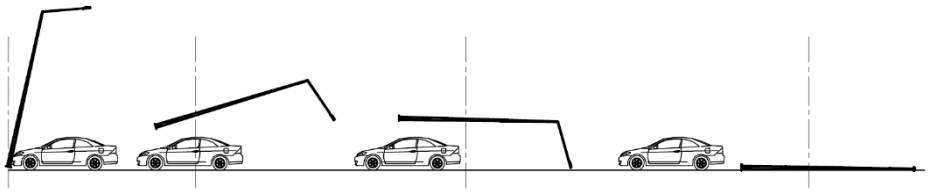
Shear Base Streetlight Poles, Assembly Installation & Maintenance

To reduce the risk of severe injury to vehicle occupants Shear Base Poles can be used. Shear base Poles are generally dislodged from their original position when impacted at operating traffic speeds above 70kph.
As per Waka Kotahi NZ Transport Agency M26: Specification for Lighting Columns, Shear Base poles must not be installed in locations where pedestrians are normally likely to be present.



For Shear Base Poles to perform as designed, it is important to ensure that the Pole is installed and maintained correctly.
Prior to installation ensure that all the components are present, clean, and free of any damage.
See **Fig. 1**.

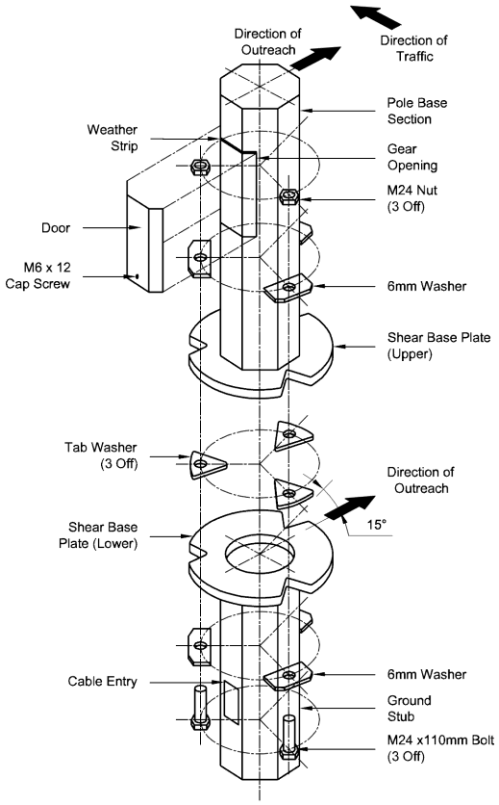


Fig. 1

The Shear Base Flange should be aligned to the traffic flow as per **Fig. 2**
Ensure that the flange of the Ground Stub is leveled prior to concreting in place.

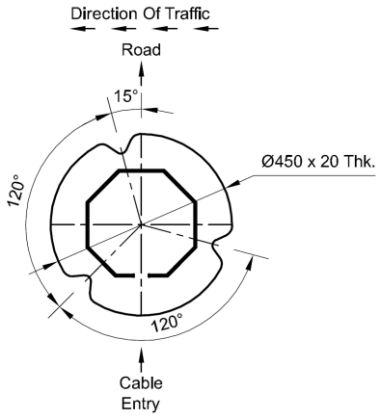


Fig. 2

The terrain around the Shear Base Ground Stub must be graded to avoid the vehicle becoming airborne prior to impacting the Pole and to allow a vehicle to pass over the stub without interference. A slope of 1:6 should not be exceeded as per **Fig. 3**.

With horizontal ground conditions it is critical that the Ground Stub Flange does not protrude more than 75 to 100mm above the ground line over a horizontal span of 1.5m in sloping ground conditions – see **Fig. 3 and 4.**

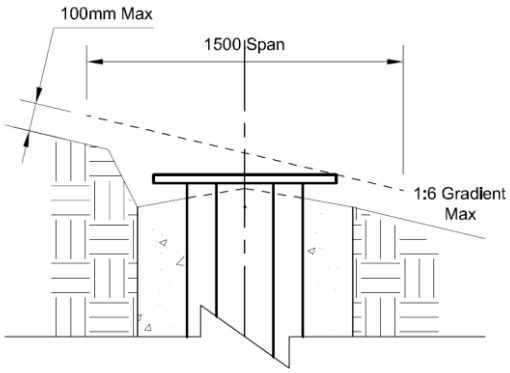


Fig. 3

Backfilling of the Ground Stub is to be with concrete to the outside ground level using a minimum of 20MPa concrete (or as is recommended by the Project Engineer). see **Fig. 4**

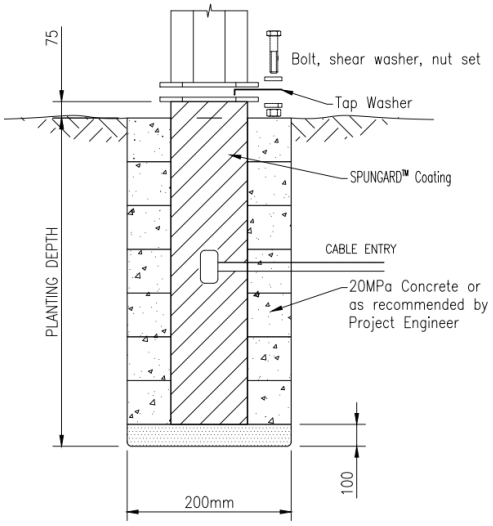


Fig. 4

Placing concrete on the inside of the Ground Stub can help delay any possible corrosion. If concrete is placed inside the ground stub, it needs to finish below the drainage holes at the top of the stub, with the top mounded to allow water drainage.

After the concrete pour ensure that the top surface of the Shear Stub Flange is free of concrete, as this can cause the pole to be out of alignment.

Place the Tab Washers on the Ground Stub Flange ensuring that the tabs are correctly engaged inside the inner edge of the flange. **This is critical for the shear base pole to function as designed.**

When positioning the pre-assembled Pole over the Ground Stub Flange, ensure that the tab washers are not knocked out of alignment.

Apply small amount of lubricating oil ('Holt lube stick' or similar) to the Bolt threads, ensuring that all parts of the thread are covered.

Insert the Bolts so that the nuts are facing upwards, **Fig. 1** and then tighten to a minimum of 200Nm torque. Immediately after tightening slacken off and re-torque to 90-100 Nm. Bolts left tighter than 90-100Nm will cause the Shear Base not to perform as designed in an impact. Check the correct alignment of all components. Use of locknuts is recommended.

Inspection of the Shear Base connection is to occur every 6 months, or after significant weather events (for example high winds, storms). To do this each bolt is removed, checked for condition (fatigue cracking, corrosion etc.) and then re-installed as per the above instructions. If there is any sign of damage or fatigue, the bolt must be replaced. Adequate Pole supports or baseplate clamps must be used during the inspection process.