

SECTION 01 32 33

PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes: Administrative and procedural requirements for the following:
1. Preconstruction photographs.
 2. Periodic construction photographs.
 3. Final completion construction photographs.
 4. Preconstruction video recordings.

1.2 INFORMATIONAL SUBMITTALS

- A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph and video recording. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.
- B. Digital Photographs: Submit image files within three days of taking photographs.
1. Submit photos on CD-ROM or thumb drive in addition to uploading to Web Based Project Software. Include copy of key plan indicating each photograph's location and direction.
 2. Identification: Provide the following information with each image description in file metadata tag:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Architect.
 - d. Name of Contractor.
 - e. Date photograph was taken.
 - f. Description of location, vantage point, and direction.
 - g. Unique sequential identifier keyed to accompanying key plan.
- C. Video Recordings: Submit video recordings within seven days of recording.
1. Submit video recordings on CD-ROM or thumb drive in addition to uploading to Web Based Project Software. Include copy of key plan indicating each video's location and direction.
 2. Identification: With each submittal, provide the following information in file metadata tag:
 - a. Name of Project.
 - b. Name and address of photographer.
 - c. Name of Architect.

- d. Name of Contractor.
 - e. Date video recording was recorded.
 - f. Description of vantage point, indicating location, direction (by compass point), and elevation or story of construction.
3. Transcript: Prepared on 8-1/2 inch by 11 inch (215 mm by 280 mm) paper, punched and bound in three ring binders. Provide label on front and spine. Include a cover sheet with label information. Include name of Project and date of video recording on each page.

1.3 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.
- B. Aerial Photography and Video Qualifications: Firm specializing in aerial documentation, having minimum 10 years documented experience in professional unmanned aerial systems (drone) and having the necessary equipment (remote control quadcopters and hexacopters with gimbal mounted HD cameras, insurance, and FAA approvals for unmanned aerial documentation.
- C. Drone Operator Qualifications: FAA certified as an unmanned aircraft operator with a small USA rating, for the operation of a commercial drone (unmanned aerial vehicle) pilot, having minimum 7 years as a drone operator with current certifications and is TSA vetted.

1.4 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels, and with vibration reduction technology. Use flash in low light levels or backlit conditions.
- B. Digital Video Recordings: Provide high resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full high definition mode with vibration reduction technology. Provide supplemental lighting in low light levels or backlit conditions.
- C. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image editing software.
- D. Metadata: Record accurate date and time from camera.
- E. File Names: Name media files with date Project area and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a qualified photographer to take construction photographs.
- B. Take photographs with maximum depth of field and in focus.

1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Temporary Storm Water Pollution Controls Photographs: Coordinate with Section 01 57 23 and take photographs of Project site affected by the temporary protection to be provided.
1. Prior to disturbing any site related elements and installing any temporary storm water prevention control items, provide a sufficient number of preconstruction photographs to completely document the preexisting conditions, but no less than 30.
 2. Following removal of the temporary protection, take an equal number of photographs to document the restoration to fully document the conditions, and for comparison as necessary should any conflicts arise.
- D. Preconstruction Photographs: Before commencement of demolition or starting construction, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, acceptable to Architect to document conditions.
1. Flag construction limits before taking construction photographs.
 2. Take a sufficient number of photographs to show existing conditions adjacent to property before starting the Work but no less than 35.
 3. Take a sufficient number of photographs of existing buildings and property either on or adjoining property to accurately record physical conditions at start of construction.
 4. Take additional photographs as required to record settlement or cracking of adjacent structures, pavements, and improvements.
- E. Periodic Construction Photographs: Take weekly photograph sets to adequately document progression of demolition and construction but no less than 30. Select vantage points to show status of construction and progress since last photographs were taken.
1. Vantage Points: Following suggestions by Architect and Contractor, photographer shall select vantage points to be utilized weekly. During each of the following construction phases, take not less than three of the required shots from same vantage point each time to create a time lapse sequence of construction as follows:
 - a. Commencement of demolition operations.
 - b. Conditions uncovered during demolition.
 - c. Commencement of new Work, through completion of structural framing and roof decking.
 - d. Commencement of roofing operations including installation of substrate board installation and mechanical fastening. Include shots of the number of fasteners per board.
 - e. Roofing and Exterior building enclosure.
- F. Final Completion Construction Photographs: Take 50 photographs after date of Substantial Completion for submission as Project Record Documents. Architect will inform photographer of desired vantage points.

- G. Additional Photographs: Architect may request photographs in addition to periodic photographs specified. Additional photographs will be paid for by Change Order and are not included in the Contract Sum.
 - 1. Three days' notice will be given, where feasible.
 - 2. In emergency situations, take additional photographs within 24 hours of request.
 - 3. Circumstances that could require additional photographs include, but are not limited to, the following:
 - a. Immediate follow up when on site events result in construction damage or losses.
 - b. Substantial Completion of a major phase or component of the Work.
 - c. Extra record photographs at time of final acceptance.
 - d. Owner's request for special publicity photographs.

1.6 CONSTRUCTION VIDEO RECORDINGS

- A. Video Recording Photographer: Engage a qualified videographer to record construction video recordings.
- B. Narration: Describe scenes on video recording by dubbing audio narration off site after video recording is recorded. Include description of items being viewed, recent events, and planned activities. At each change in location, describe vantage point, location, direction (by compass point), and elevation or story of construction.
 - 1. Confirm date and time at beginning and end of recording.
 - 2. Begin each video recording with name of Project, Contractor's name, videographer's name, and Project location.
- C. Demonstration and Training: Comply with all requirements as outlines in Section 01 79 00 Demonstration and Training.
- D. Preconstruction Video Recording: Before starting Work, video record conditions of Project site, surrounding properties and construction to remain from different vantage points, acceptable to Owner and Architect.
 - 1. Flag construction limits before recording construction video recordings.
 - 2. Show existing conditions adjacent to Project site before starting the Work.
 - 3. Show existing buildings either on or adjoining Project site to accurately record physical conditions at the start of demolition.
 - 4. Show protection efforts by Contractor.

1.7 CONSTRUCTION WEBCAM

- A. Webcam: Provide two three fixed location camera(s) with weatherproof housing, mounted to provide unobstructed view of construction site from locations approved by Architect, with the following characteristics:
 - 1. Static view.
 - 2. Capable of producing minimum 8 megapixel images.
 - 3. Provide views at 35 feet above grade minimum, with final vantage points acceptable to Owner and Architect.

4. Provide power supply, active high speed data connection to service provider's network, and static public IP address for each camera.
- B. Web Based Interface: Provide online interface to allow viewing of each high definition digital still image captured and stored during construction, from the Internet.
1. Live Streaming Video: Provide web accessible videos of each current site image, updated at five minute intervals during daytime operation.
 2. Access Control: Provide password protected access for Project team members administered by Contractor, providing current image access and archival image access by date and time, with images downloadable to viewer's device.
 3. Storage: Maintain images on the website for reference during entire construction period, and for not less than 30 days after final completion. Provide sufficient memory on remote server to store Project images.
 4. Provide copies of all video files to Owner as Record Documents.
 5. Online Interface: Provide website interface with Project and client information and logos; calendar based navigation interface for selecting images; pan and zoom capability within high definition images.
 6. Forward and Reverse: Provide capability to browse through images, moving forward and backward in time by individual image and by day.
 7. Slideshow: Provide capability to automatically display current images from sites when there are three or more cameras used.
 8. Time Lapse: Provide capability for online display of project time lapse.
 9. Dashboard: Provide capability to view thumbnails of all cameras on one screen.
- C. Maintain cameras and web based access in good working order until final completion. Provide for service of cameras and related networking devices and software such that any one camera should not be offline for any longer than 24 hours.

1.8 USAGE RIGHTS

- A. Obtain and transfer copyright usage rights from photographer to Owner for unlimited reproduction of photographic documentation.

PART 2 - PRODUCTS

Not used.

PART 3 - EXECUTION

Not used.

END OF SECTION

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