

Silt Control at Construction Sites CCTV Requirement

The contractor shall provide and operate a CCTV system as follows:

- (1) Provide a CCTV system at the public drain near the discharge outlet(s) of the site to monitor the discharge from the site.

The CCTV shall display the following clearly:

- (i) Site discharge outlet(s) at the public drain
- (ii) Upstream public drain cross-section
- (iii) Colour image that could distinct if the flow/discharge is clear or muddy.
- (iv) Blue-Marker (see item #2) with size of at least 100x100 pixels in the captured image when there is no water discharge.
- (v) White LED Lighting shall be provided such that the Blue-Marker is clearly visible in the CCTV image and can distinct from the image if the flow/discharge is clear or muddy at all time.

- (2) A water proof (plastic board or solvent-based matt sky blue paint) **Blue-Marker** with the painting colour code of RAL 5012 (CMYK 77% 41% 4% 0%, Sky Blue) shall be installed at discharge point in one of the two formats explained below:

- To be placed at a fixed location at the discharge outlet where the discharged water would always flow over the marker in the captured image as shown in Figure 1.

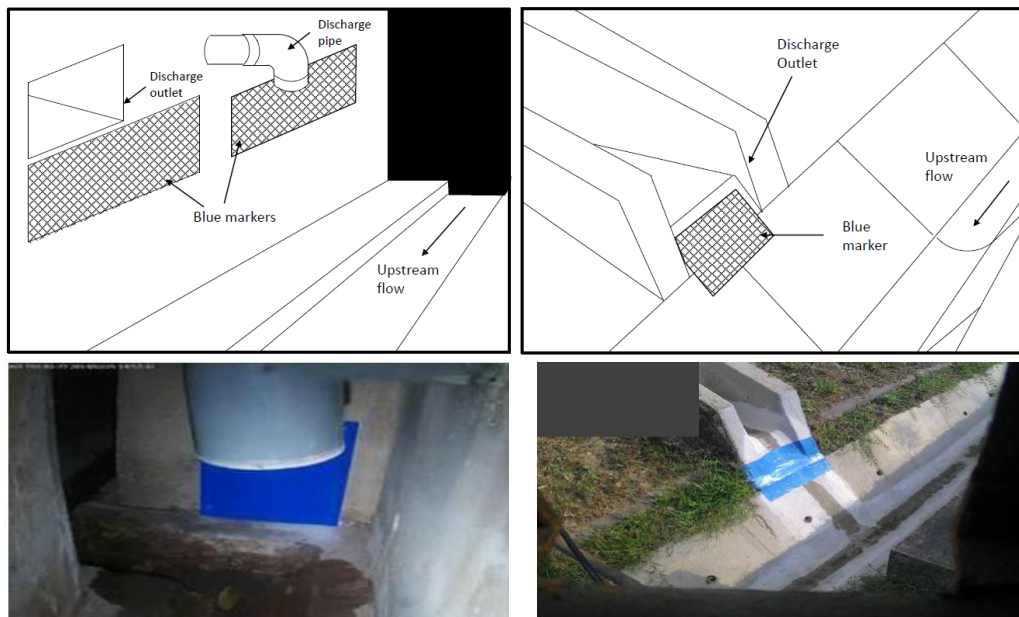


Figure 1. Examples of painted Blue-Marker at discharge points.

- Or, to be implemented on the end of the discharge pipe. The pipe shall have an elbow to direct the flow downwards and cut open to expose the inner side where a blue background can be implemented, as shown in Figure 2.



Figure 2. Example of Blue-Marker painted on cut-opened discharged pipe.

(3) The contractor shall operate and monitor the CCTV at all time. The CCTV shall not have more than 4% downtime per month. Alert system such as via sms and/or email, shall be provided to the contractor if the system is not in operation.

(4) Both CCTV and Blue-Marker shall be well maintained to be free of debris, stain or silt deposit. The marker should be replaced or repainted if the blue colour fades.

(5) Provide at least the past 15-day, 5-min interval snapshots of the CCTV within 2 days upon request by PUB.

(6) Provide web access to the CCTV system include the following:

- (i) A colour snapshot of the drain for that 5 min interval at 1280x720 resolution in JPEG image format.
- (ii) The snapshot shall be imprinted with a short description of the project title and date/time stamp at the top right corner of the image.
- (iii) Read access for the snapshot image of the CCTV via a URL link with no username/password required.
- (iv)

Example: http://www.CameraVendorCo.com/SiteName/current_image.jpg

- “SiteName” is unique for each CCTV camera and must be in the following format:

[Catchment Code]–[Road]–[Company]–[Camera no.]

There should be no space in SiteName.

Examples:

E4-Seletar_West_Link-KTC-02

E4-Seletar_West_Link-WohHup-01

- (v) At least past 15-day archive of snapshots at 5 minute interval or less. Quick function to download the archived snapshots.
- (vi) Archived images of snapshots must be kept in separate folders for each year, month, and day in format of YYYY/MM/DD. Read access must be provided with no username/password required.
- (vii) The image name in these archived folder must be in the format of hhmmss.jpg (hh = hours in 24 hours format, mm = minutes, ss = seconds) in the respective DD subfolder and to be accessed via the URL link.
- (viii) Example:

<http://www.CameraVendorCo.com/SiteName/yyyy/mm/dd/hhmmss.jpg>

- (ix) The web access shall be of open platform and easily accessible via smart phones and PCs without the need to install any extra/specific version of software.
- (x) Project profile including signboard information and key contact personnel and contact nos.

(7) The contractor shall, with the assistance of the CCTV vendor, complete the CCTV installation checklist and submit the completed copy to PUB_CWSIDS@pub.gov.sg. Any incomplete or misdeclaration of the checklist shall not be accepted.

Note:

- The contractor should take note of the following when installing the CCTV:
 - (a) Type of weather proofing required for closed or open drain and other considerations.
 - (b) Adequate lighting
 - (c) Continuous power supply.
- Please contact Mr Lee Kim Liang at DID 67313423 or Mr Muhd Adli at DID: 67313422 for clarifications if need be.

CCTV vendors and contacts for easy reference

Ranking*	Name of Company	Person In-charge	Contact No	Email Address
1	SysEng (S) Pte Ltd	Mr Choo Chun Keong	96673684	keong@syseng.com.sg
		Mr Tan Chuan Chiat	81122114	tan_chuan_chiat@syseng.com.sg
2	Absolute Instrument Systems Pte Ltd	Ms Irene & / Yvonne	62968012	Sales@aisys.com.sg irene@aisys.com.sg
3	EnvProTech Pte Ltd	Mr Ng Swee Chow	96272500	sweechow_ng@singnet.com.sg
		Mr Daryl Lee	90020146	daryl@ept-envprotech.com
4	Shecey (Singapore) Pte Ltd	Mr Chester Suen	96448533	chestersuen@shecey.com.sg
		Mr Louis Lye	82880455	louislye@shecey.com.sg
5	Flexi Systems (Sg) Pte Ltd	Mr Yang Yi	81891788	sales@flexisystems.com.sg
6	Hi Con (S) Pte Ltd	Mr James Chen	96888218	james.chen@hicon.com.sg
7	YHH Trade & Technologies Pte Ltd	Mr Gwee Cheng Hong	96431893	chenghong@yhh.com.sg

- *(i) Based on the average uptime of CCTVs recorded by the Silt Imagery Detection System (SIDS)
- (ii) Record Period in SIDS: 14 May to 12 Aug 2017
- (iii) It is not meant to endorse the service quality of any individual CCTV vendor
- (iv) Ranking will be refreshed every quarterly or when necessary.

CCTV Installation Checklist

BCA Ref No:			
Project Title:			
Contractor:			
Company Address:			
Contact Person:		Designation:	
Contact Person Hp:			
Contact email:			
Developer:			
CCTV Vendor:			
Number of CCTVs:	_____ of _____	(separate checklist to be provided for each CCTV)	
Image URL:			
Site Latitude:		Site Longitude:	

S/No:	Items	Yes	No
1	The installed CCTV shows the discharge outlet and upstream public drain cross-section (as shown in Photo-1)	<input type="checkbox"/>	<input type="checkbox"/>
2	The discharge outlet is painted water-proof sky blue (as shown in Photo-2)	<input type="checkbox"/>	<input type="checkbox"/>
3	Adequate lighting is provided (as shown in Photo-3)	<input type="checkbox"/>	<input type="checkbox"/>
4	The blue marker and cross-section of public drain are clearly captured in the CCTV image during day and night time (as shown in Photo-4 and Photo-5)	<input type="checkbox"/>	<input type="checkbox"/>
5	The CCTV system is connected to an all-day power supply (as shown in Photo-6)	<input type="checkbox"/>	<input type="checkbox"/>
6	The web-link and its contents including project profile, prepared in according to the CCTV requirements and ready to be accessed by the users (attached Photo-7)	<input type="checkbox"/>	<input type="checkbox"/>
7	The CCTV vendor has access to SIDS portal	<input type="checkbox"/>	<input type="checkbox"/>
8	The CCTV vendor has configured/entered the CCTVs in the SIDS portal (as shown in Photo-8)	<input type="checkbox"/>	<input type="checkbox"/>

I confirm that the above information and the CCTV installation are in order.

Name of Contractor/ Signature/Date

Company stamp

Photos of CCTV Installations

Photo-1	Photo-2
Photo-3	Photo-4
Photo-5	Photo-6
Photo-7	Photo-8 [Region of Interest (ROI) on the blue marker]