flow of information including site records among contractor, site supervisory staff and employer/client, and enable timely reporting and alert of works progress and performance.

#### Design Stage

10. The DWSS shall form part of the proposal for contract computer facilities under ETWB TC(W) No.12/2004. In preparing the contract specification, the employer/client and/or the consultants shall refer to the reference specification at **Annex A** which sets out the basic requirements of the DWSS. Apart from the five mandatory modules as stipulated in Section 1 of the reference specification, additional provisions or modification to the reference specification may be imposed to address specific requirements of individual works contract if justified. The employer/client and/or the Consultants shall take into account the nature and scope of works contract, establishment of site supervisory staff, availability of mobile network and Wi-Fi provision in construction site, etc. Approval of the DWSS specification shall be sought from an Approval Officer as required under ETWB TC(W) No.12/2004.

11. The estimated cost of the DWSS shall not exceed \$10 million or 0.5% of estimated contract sum whichever is lower. If the aforementioned limit is to be exceeded, approval from an officer at D2 rank or above shall be obtained. For avoidance of doubt, the estimated cost of the DWSS shall not form part of the estimated cost of contract computer facilities under ETWB TC(W) No.12/2004.

#### Construction Stage

12. The employer/client's representative<sup>1</sup> shall review Contractor's DWSS proposal against the contract specification and seek employer/client's endorsement before accepting the DWSS proposal.

---

<sup>1</sup> Employer/client's representative means the Architect, the Engineer, the Supervising Officer, the Project Manager or the like as defined under the contract.

### Completion of Contract

13. Upon completion of the contract, the DWSS shall be handed over to the employer/client for record and facilitating future operation and maintenance works.

### **Exemption**

14. On exceptional grounds, such as substantial impact on project delivery or projects of little works content, the Head of the department concerned may exempt the adoption of the DWSS as required under this Circular.

### **Enquiries**

15. Enquiries on this Circular shall be addressed to Chief Assistant Secretary (Works) 1.

**( LAM Sai-hung )**  
**Permanent Secretary for Development (Works)**

## Reference Specifications for DWSS

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## **System Requirements for DWSS**

### **1. General**

#### **1.1 System Description**

1.1.1 The Digital Works Supervision System (DWSS) is a workflow enabled application system which consists of the following five mandatory modules to facilitate the digital processing of the required forms and records with one centralised database system:

- i. Request for Inspection/Survey Check (RISC) Form;
- ii. Site Diary/Site Record Book;
- iii. Site Safety Inspection Records;
- iv. Cleansing Inspection Checklists;
- v. Labour Return Record;

The functional requirements of the abovementioned mandatory modules are detailed in Section 7.

1.1.2 The employer/client's representative<sup>1</sup> shall appoint and assign duties of system administrator(s) for the employer/client, the employer/client's representatives, contractors or other parties as approved by the employer/client's representative to manage and assign functional modules, access right and authorities, etc. to different staff in their organisations.

1.1.3 The DWSS shall be fully accessible via a web-browser by a desktop computer/laptop computer with secured internet connection (HTTPS) without physical or geographical limitation. No other software or licenses shall be necessary to access the DWSS.

1.1.4 The DWSS shall be fully accessible by a Mobile App on iOS and Android operating systems through internet connection. The Mobile App installed on mobile devices shall support the input, storage and retrieval of data, photographs and/or attachments into/from a centralised database storage for designated workflow processes.

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<sup>1</sup> Employer/client's representative means the Architect, the Engineer, the Supervising Officer, the Project Manager or the like as defined under the contract.

- 1.1.5 The DWSS shall support English display and input. If requested by the employer/client's representative, the DWSS shall support multi-language display, including Traditional Chinese, automatically according to the language settings of users' internet browser and mobile devices.
- 1.1.6 The DWSS shall be designed to manage the workflows of submission and approval processes during the administration and supervision of the construction activities. The data collected shall be stored as its original format (including but not limited to textual and numerical) in database fields, which could be made available to third-party applications through an Application Programming Interfaces (API) or Web Services (e.g. Restful) within 24 hours.

## **1.2 Mobile App Requirements**

- 1.2.1 The Mobile App shall be a native application which includes the ability to implement/trigger the native library on mobile devices such as camera, GPS, messaging, alert and notification directly.
- 1.2.2 The users shall be able to execute the required actions, including but not limited to submission, approval and operations, directly on the Mobile App. The captured data shall be automatically synchronise with the DWSS backend server (either physical server or Cloud server) whenever internet connection is available.
- 1.2.3 The DWSS shall be able to temporarily cache/store information and data on mobile devices at the time of inspection or completing the records when internet connection is not available. All the records in the temporary cache/storage shall be automatically synchronised to the DWSS backend server once internet connection is available.
- 1.2.4 Notification shall be issued to the users from the Mobile App for assigned action items.

The Contractor shall maintain the Mobile App to support the latest iOS or Android operating system.

## **1.3 System Availability**

- 1.3.1 The DWSS servers shall always be accessible when internet connection is

available. The users shall be able to access the system with internet browsers or Mobile APP to undertake daily operation without physically and geographical limitation.

- 1.3.2 The Contractor shall guarantee 99.9% system uptime during working hours of the Contract. The Contractor shall provide redundant infrastructure, including hardware, software and network connection, as a measure of system failover to ensure the system stability and accessibility.
- 1.3.3 Planned maintenance shall be undertaken outside working hours or as agreed with employer/client's representative. Full backup of system data shall be undertaken before conducting major system maintenance.
- 1.3.4 The Contractor shall propose a disaster recovery plan and provide required infrastructure guaranteeing full system accessibility within 12 hours of major disaster in hosting site. Backup scheme is required to protect the data loss of less than 24 hours.

#### **1.4 System Delivery**

- 1.4.1 Within 1 month from the commencement of the contract, the Contractor shall propose the DWSS and arrange a live demonstration for employer/client's representative's approval.
- 1.4.2 The Contractor shall submit the DWSS proposal within eight weeks after the commencement of the contract or within a period as agreed with the employer/client's representative. The DWSS proposal shall include but not limited to the design of the forms, records, report and dashboard, workflow processes and the allowable time for completing each action in the workflow, network configuration, hosting environment, schedule of system delivery, user acceptance criteria, backup and disaster recovery plan, and security assurance plan, etc.
- 1.4.3 The DWSS shall be commissioned within three months from the commencement of the works contract or within a period as agreed with the employer/client's representative.

## **2. System Security**

### **2.1 General**

2.1.1 The DWSS servers shall be hosted at site office or externally in data centre or cloud-based system.

2.1.2 For the DWSS servers hosted at site office, it shall be protected and separated from other systems by firewall (e.g. trusted zone, DM zone, etc.) and/or Virtual Private Network (VPN). The Contractor shall ensure the hosting environment meets the requirements of data confidentiality, system integrity, system availability/accessibility, and data privacy aspect as agreed with the employer/client's representative.

2.1.3 For the DWSS servers hosted in data centre or cloud-based system, the Contractor shall ensure that the selected hosting solution is configured, deployed and managed to meet the data confidentiality, integrity, availability and privacy aspects in compliance with globally recognised industrial security standard, e.g. TIA-942 certified Tier 3 data centre and, ISO/IEC 27001. The Contractor shall provide an up-to-date independent auditor report for achieving international recognised certification, e.g. ISO/IEC 20000 or ISO/IEC 27017 to demonstrate the cloud service provider has required capability in security and risk management.

2.1.4 Secure connection of at least 256-bit SSL shall be used for any network communication, transaction and data feed.

### **2.2 Electronic Authentication**

2.2.1 Each user shall be assigned a unique login ID in the system with a strong password with a mix of at least eight mixed-case alphabetic characters, numerals and special characters.

2.2.2 Two-factor authentication shall be adopted for users to log on to the DWSS. For example, authentication using login ID with strong password plus biometric authentication (i.e. facial or fingerprint recognition) or other authentication as agreed with employer/client's representative.

- 2.2.3 Single-factor authentication shall be adopted for users to perform the functions of the DWSS i.e. submission, acknowledgement, approval and completion of assigned workflow, etc. For example, authentication using strong password, biometric authentication (i.e. facial or fingerprint) or other authentications as agreed with employer/client's representative.

## **2.3 Mobile Device Management (MDM)**

- 2.3.1 Mobile Device Management (MDM) software is required to distribute, upgrade, manage and wipe the DWSS applications, data and configuration settings for all type of registered mobile devices used in the contract over-the-air.
- 2.3.2 The Contractor shall propose an MDM software and the MDM policy and agree with the employer/client's representative within one month after acceptance of the proposed DWSS.
- 2.3.3 The Contractor shall setup and maintain an MDM software to ensure the system security and integrity of the registered mobile devices across multiple mobile operating systems. The DWSS shall prevent all access from non-registered mobile devices.

## **2.4 System Backup**

- 2.4.1 The DWSS shall perform scheduled incremental backup on a daily, weekly and monthly interval automatically. An off-site backup of full system data, including audit trails and system logs, shall be undertaken every month or at a frequency as agreed with the employer/client's representative to minimise the impact of system failure and any possible virus or ransomware attacks.
- 2.4.2 The Contractor shall keep at least three versions of backup of the DWSS for at least 12 months. For site hosted system, the backup copies shall be stored on at least two different media types. At least one of those copies shall be kept offsite, or locations as agreed with the employer/client's representative.
- 2.4.3 The Contractor shall provide necessary infrastructure, including hardware, software, backup media etc., to support the backup exercise.
- 2.4.4 The Contractor shall carry out the system backup restoration test during

acceptance test of the DWSS and every 12 months thereafter.

- 2.4.5 The DWSS shall download and replicate a local copy of the application data automatically to the site office server on a daily basis if the DWSS is a cloud based Software as a Service (SaaS) application. The Contractor shall set up failover server if the DWSS server is hosted on site.

## **2.5 Logging and Monitoring**

- 2.5.1 The DWSS shall maintain and keep the audit trails and system logs for a minimum period of six month to record add, edit and/or delete process undertaken by users.
- 2.5.2 The Contractor's system administrator shall submit the log records every three months for employer/client's representative's review to ensure system security and integrity.

## **2.6 IT Security**

- 2.6.1 The Contractor shall implement measures and conduct IT security audits to ensure the security of the DWSS in accordance with Chapter IX of the Security Regulations, the Baseline IT Security Policy promulgated by the OGCIO and the derived employer/client's IT Security Policy that complies with the Security Regulations and the Baseline IT Security Policy, in accordance with the ETWB TC(W) No.12/2004. The data stored on the DWSS are encrypted in transit and at rest. The Contractor shall also implement appropriate arrangements for preventing unauthorised access to the DWSS and its data.

# **3. Basic Functional Requirements**

## **3.1 Form and Data Management**

- 3.1.1 The DWSS shall be able to capture different types of module-specific data, including but not limited to text, numbers, date and time, locations, identification of users, checkbox, URLs, files and images, in workflow-enabled forms.
- 3.1.2 All captured data shall be kept in a database management system in the form of textural, numerical, date & time, locations format, to support direct indexing,

searching, filtering and reporting purpose. The textual data stored in the database fields of the forms or records shall be in English.

- 3.1.3 The fields in the inspection forms shall be set up as selection list and check boxes whenever possible to minimise the “free-text” entry.
- 3.1.4 The system shall be able to display and capture English characters in UNICODE standard on the system forms and database fields.
- 3.1.5 All the captured data and workflow process in the DWSS shall be extractable by an Application Programming Interface or Web Services.
- 3.1.6 The DWSS shall manage predefined forms for users to undertake daily operations on-site and in office.
- 3.1.7 Workflows are triggered by assigning the forms to next approval or reviewing party. Users cannot edit the form after submission. User re-authentication is required prior to submission, acknowledgement, approval and completion of assigned workflow activities.
- 3.1.8 A unique identifier shall be stamped to all forms and records as an attribute in the DWSS database. The unique identifier shall be 6-digit serial number with one character for the revision/resubmission number, which shall be automatically generated by the DWSS. The filing system for the DWSS forms and records shall make reference to the example as shown below:

*Module/Type of Form/Serial NumberRevision*

For example: RISC/SUR/000001A, where

Field 1: Up to 4 characters for Application type

RISC: Site Inspection/Survey Request Form

SD: Site Diary

SRB: Site Record Book

SSR : Site Safety Record

CIC: Daily and Weekly Cleansing Inspection Checklist

LRR: Labour Return Record

Field 2: Up to 4 characters for Application form sub-type

SUR: Survey

SI:	Site Inspection
PW:	Pre work Safety Check
WSI:	Weekly Safety Walk Inspection
MSI:	Monthly Safety Walk Inspection
EI:	Environmental Inspection
PTW:	Permit to work
NCR:	Non-conformity Reports
SPP:	Safety Performance Report
SCR:	Safety Score Card
DCI:	Daily Cleansing Inspection
WCI:	Weekly Cleansing Inspection
XX:	Not Applicable

Field 3: 6-digit serial number, which shall be automatically generated by the DWSS (e.g. 000000 - 999999)

Field 4: 1 character for the revision/resubmission character, i.e. A-Z

3.1.9 The DWSS shall assign a unique identifier automatically and sequentially for each form and record at the time when it is generated. The DWSS shall allow the authorised system administrator to correct mistakenly assigned numbers and file reference numbers. A function shall be provided to backward the status in the creation of folio number operation.

3.1.10 The DWSS shall allow the user to create and store draft records created using Mobile App or web-browsers as temporary records in the DWSS backend servers. The system shall allow users to edit the temporary records before submission, review or approval.

3.1.11 The submitted, reviewed or approved forms or records shall be stored and locked permanently. Change to these records is not allowed by unauthorised users. Changes can only be made through rejection and resubmission of workflows which supersede the previous records.

3.1.12 Each submission and approval shall be time-stamped with the associated issuers or approvers.



### **3.2 Photograph Management**

- 3.2.1 The Mobile App shall be able to capture images directly from the cameras of the mobile devices and the photos shall be appended to applicable forms or records directly. Only the photos captured by the same device can be used for inserting into the DWSS forms and records.
- 3.2.2 The resolutions of the photographs shall be optimised, compressed and resized automatically before uploading to the DWSS backend server. The maximum file size of each uploaded photograph shall be less than 1MB or as agreed with the employer/client's representative.
- 3.2.3 The date, time and GPS location of the photographs shall be captured/extracted from the mobile devices and stored as the metadata of the photographs or attribute fields of the associated forms or records. The GPS locations shall be exportable to HK80 coordinates system.

### **3.3 User Management**

- 3.3.1 The DWSS shall manage user access right for the authorised users or user groups from the employer/client, Consultants, Contractors and/or any other parties, including but not limited to sub-contractors and suppliers as approved by the employer/client's representative.
- 3.3.2 The DWSS shall allow the authorised system administrators to assign users to different user groups, manage and assign different access right to different users or user groups, etc.
- 3.3.3 The DWSS shall provide a user management portal to facilitate system administrators to grant, change and/or revoke user access rights and assigning functional modules to users.
- 3.3.4 The DWSS shall issue login and password to users by email once their accounts have been set up. Users are required to change the default password at first login. The DWSS shall require the users to change the password every three months or at a frequency as agreed with employer/client's representative.
- 3.3.5 The users can reset their own password with their registered email and multiple

factors authentications.

- 3.3.6 The DWSS shall temporary suspend a user account after a five invalid logon attempts and keep all logs. The DWSS shall only allow authorised system administrator to unlock and configure user accounts.

## **4. Workflow and Report Management**

### **4.1 Workflow**

- 4.1.1 Workflows are time-based electronic processes to circulate forms or records automatically to designated users or groups of users.
- 4.1.2 The DWSS shall be able to digitise site operation workflows and capture approval history, inspection records and site records as required under the contract.
- 4.1.3 The DWSS shall be able to issue notifications to designated users according to the workflow assignment.
- 4.1.4 The DWSS shall provide the interfaces for the system administrator to edit the workflow when necessary.
- 4.1.5 The DWSS shall be able to maintain all records and their relationships created in previous workflow process when changes to the workflow are made afterwards. The users shall be able to retrieve all records in the DWSS according to the hierarchy and relationships created from workflow processes.
- 4.1.6 The Contractor shall agree with the employer/client's representative on the criteria and workflow in generating alert notifications by means of emails or push notifications to designated users for overdue actions and poor performance, etc.

### **4.2 Dashboard**

- 4.2.1 Dashboard provides a near real-time abstract, summary and analytics of the collected data and workflow processes.
- 4.2.2 The dashboard shall only be accessible by authorised users.

- 4.2.3 The DWSS shall provide dashboard page(s) on all input data, usage statistics of all mandatory modules, including but not limited to submission and approvals, defects summary, register summary of RISC forms, site resources statistics, late-submission analysis, in the form of charts, graphical and/or tabular format. The detailed requirements of the dashboard for each module shall be referred to section 7. Contractor shall agree with the employer/client's representative on the content and presentation of the dashboard page(s) within three months after the contract commencement.
- 4.2.4 The DWSS shall be able to generate near real time statistics of the information captured in desktop computers, laptops computers and mobile devices.
- 4.2.5 The dashboard shall support search, filter, sort, re-arrange in descending/ascending order functions of all displayed fields. By selecting the fields, users can extract detailed information of the selected fields.
- 4.2.6 The dashboard results shall be shown on both the Mobile App and web-browser without any additional software. All the reports shall be printable directly by the web-browser.
- 4.2.7 The dashboard results shall be downloadable in form of PDF, tabular (e.g. XLS, CSV) or other format as agreed with the employer/client's representative without any additional software.

### **4.3 Reports and Alerts**

- 4.3.1 Reports and alerts of site activities shall only be accessible by authorised users or user groups with designated authorities.
- 4.3.2 The DWSS shall allow authorised users to generate printable reports for inspection forms, reports and dashboard, etc. in PDF format and enable grouping and filtering by selected period, location, trade, creation/submission/inspection date/time, users and/or user groups without installing any additional software.
- 4.3.3 The DWSS shall allow authorised users to generate printable reports of the workflow progress, such as process time, dead-locked process, assignation track, etc. grouped and filtered by selected period, location, trade, creation/submission/inspection date/time, users and/or user groups without

installing any additional software.

- 4.3.4 The DWSS shall support export of the records into PDF, tabular (e.g. XLS or CSV) or other formats as agreed with the employer/client's representative. The output format shall be configurable in accordance with the requirements of the contract or other standard forms commonly used for construction works (e.g. G.F. 527 for Labour Return).
- 4.3.5 The DWSS shall generate alerts and reminders by means of emails and/or push notifications for events including but not limited to overdue/outstanding actions, missing forms, incomplete inspection tasks, incomplete forms, incomplete workflow process, poor performance and/or other events as agreed with the employer/client's representative. The DWSS shall send alerts and reminders to designated users by email and/or SMS as agreed with employer/client's representative.

#### **4.4 Search Function**

- 4.4.1 The DWSS shall provide search functions for records with file or form numbers, keywords, issuance and inspection date, tags, versions, drawing numbers, locations, area, trades, users, and other relevant data, etc.
- 4.4.2 The DWSS shall support searching of relevant records in the workflow.
- 4.4.3 The offline copy of the DWSS to be handed over to employer/client upon completion of the works shall provide same dashboard, searching, viewing, report generating, printing and other features and functions as the original DWSS used in construction stage.

### **5. Other Requirements**

#### **5.1 System Time**

- 5.1.1 The system time of the DWSS shall be synchronised among the DWSS backend servers and all mobile devices to a trusted local time source (e.g. the Hong Kong Observatory).

## **5.2 BIM Compatibility**

- 5.2.1 The forms or records in the DWSS shall be designed to include fields to store the Object ID/BIM ID/Location ID, for the purpose of interfacing with BIM models.
- 5.2.2 Upon the request of the employer/client's representative, the DWSS shall provide API for the Common Data Environment or BIM software applications to retrieve the forms or records in the DWSS through the unique ID.

## **5.3 Interfacing Requirements**

- 5.3.1 The DWSS shall provide API libraries for authorised parties to access to the required data of the DWSS. The Contractor shall maintain all APIs during system upgrade or maintenance and keep copy of the API library documents after launching of the DWSS and major system upgrades.
- 5.3.2 The Contractor is responsible for coordinating with the government departments or government agents for the exchange of the DWSS information with the third-party application upon the request of the employer/client's representative.

## **5.4 Handover Requirements**

- 5.4.1 Upon the completion of the contract, the DWSS shall be handed over to the employer/client in the form of an offline and non-editable copy not later than one month after issuance of the maintenance certificate.
- 5.4.2 The handover copy shall be self-contained and in the form of extractable package which can be accessed without the need of handover the physical hardware provided in the operation stage.
- 5.4.3 The handover copy shall provide the same features and functions as the original DWSS except the function of editing or updating of the captured information without acquiring any additional software. The offline and non-editable copy of the DWSS shall enable the employer/client to search or retrieve all the site records, approval history and other relevant records and data based on the relationship of the information as in the original system.

## **5.5 Licensing and Data Ownership**

- 5.5.1 The DWSS shall be licensed under “HKSAR Government”. The Contractor shall secure, obtain and maintain throughout the contract period all approvals, permits or licences, which may be required or necessary in connection with the use of the DWSS and to bear all costs, charges and expenses that may be incurred in obtaining and maintaining the permits and licences. All data in the DWSS shall become the property of the HKSAR Government.
- 5.5.2 The ownership and all intellectual property rights, including without limitation any patent, copyright, registered design or trademark, in all reports, plans, models or other particulars or things prepared by the Contractor or received by the Contractor in the course of the Contract shall be vested in and belong to the employer/client and the Contractor shall not use any such documents, particulars or things or disclose the contents thereof to any third person, in any manner outside the course of the Contract without the prior approval in writing of the employer/client.
- 5.5.3 The Contractor shall not infringe any of the said intellectual property right of any publications and shall in any event indemnify and keep indemnified the employer/client against all actions, claims, losses, damages and costs which may be sustained by the employer/client consequent upon any such infringement.

## **6. Training and Documentation**

### **6.1 User Training**

- 6.1.1 The Contractor shall deploy qualified trainers to provide system administrator training and user training for assigned personnel of the employer/client, the Consultants and the Contractor.
- 6.1.2 The system administrator training shall cover user management, workflow management, MDM and system backup.
- 6.1.3 The training courses shall cover all levels or grades available, and training schedule must be submitted for the approval by the employer/client’s representative.

## **6.2 Documentations**

6.2.1 The Contractor shall provide user manual and training manuals for the system administrators and users.

6.2.2 The Contractor shall provide system manual and documentation on API, Web Services, Entity-Relation Diagrams and Data Dictionary.

## **7. Functional Requirement of Mandatory Modules**

### **7.1 Mandatory Forms and Records**

7.1.1 *Request for Inspection/Survey Check Form (RISC Form)* refers to Appendix 7.9 of PAH / “Request for Inspection of Works” Form No. D/COW.006 for COW and Form No. D/BSI.006 for BSI in ArchSD PAH or other relevant form for the same purpose.

7.1.2 *Site Diary* refers to G.F. 536 and *Site Record Book* refers to ArchSD Site Record Book.

7.1.3 *Site Safety Records* shall include:

- i. safety inspection checklists to record inspection results and the associated photographs of the weekly and monthly safety walk inspection and environmental inspection with reference to Chapter 8 of Construction Site Safety Manual; and
- ii. safety performance records to record accident rate statistic, LD/MD improvement and suspension notice, conviction record, and other relevant information with reference to the proforma for Contractor’s Monthly Report on Safety Performance in Chapter 12 of Construction Safety Manual.

7.1.4 *Site Cleanliness Records* shall include:

- i. Daily Cleansing Inspection Checklist;
- ii. Weekly Cleansing Inspection Checklist; and
- iii. Cleanliness Performance Record

to record the works undertaken to maintain the site cleanliness and tidiness and

contractor's performance with reference to ETWB TC(W) No. 22/2003 & 22/2003A. Daily and weekly inspection checklists and photographs taken at various work locations shall be recorded for the monitoring of site cleanliness condition.

- 7.1.5 *Labour Return Records* refers to G.F. 527 under DEVB Technical Circular (Works) No. 3/2003A - Monthly Return of Site Labour Deployment and Wage Rates for Construction Works.
- 7.1.6 The Contractor shall agree with the employer/client's representative on the workflow, format and data field of all required forms within six weeks after contract commencement and set up all of the workflow-enabled inspection forms or records with reference to CEDD PAH, ArchSD PAH, ArchSD SAH and the contract documents within three months after the contract commencement.
- 7.1.7 The DWSS shall enable the creation of forms and subsequent submission, reception, approval, rejection and response to the request to be done in the Mobile App and web-browser. The DWSS shall record the user assignment track and time stamp along the inspection workflow must be recorded to support the process time analysis for each type of inspection.
- 7.1.8 The forms created for the *RISC Forms* workflows shall enable the requesting officer to submit and re-submit inspection requests until the inspection is certified completed. The workflow-enabled forms shall ensure the linkage of inspection history and re-submissions are recorded for searching and retrieval. Photo records shall be included in the forms.
- 7.1.9 The forms created for the *Site Diary/Site Record Book* shall include workflow process for recording, review and endorsement of the *Site Diary/Site Record Book*. It shall be set up to record progress of work, plant and labour employed on site, weather and site condition, site photos, any occurrence which affect the progress and/or quality of works and the extent to which they are affected. Photo records shall be included in the forms.
- 7.1.10 The forms created for the *Site Safety Records* shall include workflow process for submission, review, confirmation and completion of safety inspections. It shall be set up to record the date, time, name of reporting officers and responsible persons, work location, descriptions of works, site photos before and after the



inspection, logging of non-compliance and remedial works, as well as maintaining the relationships of entire inspection and non-compliance report cycle.

7.1.11 The forms created for the *Site Cleanliness Records* shall include workflow process for submission, review, confirmation and completion of cleansing inspections. It shall be set up to record the date, time, name of reporting officers and responsible persons, work location, descriptions of works, record photos before and after the inspection, logging of non-compliance and remedial works, as well as maintaining the relationships of entire inspection and non-compliance report cycle.

7.1.12 The forms created for the *Labour Return Records* shall record the site labour deployment and wage rates of manual worker and automatically generate/calculate project specific fields and dates and avoid repeated entry of similar fields. It shall be set up to allow automatic retrieval of labour resources information from Site Diary/Site Record Book, and the workflows process for manual input, submission, acknowledgement and responding to enquiry on the Labour Return Record.

## **7.2 Dashboard**

7.2.1 The dashboard shall only be accessible by authorised users or user groups with designated authority

7.2.2 The dashboard shall include real time analytics of site activities, including but not limited to:

- i. summary of RISC form status;
- ii. site activities statistics;
- iii. site safety performance;
- iv. site cleanliness performance;
- v. labour return statistic; and
- vi. alert and reminder statistics, etc.

7.2.3 The dashboard shall enable grouping and filtering by types of forms and modules, selected period, trade, location, area, users or user groups, etc.

- 7.2.4 The summary of RISC form status shall include analytical summary and status of overdue actions, completed/incomplete/outstanding inspections, passing/failing rate and process time analytics, etc.
- 7.2.5 The site diary statistics shall include analytical summary and status of overdue actions, completed/incomplete/outstanding Site Diary/Site Record Book, labour and plant deployment, weather conditions and instruction issued to Contractor, etc.
- 7.2.6 The site safety statistics shall include analytical summary and status of overdue actions, completed/incomplete/outstanding site safety inspections, non-compliance reports, observation reports, near-miss reports, accident rate, incident reports, safety convictions, number of unsafe acts and unsafe conditions identified at each inspection, etc.
- 7.2.7 The site cleanliness statistics shall include the analytical summary and status of completed/incomplete/outstanding site cleanliness inspections, non-compliance reports number of offences, non-compliance and remedial works, etc.
- 7.2.8 The labour return statistic shall include the analytical summary and status of number of labour deployed and wage rates of workers, etc.
- 7.2.9 The alert and reminder statistics shall include summary of alerts and reminders issued.