

WSHAlert

17 March 2021, Ref: 2021099

Accident Advisory: Worker hit by broken sheet pile

Ref: [2021086](#) _WSH Alert Accident Notification dated 17 December 2020

On 15 December 2020, a group of construction workers was tasked to carry out sheet pile extraction within a worksite. While extracting one of the sheet piles, the top part of the sheet pile broke off at its joint and hit one of the workers standing nearby. The worker was pronounced dead at the scene by attending paramedics.

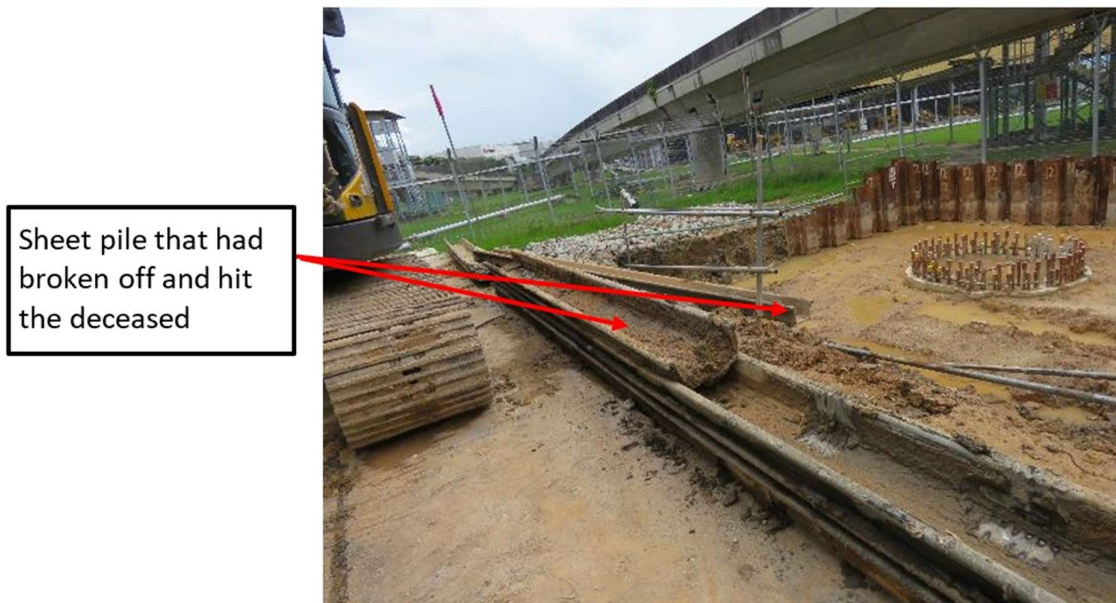


Figure 1: Overview of the accident scene.

Recommendations

Stakeholders such as occupiers, employers and principals in control of similar workplaces and work activities are advised to consider the following risk control measures to prevent similar accidents:

Design of connection for sheet piles

- Where multiple lengths of sheet piles are joined by means of welding and/or splicing with plates, the joints should be adequately designed.

Integrity of sheet pile joint

- To ensure the integrity of the sheet pile joints, it is important to check that
 - the materials used and the joints are fabricated in accordance to the approved design;
 - welding works are carried out by qualified and competent welders; and

suitable tests (e.g. non-destructive tests such as magnetic particle inspection (MPI)) have been carried out to ascertain the weld quality.

- Prior to the use of jointed sheet piles, a visual inspection of the joints should be carried out to look out for verticality and physical defects (e.g. dents, corrosion). Any pile found to be defective in any way should be immediately removed from use.

Safe work method

- Establish and implement a safe work method for sheet pile installation and extraction; and
- Provide adequate on-site supervision to ensure adherence to the safe work method.

Safe work position

- Identify and demarcate danger zones when carrying out works related to sheet pile installation or extraction; and
- Educate and ensure workers adopt a safe working position by not being inside the danger zones or near the machinery and equipment being used during sheet pile installation or extraction.

Risk Assessment

Conduct a thorough Risk Assessment (RA) for all work activities to manage any foreseeable risk that may arise when workers are involved in installation and extraction of sheet piles. The RA should cover, but not limited to, the following areas:

- Design adequacy of sheet pile joints;
- Testing and inspection frequency of sheet pile joints;
- Safe work method for installation and extraction of sheet piles;
- Safe work position(s) of workers during installation and extraction of sheet piles;
- Availability of and adherence to safe work method;
- Adequacy of on-site supervision; and
- Foreseeable risks (e.g. joint integrity and risk of breakage at joint) arising from the reuse of sheet piles from other worksites.

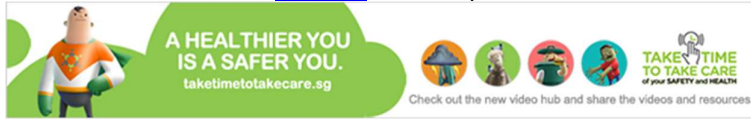
Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Workplace Safety and Health (Construction) Regulations 2007
5. Code of Practice on Workplace Safety and Health Risk Management
6. SS EN 1993 - 5 : 2010 (2019) Eurocode 3 - Design of steel structures - Piling
7. SS 510: 2017 Code of Practice for Safety in Welding, Cutting and Other Operations involving the Use of Heat
8. BS EN 12063:1999 - Execution of special geotechnical work. Sheet pile walls
9. Building and Construction Authority's Guidebook for Site Supervision Plan

Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 12 Jan 2021. This may be subject to change as investigations are still on-going. Please note that the recommendations provided here are not exhaustive and they are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying any liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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