

A Wisp of **STEAM SUPREME**



Extracts from the National Steam Centre Newsletter



Bill Dzenko positioning the spiral reinforcing cage in the bored hole ready to receive the concrete.

Also in
this Issue



Our Tram's Background



Don's Engines

Willans Foundation

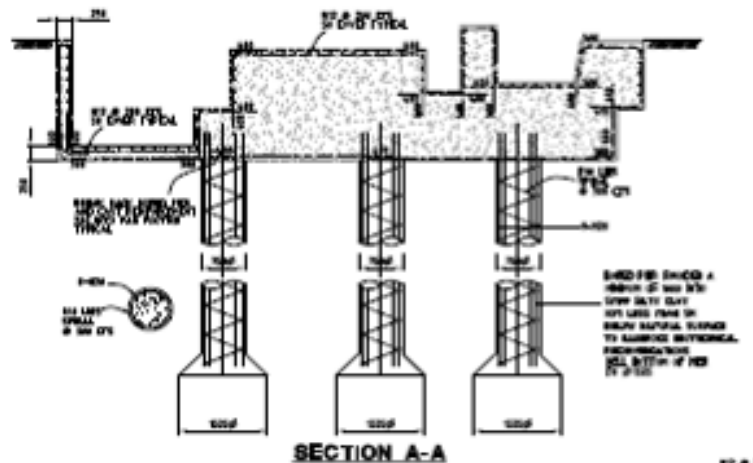
UNDERWAY



or some BORING SLIDES

After 46 years of the best efforts of some to make it happen and others to ensure it was not going to be easy, boring of the piers for the Willans engine foundation commenced on 27 Jan 2017 .

First just a reminder of what is being built . Because of the difficult soil conditions at Scoresby and our limited knowledge of foundation design for vibrating loads, for engines such as the Willans which rely on the foundation to maintain the alignment of the crankshaft , professional help with the design was sort . First the original Willans foundation block drawings were studied which included recommendations to use piles in difficult soil as did the Mirlees instructions from the day . Soil testing experts were called in who found very weak wet saturated silty clay under our top layer of hard fill . Civil engineers with expertise in such matters were then engaged to come up with a design to suit these conditions .



Right The recommended design was to support a trimmed down version of the original foundation block on 6 off 750 mm dia bellmouthed concrete piers going 1 metre into stiff clay but not less than 5 m below the surface .



Left Bay 4 with hurdles and string lines marking out the foundation extremities and pier locations.

Thanks need to go to the members who put a huge effort into clearing out this area including compacting up John Davies collection , re arranging the Lyttleton auxiliaries and shifting the Dorman Diesel.

Below Starting the first hole . The boring rig fits on the end of the excavator boom and is driven through a square drive fitted to a geared hydraulic motor which is controlled and computer monitored from the cabin .



Also note the limited overhead clearance when the auger is fitted with an extension. This slowed things down considerably when 2 extensions were required as they had to be removed and put back in stages each time .

Below To remove the dirt the auger needs to be frequently lifted out of the hole , swung to the side and spun to throw off the dirt . In this case it is firm dry fill from the top metre.



Above and Right The Bellmouthing tool has toothed arms that are forced out by downward pressure on the drive shaft .

Trouble was struck when trying to empty the muck from the body . The hinged trapdoor in the bottom could not be released despite levering with crowbars and pulling with the skid loader. This eventually stopped play on the first day while alternatives were considered. .



The option decided on was to use 1200 mm dia straight side holes down an extra 1/2 metre to the mudstone. While this gives not quite as much area as the bellmouth it is able to support a greater load by being founded on stone rather than the stiff clay stipulated and at the same time gives greater skin friction from the increased surface area of the bigger deeper holes.

Being easier to make and stronger the compromise is it uses more concrete.

Talking it through further with Craig and Dean from BRC piling the boring could be further speeded up if they could remove the top metre of dirt to give improved overhead clearance making it unnecessary to add and remove extensions. This suited us as we needed to dig it out anyway .

Right Removing a metre of soil and going to the larger dia auger considerably speeded up boring the holes as the excavator arm could then fit down the hole eliminating the need to change extensions. As it turned out the time saved in the boring was greater than the time taken to dig the area out so it was a win / win .



Left The special head for cleaning out the hole . Slots in the bottom have blades like a wood plane to shave off the bottom . To empty it this swings to the side . (the bit that would not cooperate on the bellmouthing one) .

Everyone always likes to look down a hole . Always plenty of onlookers and free advice .

Below Concrete going in directed by Bill Dazenko while Jimmy holds the cage central .

Below The completed hole with spiral rebar cage inserted . Water started to accumulate immediately it was bored, but was displaced by the concrete which sets through a chemical reaction not by drying out.



. The concrete is a special high fluidity mix with plasticizers to make it flow and give intimate contact with the walls of the hole and displace water . Setting takes place in a given time and is not effected by water .

Right *The last pier finished. 6 metre deep with the top surface 2.15 m below ground level . The 8 off 20 mm rebar visible will key into the main slab poured on top .*

The dark layer in the wall is the top soil below the fill , below this the silt and clay gets progressively wetter . After a few days the ground water , which is suspected to be seeping in from the storm water pooled in the old treasures area behind bay 4 , had risen to 150 mm above the top of the pier.



Other Aspects of the Job.

Drainage

Right *A 3m deep hole was bored at the back of bay 4 and fitted with a concrete pipe to act as a sump . An automatic pump has been installed to lower the groundwater*



Muck

Given the amount of muck removed and the need to get it out of the way quickly as soon as it was dug up it is really impractical to do this without creating what some consider a mess.

Below *Bill Dazenko was kept busy with his loader and tip truck carting excavated soil up the back during the 3 days the drilling was going on .*



Concrete

Anybody who has had anything to do with holes in the ground will realize you do not exactly know what you are going to get until you have dug . With piers concrete has to be poured immediately they are dug so this means ordering it before the digging is completed so it is necessary to get a bit extra incase. With the potential of excess concrete being available, to avoid wastage , it was arranged to have some little jobs on standby

Below *Ken Cummings was very pleased to get some spare concrete*



for his 4 lighting plant plinths. Here he can be seen finishing one off to his satisfaction .

Right *Bay 5 was also the recipient of 3 amounts .The last one being unanticipated so Warwick had to prepare and lay the last slab at the door under panic circumstances as it was staring to go off and not conducive to floating.*





Left The railway also benefitted with concrete to form a base for the steam engine water tower . This has been sitting round since before last rally for lack of a plinth so thanks must go to the Willans team who put in the form work and poured the slab to ensure it can be up for this rally .

In front of this is the paved area for ash which presented some difficulties since it abuts the edge of the rails. Not getting this quite as imagined meant that the unusually wide wheels of the driving car contacted it . Not a disaster , about an hour the following week was all that was required to get it functional while in the longer term the wheels will be put in order .

Below Equipment on the way out on the Tuesday .



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Around the Club



BBQ Ready for Christening

Our new gas fired BBQ looks very smart with its brick base thanks to Warwick and Adrian , stainless steel top thanks to Ross and plinth thanks to Phil & son .

It is now ready for use by members and visitors . All that is required is to press the green button and it will burn for a preset time . There is no need for the keys as the gas bottle behind the end door is left turned on while the battery and fat drip bucket behind the main door only need attention every 6 months. When the time comes the keys are in the usual place .

Continued —————>

Around The Club continued

Tanks a Lot

The long awaited railway water tank is finally installed at the station . Carefully cleaned up and painted some time ago , thanks to Brad Hector . It had only been waiting for a suitable slab to sit on which just now been put in thanks to

the Willans foundation team .

Left Brad positioning the water tank with Adrian on the crane . Once brightened up a bit with some lettering the tank and stand will add to the visual appeal of our little train to those passing by .



Traction Trec Track

A new Rally feature this year is a circuit where mobile exhibits can be displayed working as intended . It is basically a loop leaving the arena going up round the lake and back behind the main sheds returning to the arena up a specially constructed ramp between Bay 1 and the Tea room . Temporary barricades will be manned in public areas while the procession is underway .

Blacksmith Shop Guardian

The 1882 Glen & Ross steam hammer will be an eye catching displayed outside the blacksmith shop

Below Steve cleaning up the hammer in time for the Rally .



Right Inscription on the column



Left Peter Morris building the special ramp to get the procession back to the arena.

He expects the clime will have the steam engines barking

Don WHALLEYS Engines

Don Whalley writes he has decided to part with the 2 engines he has on display at the Steam Center. As he would rather have them stay on display at the club than have to sell them on he very kindly asks "Is the Club interested in accepting the engine as a donation with Warwick nominated as custodian" ?

Don, who has been a MSTEC member for many years, mentions he has not been an active member for some time and does not expect to do so in the future as he is getting on in years and therefore has decided to part with them.

Although most of us are familiar with Don's engines which are both mounted on four wheel trolleys and always presented in superb mechanical condition he kindly supplied photographs, operating instructions and the history of these engines to the Committee for consideration.

Actually it was not a very hard decision and they were accepted.

Thank you Don.

Engine Details supplied by Don



The 1920's International - Hopper cooled Single cylinder engine is complete and only requires cleanup maintenance and installation of the magneto and drip feed oiler which is included. This engine is unique in that it has a clutch on the output pulley and is the only Club engine with such a device.



A striking feature of Don's International, which he describes as a lovely docile old engine, is the wooden wheels he made for it. Everyone would like to know his secret why they do not crack (well seasoned red gum)

RECOVERY AND RESTORATION OF A 1920'S INTERNATIONAL ENGINE

I lived on a tobacco farm until the age of thirteen and remember my father installing a 32-volt Delco Home lighting plant on the farm. About 50 years later I visited the farm to see if the engine was still in existence. The current owners of the farm knew nothing of it but said that there was a hopper cooled International engine on the farm when they arrived and said that I could have it. This was readily accepted and it was loaded onto my trailer. The engine was located beside their front gate-post as marker to help visitors locate the property, "The farm with the engine beside the gate".

A photograph was taken of the trailer with the engine under the street sign to the farm. "Whalley's Lane". My father's name was given to this Lane. The Myrtleford Council has named streets after local military servicemen.

Having got the engine home it was obvious it had been submerged by a flood at some time. The engine was seized. I filled the cylinder with distillate, placed a log between the flywheels and located a jack placed between the engine base and the log and applied as much load as was safe to apply. This went on for twelve months. I tried another trick by putting two buckets of boiling water into the hopper and again loaded up the jack. About half a minute later I heard a click so again applied load to the jack. The fly-wheels moved so I kept pumping to the limit of the jack travel. The piston was free so the overhaul commenced. I have since wondered whether the distillate made the gunk between the piston and cylinder swell and was more a hindrance than a help.

New rings were made from car brake discs. The magneto was cleaned, tested and reinstalled. A new copper fuel tank was made to replace the old steel tank, and the engine was mounted on a wheeled carriage. The engine has been run at Club rallies ever since, and now with it's future secured should continue to do so into the foreseeable future.

RESTORATION OF A 1950's FARM ENGINE

My brother-in-law John Bryant (late member of the Club) gave me a 5hp air-cooled Wolseley farm engine. It had been partially dismantled, and had a seized piston and exhaust valve. It was fitted with a Lucas impulse magneto. The cam and their gear rotated on a short spindle that was supported at one end only. The engine had been rotated whilst the exhaust valve was seized and this had bent the camshaft spindle.

The search for a new piston, valves and big end shells started at the local motor engine reconditioning shop. Good news. The piston, valves and big-end shells were common to Holden, Bedford and Vauxhall and probably many other engines. I was given free access to their used parts bin and quickly found what I wanted. The ready supply of spare parts must have made this engine a delight to farmers..

The bent camshaft was removed and I found a flat at one end that served no purpose, then the penny dropped, it was half a motor car king pin! A new spindle was soon manufactured.

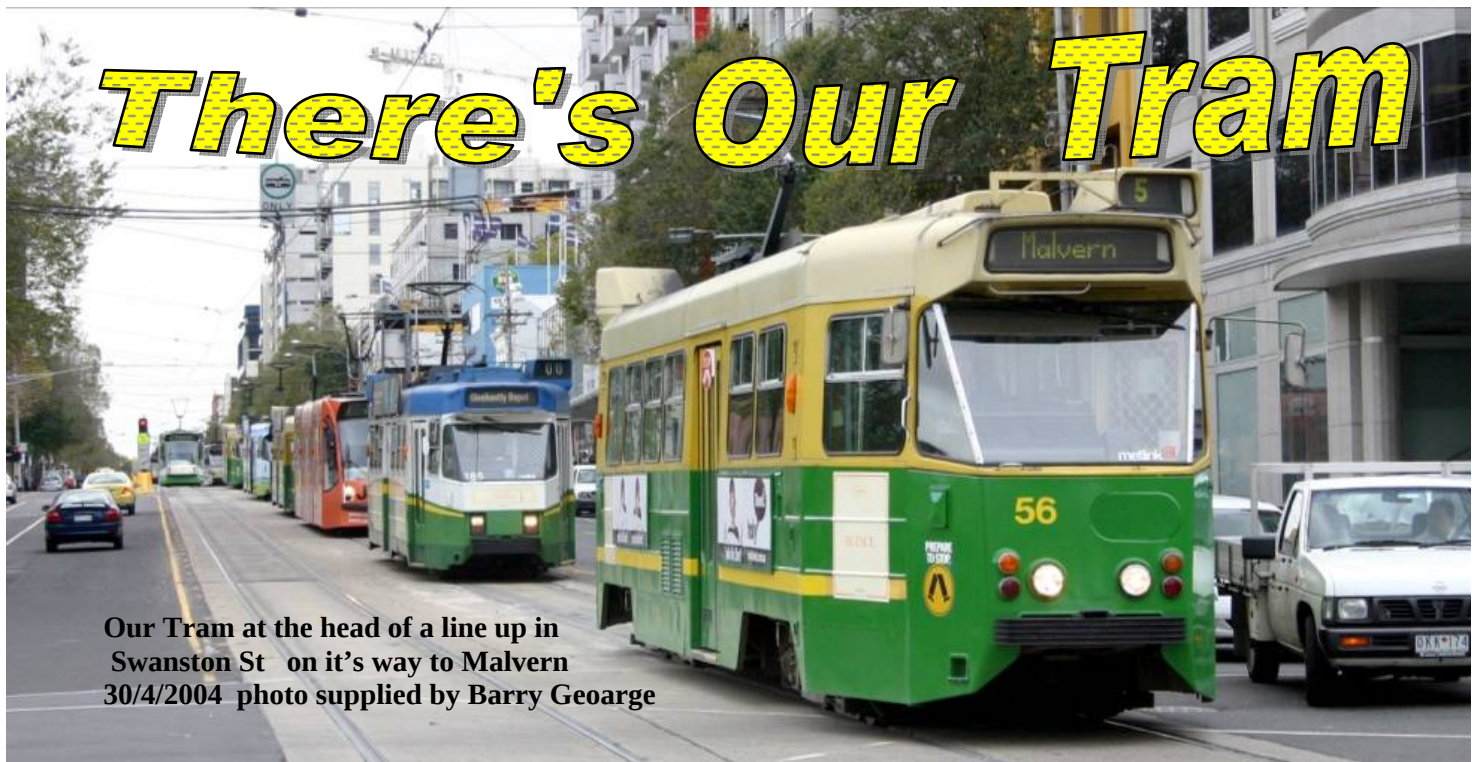
Once the engine was re-assembled it was very easy to start and has been 100% reliable. The engine is mounted on a mobile carriage together with a milking machine vacuum pump and twelve volt generator as was common in the 1930s and 40's.



Above A photo Don took of his International and Wolseley engines with his Douglas motor bike on display at a past rally. The restoration of all these is typical of the 1970's when engines were picked up clapped out and derelict where they died and required considerable innovation and machining skills to bring them back to life.



Above A close up view of the Wolseley air cooled 4 stroke single cylinder petrol engine. Don has set it up to represent a typical installation of it's day. Engines of this type could be heard starting up at milking times all over the valley.



At the Feb Social Meeting Barry George gave a riveting talk on the background of “Our Tram” including some superb blown up photos of it in service . Here is a glimpse of the photos and a rundown on how we came to acquire it

Back in May last year, John Meade approached me about acquiring a tram for the club. As I had worked for the trams for about 40 years, I had a number of contacts. After approaching a couple of them, it was good to hear that there were a number of trams available, of which we could choose one for the Club. Initially I thought about obtaining one of the old “W” (still to be seen on the City Circle service), but was informed that the remaining trams were spoken for. In hindsight, I think our choice of #56 was a better one, as it is all metal, whereas the “W” class trams are all wood with a canvas roof, horrendous to maintain.

In July of last year John, Haydn Sharpe, Laurie Hall, and my self ventured to East Preston Tram Depot, to look at the 11 other trams in storage there. We ended up choosing 56 over the others, as it had had the rust cut out of the body about five years ago, so was in better condition than the others, plus had less scratching on the windows. So, after a considerable amount of time, (due mainly to administrative issues), and as you are now well aware, the tram was delivered just before Christmas, and as you are probably also aware, we were targeted on one complete side with graffiti, which we are currently removing.

A few facts about our trams history. It was constructed in 1976 at Commonwealth Engineering in Dandenong, and entered service 10th November 1976, at East Preston Depot, and was withdrawn from Malvern Depot on 2nd April 2016, after travelling 1,888,000 kilometres. Not bad, just running around Melbourne’s streets.



Above In yet another livery Bourke St cc 1981 photo Trevor Triplow