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DEMOLITION

HYER STANDARD

PROCEDURE

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PURPOSE AND SCOPE

The purpose of this procedure is to ensure that demolition work is undertaken without injury to any worker or member of the public. This procedure applies to all HY projects where demolition work is conducted.

Demolition work means work to demolish or dismantle a structure or part of a structure that is load-bearing or otherwise related to the physical integrity of the structure, but does not include:

- the dismantling of formwork, falsework, scaffolding or other structures designed or used to provide support, access or containment during construction work, or

- the removal of power, light or telecommunication poles

Light Demolition or Soft Stripping involves removing non-load-bearing structures not exceeding 6 meters in height and does not require the use of mobile plant or explosives. I.e., removing fixtures, finishes, walls, ceilings, temporary structures, and other materials that are not essential to a structure's stability.

RESPONSIBILITIES

HY PROJECT TEAM:

- Ensure State WHS Regulator is notified of notifiable demolition work if required
- Ensure a Demolition Plan is in place prior to commencing Demolition work
- Ensure the presence of hazardous chemicals has been identified and removed if required
- Ensure applicable Work Permits are implemented prior to commencing work
- Ensure only trained and competent persons perform work on site
- Ensure worker competencies and qualifications are verified prior to commencing work
- Ensure that SWMS are provided for any work that involves demolition of an element of a structure that is load-bearing or otherwise related to the physical integrity of the structure. (Note – in Victoria, SWMS to be provided for any work that involves demolition)

HAZARD IDENTIFICATION RISK ASSESSMENT AND CONTROL (HIRAC)

All risks associated with demolition work are to be included in the project risk register. This includes risks associated with:

- Unplanned structure collapse
- Falls from one level to another and falling objects
- The location of above-ground and underground essential services
- Exposure to asbestos, silica and/or lead

- Exposure to hazardous chemicals
- Hazardous noise from plant and explosives used in demolition work
- Generation of dust and vibration
- The proximity of the building or structure being demolished to other buildings or structures
- The method of demolition – structural collapse, mechanical assisted demolition, manual methods, post-tensioned component demolition (special conditions)

The following should be considered when identifying controls:

- The structure to be demolished and its structural integrity
- The method of demolition including its sequencing the scheduling of the work
- The layout of the workplace including whether there are fall hazards both for people and objects
- What plant and equipment will be used and the skill and experience required by the people who will use it safely
- What exposures might occur, for example to noise or ultraviolet (UV) rays
- Removal of hazardous materials prior to undertaking demolition works
- The number of people involved
- Local weather conditions
- Environmental protection (e.g. dust control, storm water run off)

The HRCW Planning – Demolition Checklist must be completed as part of the risk assessment.

LIGHT DEMOLITION OR SOFT STRIPPING

Light Demolition or Soft Stripping refers to the removal of structures/elements not exceeding 6 meters in height, which are non-structural and do not require the use of mobile plant or explosives. Workers performing light demolition or soft stripping do not require a demolition licence, but they must be trained in their company's processes for non-high-risk demolition work. Training records are to be uploaded to the worker's profile in HammerTech, or a training register of all relevant workers is to be provided to Hansen Yuncken. Supervision is to be provided by the subcontractor for the works.

DEMOLITION PLANNING

Demolition work must be planned before work starts. Planning should include discussions about the:

- Nature and condition of the ground and working environment
- Weather conditions
- Nature of the work and other activities that may affect health and safety
- Static and dynamic loads on and near the structure
- Interaction with other trades
- Site access
- Management of surrounding vehicle traffic and ground vibration
- Type of equipment used for the demolition work
- Public safety
- Existing services and their location
- Procedures to deal with emergencies

Demolition should be planned to be systematic and sequential. That is, a structure should generally be demolished in the reverse order to which it was constructed. A Demolition Plan, in compliance with AS 2601, must be prepared for all demolition work and must include:

- The location, condition, and dimensions, and occupancy class (if applicable) of the structure being demolished
- Major equipment involved in works
- Demolition Methodology/Sequencing
- Methodology for handling, storage, and removal of demolished material/hazardous substances
- Protective measures to prevent collisions/strikes
- Protection of workers and the public
- Locations of exclusion zones
- Relevant plans/drawings/documents
- Environmental and traffic controls

The HRCW Planning – Demolition Checklist is to be completed before works commence and supporting documentation is to be attached consisting of:

- Risk Assessment
- HRCW SWMS
- Demolition Plan
- Demolition Emergency Response Plan

- Demolition Licence (as per State WHS Regulator)
- Demolition Permit

NOTIFIABLE DEMOLITION WORK

In NSW, QLD, SA and TAS the regulator must be notified five calendar days before undertaking any of the following:

- Demolition of a structure, or a part of a structure that is load-bearing or otherwise related to the physical integrity of the structure, that is at least 6 metres in height
- Demolition work involving load shifting machinery on a suspended floor
- Demolition work involving explosives

DEMOLITION LICENCE

Prior to engaging a Subcontractor to carry out demolition works, HY will ensure (where required by the State WHS Regulator) that they are appropriately licensed.

DEMOLITION LICENCE (NSW)

In NSW there are two types of demolition licences:

Demolition Licence (DE1) – required to demolish (or partially demolish), any building, structure or installation that:

- is over 15 metres in height
- is a chemical installation
- involves a tower crane on site
- involves a mobile crane with a rated capacity of more than 100 tonnes
- has structural components that are pre-tensioned or post-tensioned
- involves floor propping
- involves explosives

Restricted demolition licence (DE2) – required to demolish (or partially demolish), any building, structure or installation that:

- is between four metres and 15 metres in height involving mechanical demolition such as using excavators, bulldozers or cranes
- is between 10 metres and 15 metres in height and affects its structural integrity

- involves the use of load shifting machinery on suspended floors

DEMOLITION LICENCE (QLD)

In QLD a demolition work licence is required to demolish or dismantle a structure that:

- contains pre-tensioned or post-tensioned structural components
- involves use of load shifting equipment (e.g. use of combination front-end loader and backhoe, skid steer loader, excavator, crane)
- involves the use of explosives or another induced collapse method

BUILDING/STRUCTURE TO BE DEMOLISHED

The hazards associated with the design of the structure to be demolished must be identified and considered as part of the demolition methodology. This must be outlined in the demolition plan. The building or structure to be demolished and all its components must be maintained in a safe and structurally stable condition so as to prevent the unexpected collapse of part or all of the structure. Temporary braces, propping, shoring or guys may need to be added to ensure stability of the structure is maintained. This must be managed as per the Temporary Works procedure.

Loads that may be placed on structures as part of the demolition work (i.e. plant, materials) must be taken into account when assessing structural stability.

ADJACENT OR ADJOINING BUILDINGS

Demolition work must be undertaken in such a way that it does not adversely affect the structural integrity of any other building. Consideration may be given to the use of shoring and underpinning and to the effects of changes in soil conditions as a result of the demolition work

Lateral support for adjoining structures must be equal to or greater than any provided by the structure to be demolished. Before the existing lateral support is disturbed, provision must be made for the erection of temporary supports, which will need to be checked for effectiveness as the demolition proceeds

Buildings in and around the demolition site must also not be adversely affected by vibration or concussion during the demolition process.

SERVICES

Before demolition commences, all essential services that could be impacted by the demolition must be identified. Where practicable, relevant existing services must be (in order of preference):

- Isolated / terminated and documented evidence provided as part of Demolition Permit; or
- Rerouted away from demolition area; or
- Identified on site layouts and physically identified on site i.e. cautionary signage, locations marked on walls etc.

Redundant services, cabling / boards/conduits, pipework etc. to be removed where practicable. Any remaining electrical services must be consolidated, clearly identified, made safe and protected from damage (e.g. existing wiring boxed or “blue pointed”, cautionary tags / signage attached).

Essential services must be managed as per the Overhead and Underground Services procedure. Essential services must also be protected to eliminate environmental harm e.g. protecting/capping sewer and storm water.

HAZARDOUS CHEMICALS AND MATERIALS

Demolition work may involve buildings or structures that contain or have contained hazardous materials including chemicals. Hazardous materials include lead, asbestos, polychlorinated biphenyls (PCBs), contaminated dust and combustible materials. A hazardous materials survey should be conducted by a competent person as part of planning the demolition. This includes identifying and implementing controls to manage the associated risk.

If hazardous chemicals and/or materials have been identified, the Hazardous Chemicals procedure must be followed.

ASBESTOS

All asbestos likely to be disturbed by the demolition must be identified and, so far as is reasonably practicable, be removed before the demolition is started. If asbestos and/or ACM is identified or suspected, the Asbestos Management procedure must be followed.

WORK AREAS

A work zone must be established (e.g. fencing, hoardings, cautionary signage etc.) to prevent unauthorised personnel entering the demolition work areas. Additional exclusion zones may need to be established within the work zone (e.g. to prevent people working on the demolition being hit by falling objects).

PUBLIC ACCESS AND PROTECTION

Adequate public safety must be maintained in public places and areas that may be impacted by the demolition work (e.g. roads and walkways). People must be protected from falling objects, projections, dust, noise, mobile plant and welding/cutting sparks. Control measures to isolate the work from the public may include installing hoarding such as security fencing, containment sheets and mesh, overhead protective structure, road closures and specified exclusion zones.

Signs displaying the words 'WARNING DEMOLITION IN PROGRESS' must be fixed to fencing at appropriate place to warn the public.

Daily checks may need to be undertaken for any "unauthorised access" from people within structure to be/being demolished e.g. homeless people, trespassers.

MOBILE PLANT

Mobile plant used for demolition work must be fitted with a suitable combination of operator protective devices (e.g. Falling Object Protective Structures (FOPS), Roll-Over Protective Structures (ROPS), seat belts).

Protective structures must be designed to manage the risk of operator injury due to:

- Roll over and consequent cabin impact damage
- Objects falling on or over the cabin
- Objects penetrating the cabin
- Hazardous noise, airborne contaminants

Windows and openings should be protected against penetrating objects by wire mesh, steel bars or by using suitable polycarbonate material.

If powered mobile plant will be operated on a suspended floor, a competent person (e.g. a structural engineer) must verify and document:

- the type, size, weight and usage of specified plant, and
- that the floor is capable of sustaining the static and live loads of the plant, including attachments and demolished materials, without excessive deformation or collapse, either:
 - without additional support from below, or
 - with specified propping to be applied from below so the loads carried do not exceed their manufacturer's specified rating

The Temporary Works procedure must be applied when propping or other temporary structures are required.

A Plant Setup Permit may be required as per the Work Permit procedure.

Mobile plant must also be managed as per the Mobile Plant procedure.

PROTECTION FROM FALLS

Controls must be implemented to protect workers and others from falls and falling objects. This may include guarding or covering openings in existing walls and falls. Refer to Work at Heights procedure for requirements.

EMERGENCY PROCEDURES

Where demolition is being conducted on a site, the procedures for the response to an emergency associated with the demolition must be included in the Emergency Response Plan.

The subcontractor performing the demolition work is responsible for developing the Demolition Emergency Response Plan relevant to work they are performing. The Demolition Emergency Response Plan must be included as an appendix to the Project's overall Emergency Response Plan, in the SWMS and communicated to relevant parties.

DEFINITIONS AND ABBREVIATIONS

Structure – anything that is constructed, whether fixed or moveable, temporary or permanent, and includes buildings, sheds, towers, chimney stacks, silos, storage tanks

FOPS – Falling Object Protective Structure

ROPS – Roll-Over Protective Structure

REFERENCES

- Work Health & Safety Regulation 2011 (QLD), 2012 (SA/TAS) and 2017 (NSW) – Chapter 4: Part 4.6 Demolition Work
- Demolition Work (Model Code of Practice)
- AS 2601-2001: The demolition of structures
- Federal Safety Commission (FSC) Audit Criteria – H3 Demolition

ASSOCIATED DOCUMENTS

- HYer Standard – Demolition
- Quick Guide – Silica Management (<https://www.hyworkzone.com.au/silica-management-quick-guide/>)
- Quick Guide – Personal Protective Equipment (<https://www.hyworkzone.com.au/personal-protective-equipment-quick-guide/>)
- Quick Guide – Work Zones (<https://www.hyworkzone.com.au/work-zones-quick-guide/>)
- Asbestos Management procedure (<https://www.hyworkzone.com.au/asbestos-management-procedure/>)

- Hazardous Chemicals procedure
(<https://www.hyworkzone.com.au/hazardous-chemicals-procedure/>)
- Mobile Plant procedure (<https://www.hyworkzone.com.au/mobile-plant-procedure/>)
- Underground and Overhead Service procedure
(<https://www.hyworkzone.com.au/underground-and-overhead-services-procedure/>)
- Temporary Works procedure (<https://www.hyworkzone.com.au/temporary-works-procedure/>)
- Work at Height procedure (<https://www.hyworkzone.com.au/work-at-height-procedure/>)
- Work Permits procedure (<https://www.hyworkzone.com.au/work-permits-procedure/>)

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