Information Sheet

Number 8

November 2006

CEMENT SUPPLY OPTIONS PROJECT

Weston Option Quarries

The purpose of this Information Sheet is to provide information on:

- The limestone and siltstone quarry
- The tuff quarry

Additional Information Sheets are available for:

- The consultation process
- An overview of the Weston Option
- Construction
- Noise
- Transport
- Air
- Ecology

These sheets provide additional information on the quarries relating to any noise, dust, traffic and ecological effects.

Background

Holcim New Zealand is investigating a series of options to meet the long-term growth in demand for cement in New Zealand.

The company is investigating several options:

- A range of upgrade alternatives for the Westport plant
- Importing cement, either to supplement the Westport operation, or total imports
- A new plant at Weston (near Oamaru)
- The possibility of a new plant on one of several possible sites in the South Waikato/King Country

A final decision is not expected to be made until 2008 and will be made by the parent company Holcim Ltd.

Weston Option raw materials

Weston has been recognised since the 1970s as a potential location for cement production. There is a large resource of limestone, the main raw material for cement, as well as siltstone and tuff (a soft volcanic rock), which would also be used in cement production at the proposed Weston plant.

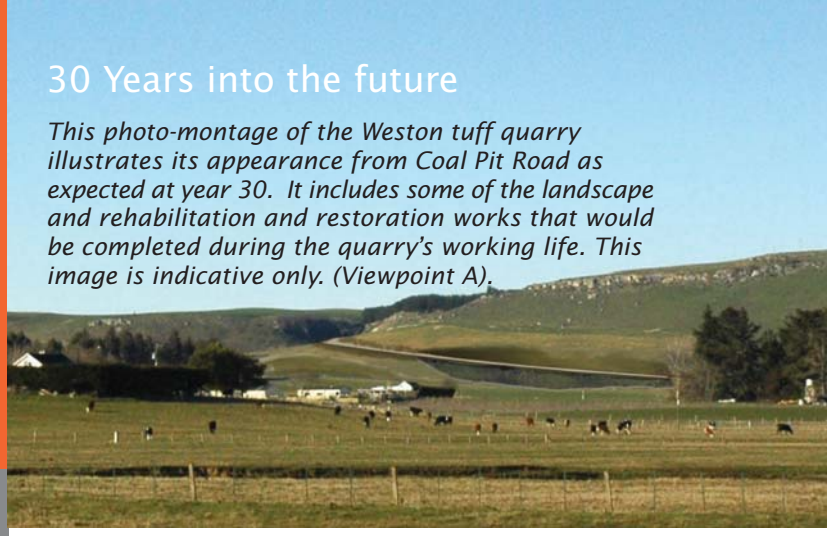
Both silica sand and coal (for fuel) - also required for cement production - are within trucking distance of the Weston site. Gypsum, added at the end of the process to help control cement setting times, would be imported by ship to either Timaru or Port Chalmers and then trucked to the site.

Raw materials required to manufacture cement (estimated proportions):

Limestone	80%
Tuff	10%
Siltstone	5%
Silica sand (from Windsor)	5%

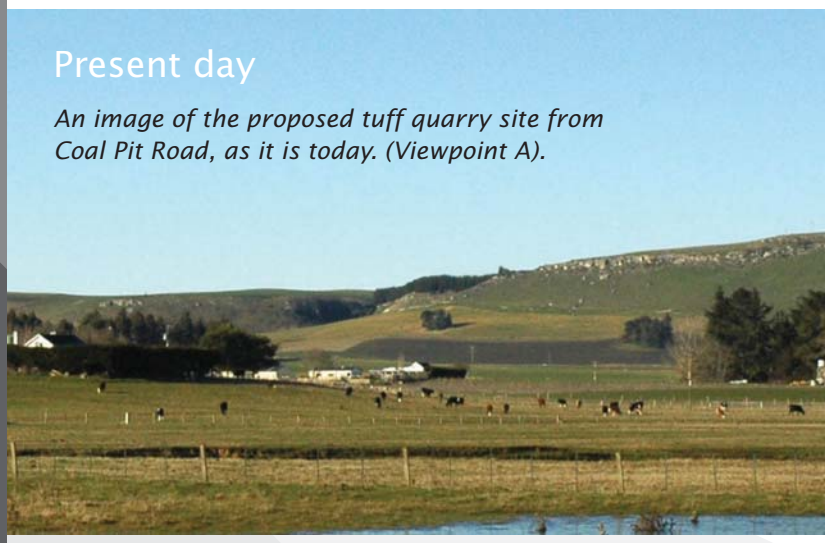
30 Years into the future

This photo-montage of the Weston tuff quarry illustrates its appearance from Coal Pit Road as expected at year 30. It includes some of the landscape and rehabilitation and restoration works that would be completed during the quarry's working life. This image is indicative only. (Viewpoint A).



Present day

An image of the proposed tuff quarry site from Coal Pit Road, as it is today. (Viewpoint A).



Weston quarries

A combined limestone and siltstone quarry would be excavated in the area to the north of the plant site and behind the Whitstone escarpment. The quarry would effectively operate behind the Whitstone escarpment, and would create a dish-shaped area over time.

A tuff quarry would be built in the area north of the limestone quarry, on the lower flat sloping paddock below the north end of the escarpment.

The two quarries would be connected by an internal haul road, and would share facilities, equipment and resources.

Significant Maori rock art exists in the Weston escarpment area, "Te Ana Raki". These art sites lie outside the active quarry and cement plant areas. However, a specific assessment of the effects of the overall project in relation to these sites is being prepared in conjunction with Te Rūnanga o Moeraki.

Quarry construction

Construction of the limestone and tuff quarries is expected to take approximately 18 months and would occur while the main plant was being built.

Initially the overburden - topsoil and loess (an accumulation of clay and silt particles deposited by the wind) - up to a depth of about four metres would be removed from an area of about 20 hectares. This would expose enough limestone, siltstone and tuff for two years of cement production. The topsoil and loess would be stored in temporary stockpiles for later rehabilitation.

The crusher and associated equipment would be built in an area cut or dug into the limestone at the southwest end of the quarry and would remain in that location throughout the life of the quarry. A tunnel through the escarpment to transport material to the cement plant would also be built and would be completed within the first year. Excavation for the crusher and tunnel would generate around 500,000 tonnes of limestone, which would be stockpiled in the quarry for use when the plant started up.

30 Years into the future

This photo-montage of the Weston limestone and siltstone quarry illustrates its appearance from Airedale Road as expected at year 30. It includes some of the landscape rehabilitation and restoration works that would be completed during the quarry's working life. This image is indicative only. (Viewpoint B).

Present day

An image of the proposed Weston limestone and siltstone quarry site from Airedale Road, as it is today. (Viewpoint B).

Quarry operation and layout

The quarries would normally operate between eight and 12 hours per day for six days each week.

All material would be quarried by 'ripping', a technique where rock is mined using a bulldozer or an excavator. No blasting would be required. The limestone would typically be formed into a large bench on which material was ripped, and which would lower the limestone moisture content, helping to reduce the energy needed in the cement making process.

Front-end loaders would load trucks and move material within the quarries. Thirty-five tonne off-road articulated dump trucks would move material from the tuff quarry to the crusher plant within the limestone quarry via the internal haul road. An access road for staff and service vehicles would connect the quarries and associated amenity buildings and workshops with Coal Pit Road.

The crushing plant would be sited within the limestone quarry, and would not be visible from the cement plant in front of the Whitstone escarpment. It would be fed by three separate hoppers - one each for limestone, siltstone, and tuff - and would feed material onto a conveyor system for transport to the cement plant, via a tunnel through the Whitstone escarpment.

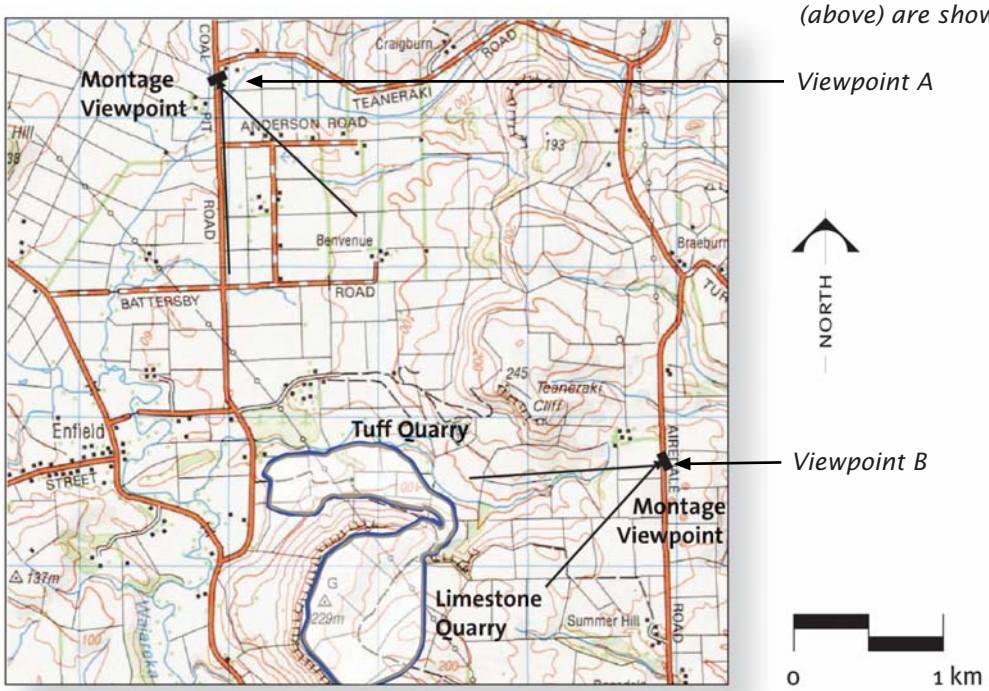
Raw materials would be blended both within the quarries and at the crusher stockpiles.

Less than one-fifth of the quarried material would need to be crushed, as 80-90 percent of the material would already be under the 100mm size required for feeding into the cement plant. Undersized material would be fed directly onto the conveyor system.

The footprint of the limestone quarry would be kept as small as possible, while still being able to meet the production levels required by the cement plant. The limestone quarry would maintain a suitable buffer from the edge of the Whitstone escarpment, based on detailed engineering, to ensure stability of the slopes both inside and outside the quarry. The slopes within the limestone quarry would be left either close to vertical with benches (e.g. behind the escarpment), or at a maximum angle of 26º (one-in-two) to allow effective rehabilitation to farmland after mining was completed.

At full production the quarries would produce around 20,800 tonnes of limestone, 3900 tonnes of siltstone, and 1200 tonnes of tuff each week. There is, in total, around 200 million tonnes of limestone accessible for quarrying in the area.

The viewpoints for the photos (above) are shown here.

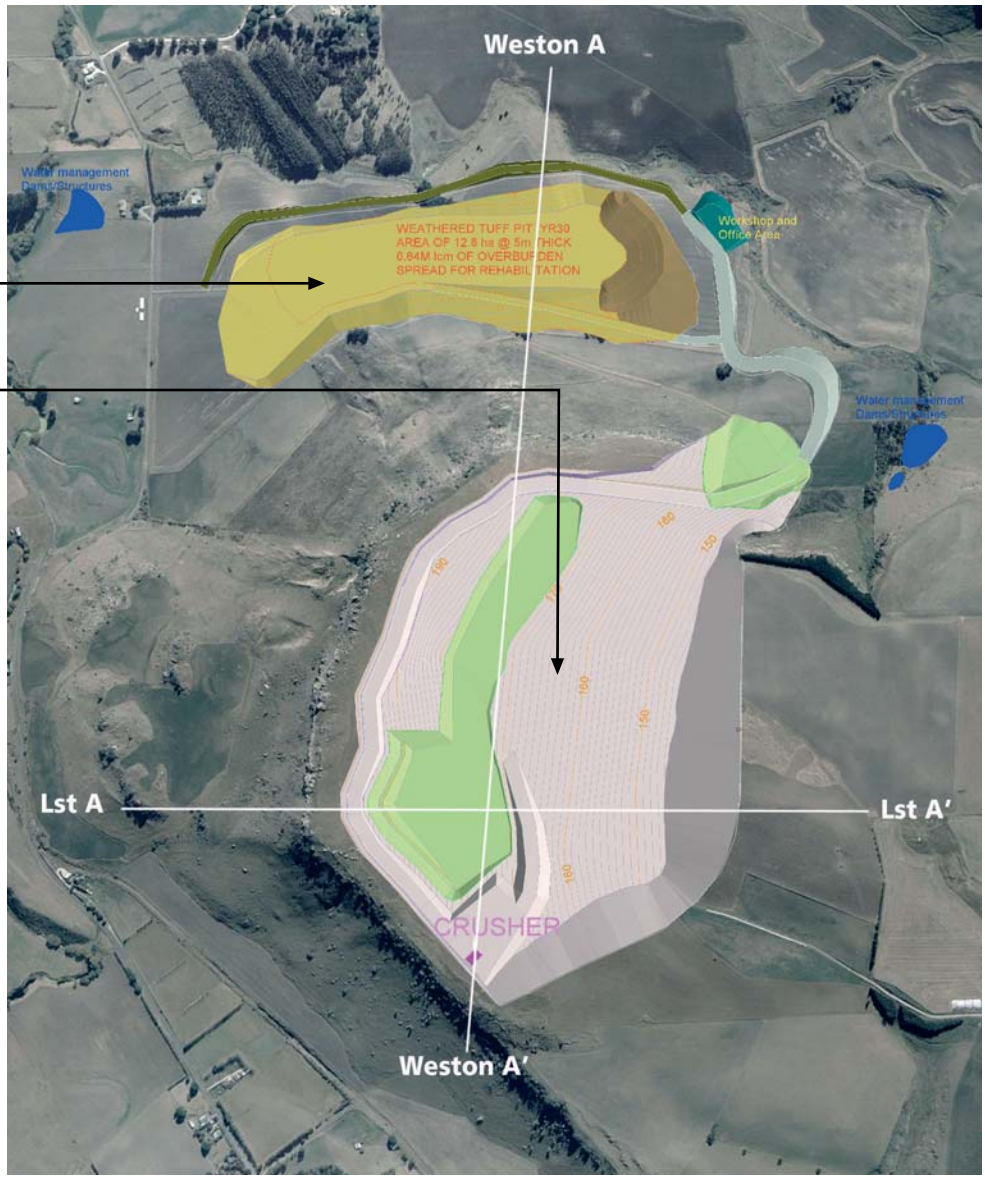


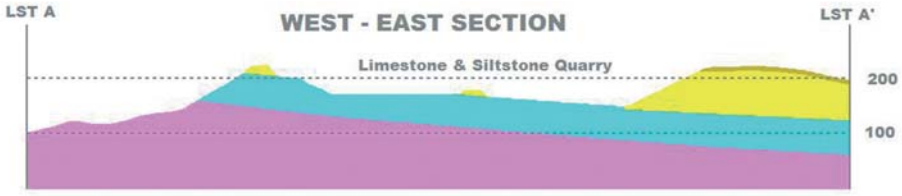
Montage Viewpoint Location Plan

Cross section north-south: this shows a section, viewed from the west looking east, through the quarry as expected at year 30. Note the tuff quarry at the northern (left) end of the section, and the dish-shaped area of the quarry. The Whitstone limestone escarpment would remain and is shown as the yellow areas. Note that when viewing cross-sections, the escarpment in front of the cross-section is 'invisible' so as to allow a view into the quarry.

The tuff quarry would be progressively rehabilitated by spreading stockpiled overburden material, topped with topsoil, to a total depth of about 5 metres. This would be suitable for replanting for future farming use.

A plan view of the maximum footprint of the limestone quarry as expected at year 30, not showing the progressive rehabilitation that would have occurred. In practice, the limestone quarry would be developed in blocks, each of which would last two to three years. As a block was closed, and depending on the need to transport and stockpile material within the quarry, rehabilitation would begin to restore the land to general farmland. The quarry would have two types of surrounding walls. Around the inside of the Whitstone escarpment the walls would be steep (close to vertical) and benched. On the eastern and southeastern sides the edges of the quarry would be sloped (26º or less) so they would be suitable for restoring as general farmland. The quarry area would be free-draining to the northeast and would not contain a lake. The green areas within the limestone quarry show where the siltstone - which underlies the limestone - would have been quarried.





Cross section west-east: this shows a section through the quarry looking from the south towards the north. The gently sloping floor of the quarry would be rehabilitated for use as general farmland.

About Holcim

Holcim (New Zealand) Ltd is a leading manufacturer of cement, concrete, aggregates and industrial lime products. It has more than 35 operating sites and employs in excess of 500 staff in New Zealand. The company's involvement in the New Zealand building and construction industry dates back to its Otago origins in 1888. It was formerly named Milburn New Zealand Limited, and is a wholly owned subsidiary of the Holcim Ltd Group, which has operations in 70 countries on all continents.

Do you want more information?

Here are some ways you can get more information or register to go on the mailing list:

- Check out our website: www.holcim.com/nz
- Or email us: info-nz@holcim.com
- Or call us: 0800 43 20 20 to have someone from Holcim call you

We want to hear from you

Here are some ways you can have your say:

- Phone 0800 43 20 20
- Send an email to info-nz@holcim.com
- Write to us - response forms are available. You can phone the number above and ask for one to be sent out
- In person by contacting Holcim via email or phone and asking for someone to meet with you.

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