

Down Wash Zone Safe Operating Procedure (DZSOP)

This Downwash Zone Safe Operating Procedure (DZSOP) sets out the safe working practices and controls to be implemented by BESIX Watpac and our Subcontractors to safely manage the risks associated with foreign object debris (FOD) from construction activities inside the downwash management zone (DMZ) on helicopter operations, workers, and the public.

Risks Associated with Rotor Wash

Rotor wash is comprised of downwash and side wash, which are the vertical and horizontal wind loads produced by the main rotor blades that supports the helicopter in flight. The wind velocities caused by the rotor wash of a helicopter during the landing or departure from the helicopter landing site (HLS) presents safety risks to the workers in or around the downwash protection zone. Construction activities performed in the downwash protection zone increase the risk of foreign object debris (FOD), which can become airborne and result in injuries to workers or the public but can also impact the safe operation of the helicopters.

Downwash Management Zone

The downwash management zone is a zone established in which construction activities need to be managed so that the effects of the downwash do not pose safety risks. The downwash management zone has been set at a 58m radius from the helicopter landing site. This distance has been determined using the latest CASA Advisory Circular AC 139.R-01 v2.1, which provides wind velocities for the AW139 helicopter, being the largest helicopter to use the TUH HLS, where the wind velocity at 58m from the HLS is 40km/h and at 40m is 60km/hr. The 58m boundary represents the distance at where wind speeds may affect construction workers and pedestrians, and the 40m distance aligns with the distance of the construction works from the HLS. Therefore, the wind speeds expected around the HLS are between 40-60km/hr.

Site Management

Construction activities that will be impacted by the DZOP will be managed in accordance with BESIX Watpac policy and the Project Health and Safety Management Plan, which include.

- Daily site 2pm coordination meeting where the next day's activities will be discussed including exclusion zones and plant and equipment that will be working inside the DMZ. The meeting is mandatory attendance by all subcontractors' supervisors. Following the meeting, minutes will be issued including a marked-up site plan showing plant and equipment locations, site access, and exclusion zones. The minutes and site markup can be issued to Hospital Security and THHS/BEMS representatives for their information.
- The area inside the chain wire fencing is a total exclusion zone and shall not be entered by any worker or BESIX Watpac staff. Should access be required inside the chain wire fencing, this will be via a permit issued by THHS/BEMS.
- At the start of each shift every subcontractor shall conduct their daily prestart meeting where the agenda will include but not be limited to the minutes from the previous day's site coordination meeting, high risks work, the DZSOP and any safety issues that have been identified.

Safe Operating Procedure

The below sets out the procedure to be implemented for construction works that is within the 58m DMZ when a helicopter is to land or depart from the Townsville University Hospital HLS.

- Townsville Hospital security is to notify BESIX Watpac Site Manager, Project Manager or General Foreman via a phone call as soon QRS has advised them they will be arriving with a patient and provide an ETA on the arrival.
- The BESIX Watpac representative that was notified by security is to notify the BESIX Watpac site management team via 2-way radio that a helicopter is incoming and to start preparing the site in accordance with this procedure.
- The same BESIX Watpac representative will then send a WhatsApp group message to the extended site supervision team including subcontractors to notify them that a helicopter is incoming, and the site is to be prepared for a helicopter landing in accordance with this procedure.
- Each BESIX Watpac area supervisor shall follow up via phone call or face to face discussion with the subcontractors at the work face to ensure they have received the communications.
- Each trade / subcontractor is to secure all loose tools. Small tools shall be packed into gang boxes with the boxes shut or removed from the DMZ.
- Each trade / subcontractor shall secure all materials and remove all lightweight materials from the DMZ.
- Any trucks or utes in the work zone shall have their loads restrained with covers such as cargo nets, or where they cannot be restrained, they shall be removed from the DMZ.
- Any laser instruments in use are turned off and securely stored away.
- Any loose excavated material is loaded into trucks or pushed back into the trench and wet down to prevent any flying dust.
- Any trucks delivering fill materials shall have retractable covers that are closed.
- Any trucks or vehicles in the DMZ that do not have suitable covers shall be moved outside of the downwash area (staged near the stockpile on the road closure, or at the back of JCU campus until helicopter has landed).
- All mobile cranes and concrete boom pumps that are operating on site during these periods are to reduce their boom / jib to below the street lighting obstruction lights.
- All plant and equipment in the downwash radius area are to have the cabin closed.
- Works in the downwash zone will cease except for concrete pours and for plant operators, whom will be permitted to remain inside their plant with the doors closed and the machine in idle. Plant will not be permitted to continue working and shall only assist in making safe the area e.g. restraining conduits or materials that have been laid.
- Concrete pours can continue during the landing and departure of helicopters as the pumps and plant will be established outside the 58m downwash radius. Concrete placing workers shall wear chinstraps on their hardhats and glasses / eye protection.
- All workers (excluding concrete place workers) in the DMZ are to remove themselves from the area before the landing and departure. Should workers need to remain in the area for safety reasons, then they must wear chin straps or lanyards on their hardhats.
- Open excavations within the 58m radius will have dust suppressed by watering.
- Hardstands inside the 58m radius to the eastern and west will be checked and swept down.
- After each subcontractor has followed this procedure, they are to notify BESIX Watpac site management, so they can do a secondary check.
- BESIX Watpac site management to ensure all site fencing and gates are secured including any signage before the landing and departure.

- BESIX Watpac site management to ensure the lids on the skip bin in the Bloodbank car park is closed and secured.
- BESIX Watpac site management to conduct (documented) secondary check to ensure that this procedure has been followed by the subcontractors onsite, and double check that there are no loose materials in the DMZ.
- Following the landing of the helicopter, works can resume until the Hospital Security advises the Project Manager, Site Manager or General Foreman that the helicopter will be departing. At this point, if works have resumed, then this procedure will need to be repeated for helicopter departure.

For the avoidance of doubt, works outside the downwash radius area will continue as normal. For works inside the helicopter downwash radius, after the helicopter has landed, security notify BESIX Watpac of approximately how long the helicopter will remain at the landing site, so that BESIX Watpac can determine if it is beneficial for them to continue working or wait for the helicopter to take off. If BESIX Watpac opt to keep working in-between take-off and landing, this procedure will be repeated before the helicopter take-off. Security will need to provide BESIX Watpac 20 minutes notice before the helicopter takes off, so that BESIX Watpac can implement this procedure.

End of Shift Procedure

- Each trade / subcontractor is to remove all loose materials and place all rubbish in dedicated bins.
- Where pipes / conduits have been laid in trenches, they shall be backfilled and compacted. Where this is not possible, then the materials must be secured.
- All tools are to be securely stored away, in locked toolboxes and containers.
- Any loose excavated material is loaded into trucks and stored out of the DMZ or removed from site.
- All vehicles are removed from the construction zones inside the DMZ.
- Open excavations in the DMZ must be wet down including any stockpiles outside / adjacent to the DMZ radius.
- All plant and equipment are parked up, with the cabin locked and jib / boom is retracted. Excavator buckets shall be placed on the ground.
- After each subcontractor has followed this procedure, they are to notify BESIX Watpac site management, so they can do a secondary check with the subcontractors before they leave site.
- BESIX Watpac site management will document the end of shift check on Aconex Site Diary.
- BESIX Watpac site management to ensure the lid on the bin on the Bloodbank car park is down and secure along with any bins adjacent to the downwash management zone.
- BESIX Watpac site management to ensure all site fencing and gates are secured and locked.
- BESIX Watpac site management notify Hospital Security by phone call that they have finished works for the day and that the site has been secured for any landings after construction work hours. Site management also notify security of what time works will commence the following day and can answer any questions regarding the 2pm site coordination minutes that were issued.