

Occupational hazard accidents

| Type | Category | Cases | Overview |
|-------------------------------|---------------------------|-------|--|
| occupational hazard accidents | Falls / Slips | Case1 | A worker who was riding a stepladder (about 1.8 m high) to remove honeysuckle entangled in a tree belt lost his balance and jumped from a stepladder height of 1.5 m, injuring the heel of his right foot. |
| | | Case2 | When the vehicle (2-ton dump truck) was stopped and disembarked in order to check the work site, the side brake was not pulled and the vehicle started moving, and although it tried to stop, it fell from the embankment with the vehicle and was injured. |
| | | Case3 | While assembling scaffolding for the installation of steel members of an erosion control dam, a worker removed the hook of the safety belt and moved on the side of the scaffolding (single pipe), slipped his foot, fell and was injured. |
| | | Case4 | During the construction of the C.C.BOX, the iron lid of the handhole was opened and the main contractor was conducting a passage test, and the victim who was moving for a shift fell from the handhole opening and suffered bruises (fall injury) all over his body. |
| | Flying / Falling objects | Case5 | When the existing black pipe (φ 400), which is a hindrance to moving the backhoe, was being moved on a slope, the existing black pipe was caught in the cabin of the backhoe, and when the black pipe was lifted and removed from the backhoe, the worker lost his balance due to the recoil and rolled down the slope and was injured. |
| | | Case6 | While weeding and disposing of branches along both sides of the embankment steps, a foreign object flew to a worker who was collecting weeds behind him during weeding work with a brush cutter, and he was injured when he hit his right eye. |
| | Caught / Stuck | Case7 | During the packing work of the cut grass, when the tiger rope was hung on the backhoe grabbing device to remove the blue sheet that covered the cut grass, the worker reached for the tiger rope and at the same time the backhoe operator moved the grabbing device to grab the tiger rope with the grabbing device, so the worker's arm was caught in the gripping device and injured. |
| | | Case8 | When the workforce was used to move the gap between the retaining blocks with a backhoe during the installation of the retaining blocks, the finger of the worker who was measuring the slope of the retaining block was caught in the gap between the blocks and was injured. |
| | Crashes (hit into object) | Case9 | In the concrete curing work of the bridge abutment frame, when the work on the lower level of the scaffolding was completed and the work was moved to the upper stage of the scaffolding for curing work, the left breast was hit by a single pipe that was protruding into the passage. |

■ Case 1: Occupational accidents (construction workers) 【Falls / Slips】

Accident overview

A worker who was riding a stepladder (about 1.8 m high) to remove honeysuckle entangled in a tree belt lost his balance and jumped from a stepladder height of 1.5 m, injuring the heel of his right foot. [1 person injured]

Working conditions at the time of accident

In this case, after the accident occurred, the client failed to report to the client and the Labor Standards Inspection Office, and was sent documents on suspicion of violating the Industrial Safety and Health Act "Article 97 of the Industrial Safety and Health Regulations", and the fine sentence was decided on July 27, 2024.

3. The vine he was pulling snapped, and the recoil caused him to lose his balance, jumping from a stepladder height of 1.5 m, injuring the heel of his right foot.

2. Use scissors to cut the vine
Pull the vine to remove it

1. Mechanical weeding was carried out in the planting pits.

Working Height (1.5 m)

Injured right heel

Stepladder (1.8 m)

Cause of accident

< Causes of the accident >

- ① A worker pulled a vine on a stepladder to remove it.
- ② Performed work that is not described in the work plan.

< Cause of failure to report >

- ① Believed the worker's statement that it was a recurrence of a sprain unrelated to work and did not contact them.
- ② The company has never had an occupational accident with more than four days of lost work, and did not report it because it assumed that it was not subject to reporting.

Contractor's preventive measures

< Measures against the causes of accidents >

- ① When removing vines from trees, two people work in pairs, one of whom cuts the vine using scissors on a stepladder and the other pulls it on the ground.
- ② Take the following measures
 - If work that is not described in the work plan occurs, the work plan will be prepared, written, and disseminated in advance before the work is performed.
 - In the safety patrol, "work in pairs" and "work already described in the work plan" are added, and inspected every time.

< Measures against the causes of failure to report >

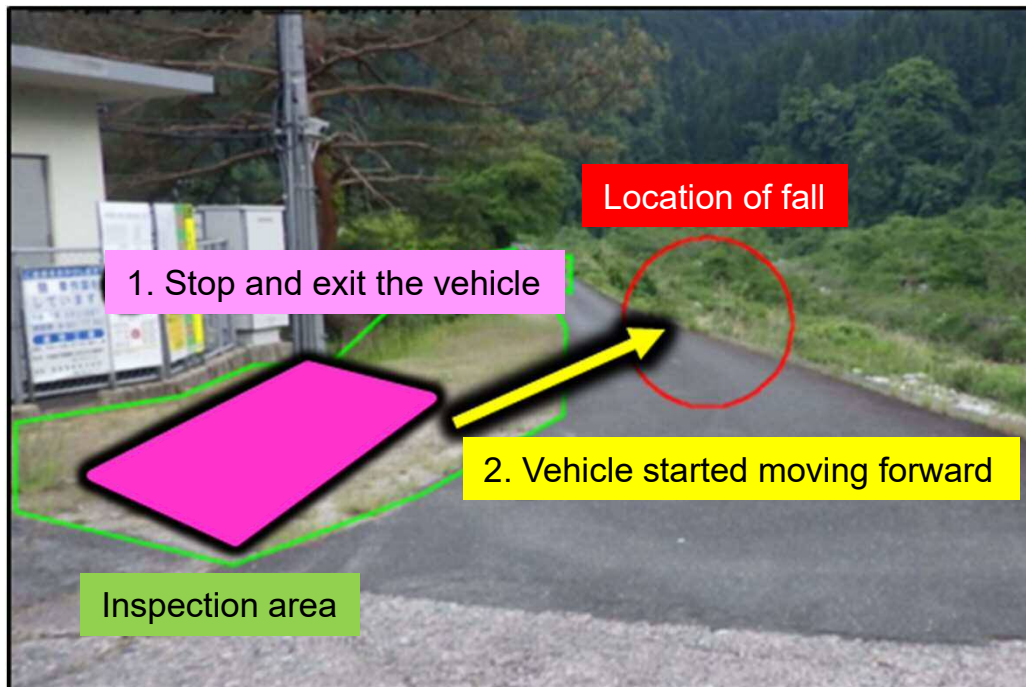
- ① For all accidents, ensure that reports are made to the client, the Labour Standards Inspection Office, and the police in accordance with the common specifications and work plan, and make this known and thoroughly enforce it through safety training, etc.
- ② At monthly safety training sessions, use DVDs and materials (such as information leaflets) to educate and raise awareness among workers about the risks of failing to report accidents.

■ Case2: Occupational accidents (construction workers) 【Falls / Slips】

Accident overview

When the vehicle (2-ton dump truck) was stopped and disembarked in order to check the work site, the side brake was not pulled and the vehicle started moving, and although it tried to stop, it fell from the embankment with the vehicle and was injured. [1 person injured]

Accident incident



Cause of accident

- The driver exited the vehicle without engaging the side brake.

Contractor's preventive measures

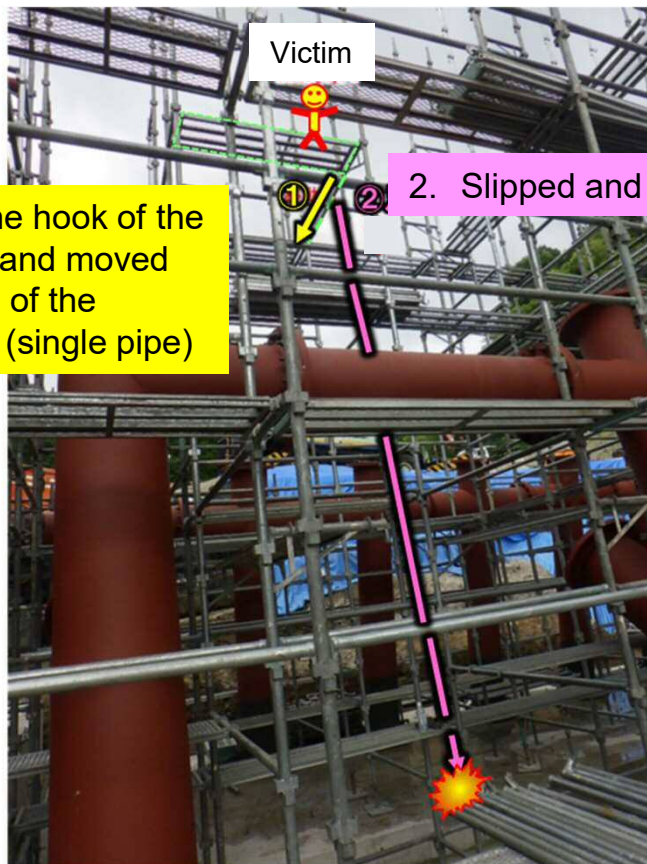
- Ensure that all drivers are reminded to use the side brake when parking and stopping their vehicles.
- Post a sign inside the vehicle stating that the side brake must be used.

Accident overview

While assembling scaffolding for the installation of steel members of an erosion control dam, a worker removed the hook of the safety belt and moved on the side of the scaffolding (single pipe), slipped his foot, fell and was injured. [1 person injured]

Accident incident

1. removed the hook of the safety belt and moved on the side of the scaffolding (single pipe)



2. Slipped and fell

Cause of accident

- ① The subcontractor has partially canceled the installation of scaffolding boards.
- ② Without taking measures to prevent falling, the worker moved on the side of the scaffolding (single pipe) without using a safety belt.
- ③ The subcontractor did not wait for the arrival of the scaffolding assembly supervisor and performed scaffolding assembly work in his absence.

Contractor's preventive measures

- ① If there is a problem during assembly, remove the scaffolding plate after preventing entry to the opening area, and restore the scaffolding plate after assembling the steel member.
- ② Walk on scaffolding boards and do not move unstable parts such as the side of the scaffolding (single pipe).
- ③ If the chief of scaffolding assembly is absent, make sure that the work is not performed.



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- ① Barricade and then open the handhole lid.
- ② During the release of the iron lid, a temporary lid to prevent falling (attached document) will be installed.
- ③ An additional flush bar is installed on top of the temporary lid. (Visualization of openings)
- ④ At the morning meeting, inform all security guards of the details of the work and the opening points in person.
- ⑤ When working in the handhole, a watchman is always placed at the top. (Selected from the members of the day)
- ⑥ Install lighting at the openings and do not move the lights until the work is finished.

■ Case5:Occupational accidents (construction workers) 【Flying / Falling objects】

Accident overview

When the existing black pipe (φ400), which is a hindrance to moving the backhoe, was being moved on a slope, the existing black pipe was caught in the cabin of the backhoe, and when the black pipe was lifted and removed from the backhoe, the worker lost his balance due to the recoil and rolled down the slope and was injured. [1 person injured]

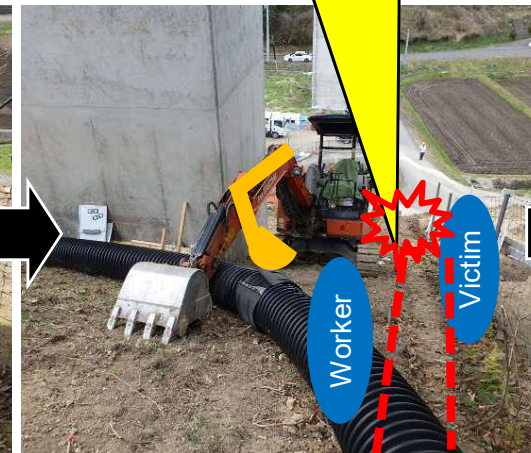
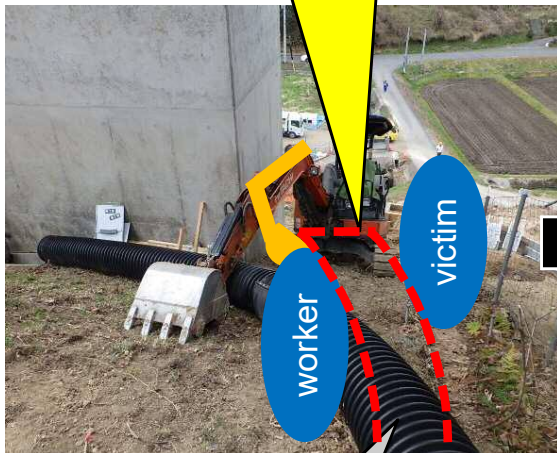
Working conditions at the time of accident

The black pipe is caught in the cabin of the backhoe.

Lifting to remove the black pipe.

The bent black pipe is released and recoils.

The recoil of the bent pipe caused a worker to lose his balance and tumble down the slope.



Black pipe

Cause of accident

- The prime contractor instructed the subcontractor to excavate up to a point where the black pipe would not affect the excavation; however, the subcontractor excavated further to where the black pipe did affect the excavation.
- The work was on a slope with a high risk of falls, but safety instruction and safeguards were lacking.

Contractor's preventive measures

- In the event of a change in the original work plan, the subcontractor shall report to the prime contractor and ask for instructions.
- If conditions change during the work, the subcontractor shall report to the prime contractor, who will determine the measures to be taken and give instructions to the subcontractor.
- The cause of the accident and countermeasures will be communicated and implemented during a safety meeting for the entire cooperative association.
- A fixed barrier and mobile safety net will be installed on the slope.
- Although it is a safe slope, a safety line will be installed on the slope and workers will use a safety belt.
- A stairway will be installed to provide safe passage.

■Case6:Occupational accidents (construction workers) 【Flying / Falling objects】

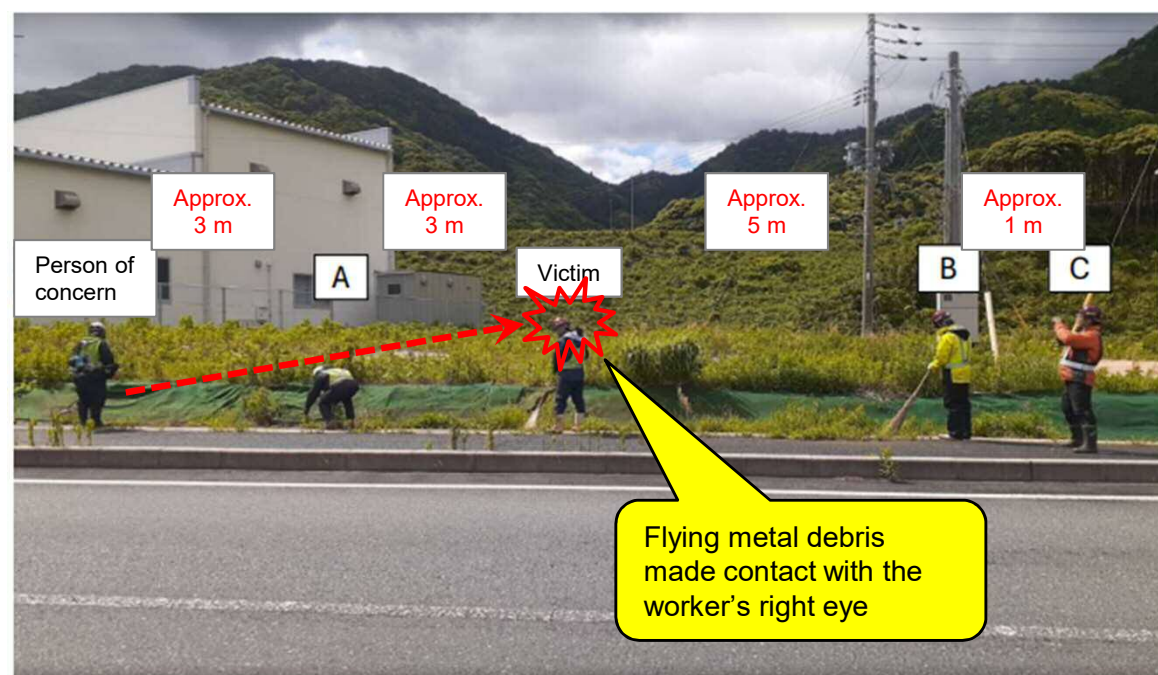
Accident overview

While weeding and disposing of branches along both sides of the embankment steps, a foreign object flew to a worker who was collecting weeds behind him during weeding work with a brush cutter, and he was injured when he hit his right eye.

Working conditions immediately prior to the accident



Reproduction of accident occurrence



Cause of accident

- ① There was no awareness of the danger of flying rocks and other hazards to the weed collectors.
- ② Weed collectors were not wearing protective goggles.

Contractor's preventive measures

- ① Recognize the danger of flying rocks and other hazards to weed collectors.
 - Revise the operational plan
 - Revise the work procedures
 - Re-education of workers
- ② All workers engaged in work using brush-cutters should wear protective goggles.

■ Case7:Occupational accidents (construction workers) 【Caught / Stuck】

Accident overview

During the packing work of the cut grass, when the tiger rope was hung on the backhoe grabbing device to remove the blue sheet that covered the cut grass, the worker reached for the tiger rope and at the same time the backhoe operator moved the grabbing device to grab the tiger rope with the grabbing device, so the worker's arm was caught in the gripping device and injured. [1 person injured]

Accident incident



Cause of accident

Work was performed without establishing specific work procedures or signals.

Contractor's preventive measures

Removing blue sheets is done manually.

■Case8:Occupational accidents (construction workers) 【Caught / Stuck】

Accident overview

When the workforce was used to move the gap between the retaining blocks with a backhoe during the installation of the retaining blocks, the finger of the worker who was measuring the slope of the retaining block was caught in the gap between the blocks and was injured. [1 person injured]

Accident incident

Layout

Operator

○ Signaler

○× Victim



Cause of accident

① At the same time, heavy machinery was used to adjust the position of the seawall block, and workers checked the slope.

Contractor's preventive measures

① Thoroughly disseminate the prohibition of simultaneous work by heavy machinery and workers.

■ Case9:Occupational accidents (construction workers) 【Crashes (hit into object) 】

Accident overview

In the concrete curing work of the bridge abutment frame, when the work on the lower level of the scaffolding was completed and the work was moved to the upper stage of the scaffolding for curing work, the left breast was hit by a single pipe that was protruding into the passage.

[1 person injured]

Working conditions at the time of accident



Cause of accident

- There was a lack of awareness of the danger of a single pipe protruding into the aisle.
- There were no indications during the patrol, and no countermeasures were taken.

Contractor's preventive measures

- The following two points will be added to the work procedure manual of each contractor: "Eliminate steps, unevenness, and protrusions as much as possible in the work corridor" and "If there is a dangerous area, cure it with cushions, etc., and install warning signs" and reinforce them.
- Safety patrols will be strengthened by adding "status of securing passages" and "status of organization on scaffolding" to the safety patrol record.
- Protruding danger areas should be cured with caps, cushioning materials, etc., and warning signs should be clearly stated.

Public hazard accidents

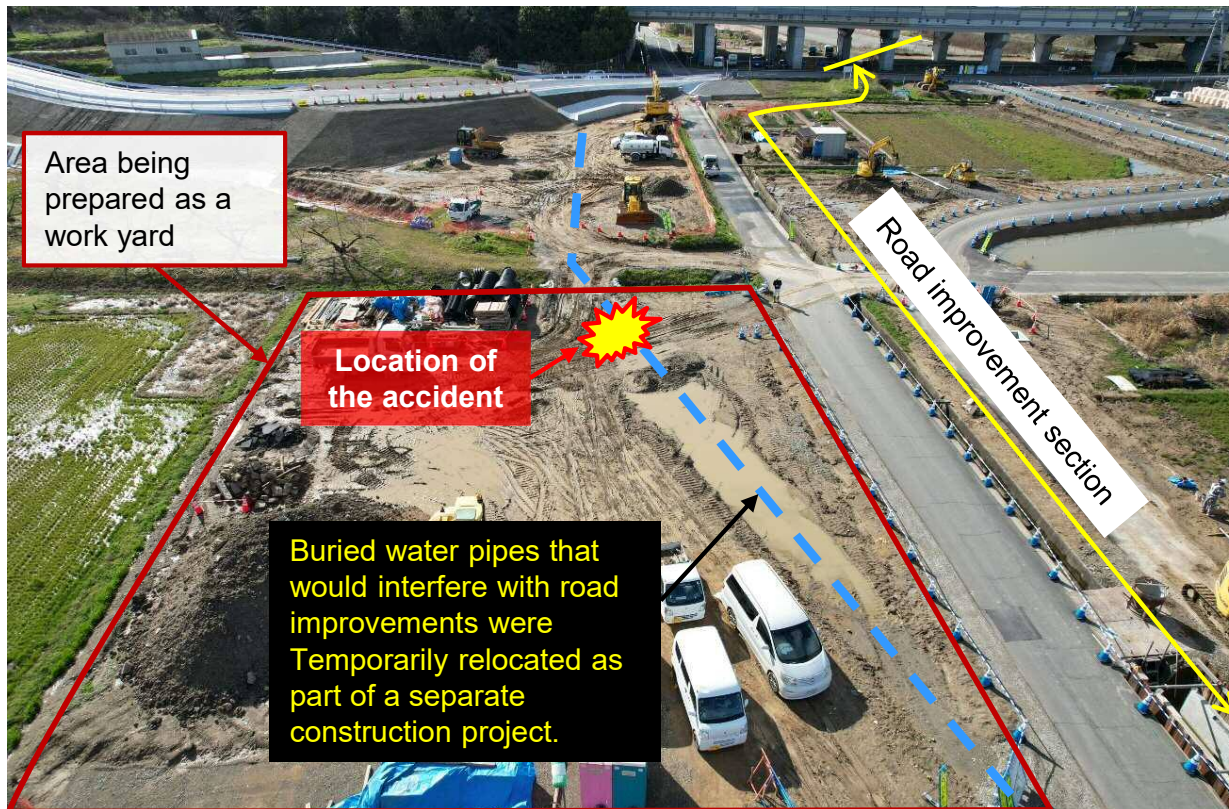
| Type | Category | Cases | Overview |
|-------------------------|------------------------|-------|---|
| Public hazard accidents | Buried object damage | Case1 | A backhoe was excavating to replace some muddy areas with good quality soil when it came in contact with a temporary water pipe that had been temporarily relocated in the leased area, damaging the pipe. |
| | | Case2 | During the demolition of an existing concrete channel using a hydraulic breaker, a water pipe (cast iron pipe ϕ 200) buried directly under the bottom plate of the channel was damaged. |
| | General vehicle damage | Case3 | A construction fence installed to use the space under the overpass as a temporary storage area for construction materials collapsed onto the road when a large vehicle passed by, damaging the door mirrors of 2 vehicles travelling behind it. |

■ Case 1: Public accidents (construction workers) 【Buried object damage】

Accident overview

A backhoe was excavating to replace some muddy areas with good quality soil when it struck a temporary water pipe in the leased land, damaging the pipe. [Temporary water pipe damaged]

Accident incident



Cause of accident

The presence of the buried temporary water pipe was known. However, the heavy equipment operator (the prime contractor's work foreman) independently decided to fix the muddy area and performed unauthorized excavation work.

Contractor's preventive Measures

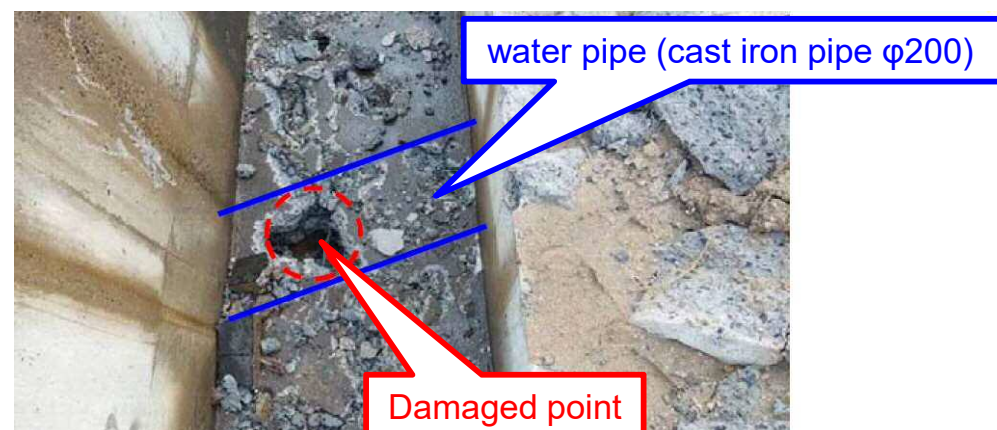
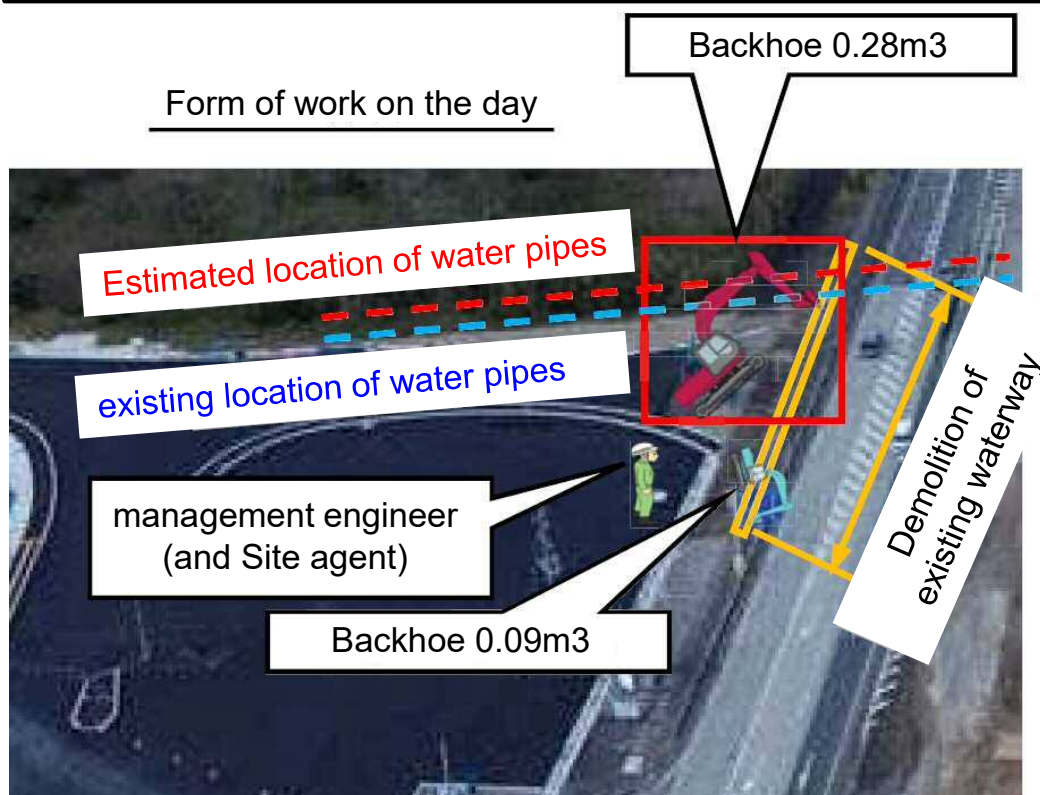
- Ensure that no work is performed that is not part of the work instructions.
- If work instructions need to be changed, contact the site representative, prepare a revised work order, and resume work only after conducting hazard prediction activities and meetings.
- The type and depth of buried objects should be clearly indicated at the site of the buried object to ensure its presence is known to all workers.

■ Case2:Public accidents (construction workers) 【Buried object damage】

Accident overview During the demolition of an existing concrete channel using a hydraulic breaker, a water pipe (cast iron pipe $\phi 200$) buried directly under the bottom plate of the channel was damaged. [No impact on the surrounding area due to water outages]

Working conditions at the time of accident

Form of work on the day



Cause of accident

- Initially, preliminary surveys of buried objects were conducted in accordance with the contract. For additional work, the plan was to begin construction from the front of the burial site and conduct preliminary excavation surveys as work progressed, but damage occurred because the burial site was not where it was estimated to be.
- Regardless of whether it was additional work or not, it was necessary to conduct a trial excavation survey before the start of demolition to clarify the location of the buried pipe.

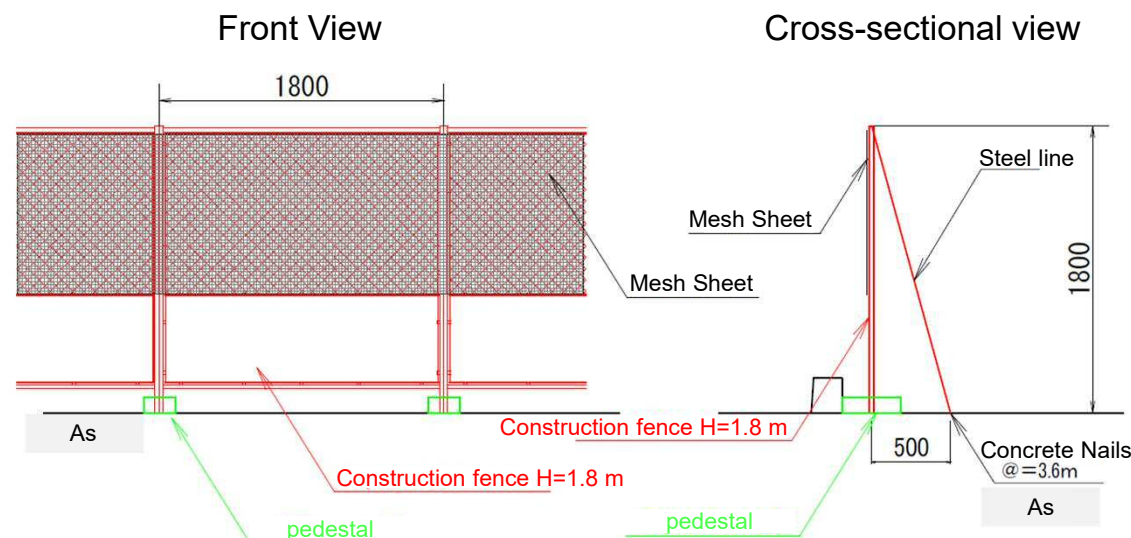
Contractor's preventive Measures

- In all excavation and demolition work, we will thoroughly conduct preliminary surveys and trial excavations of buried objects before the start of construction, not when approaching the nearest work area.
- All excavation sites will be investigated using underground pipe exploration ground radar, and the areas where a reaction has been obtained will be tested in the presence of the burial manager and visually confirmed.
- Cautionary signboards indicating the type and depth of underground objects will be installed at the locations confirmed by exploratory excavation, etc., and a piping route map will be posted on site so that the relevant parties can always grasp the information at the time of work, and the piping route will be marked with spray and visualized.
- Distribute a map of buried objects to all workers and ensure that they are fully aware of the type, location, depth, and piping route of buried pipes at the site of buried pipes every day.

Accident overview

A construction fence installed to use the space under the overpass as a temporary storage area for construction materials collapsed onto the road when a large vehicle passed by, damaging the door mirrors of 2 vehicles travelling behind it. [2 general vehicles were damaged]

Working conditions at the time of accident



Cause of accident

- As a countermeasure against theft, a mesh sheet was attached to the construction fence and a blindfold was used.
- This structure is susceptible to wind when large vehicles pass by, but the support method was insufficient.
- As a result, the base of the construction fence shifted, and the concrete nails driven into the asphalt pavement to secure the backup wire came loose due to the wind vibrations.

Contractor's preventive Measures

- The use of the yard under the viaduct will be discontinued, and another private site will be secured as a temporary storage site.
- In the future, when installing a similar construction fence on a road, we will confirm the installation method in-house and take measures according to the site conditions.
- The structure is based on the following with reference to the results of other constructions.
<When the installation ground is pavement (AS, etc.)>
 - ① The pedestal of the construction fence shall be H steel (400×400).
 - ② Use special tools (H steel supports, etc.) to fix the construction fence and H steel.
 - ③ Drive a single tube into 3@1.8m = 5.4m in one place and take a hold with a chain.
 - * Reinforcement to prevent falls on the roadway side
- Reflect the details of the measures in the construction plan and work procedure.