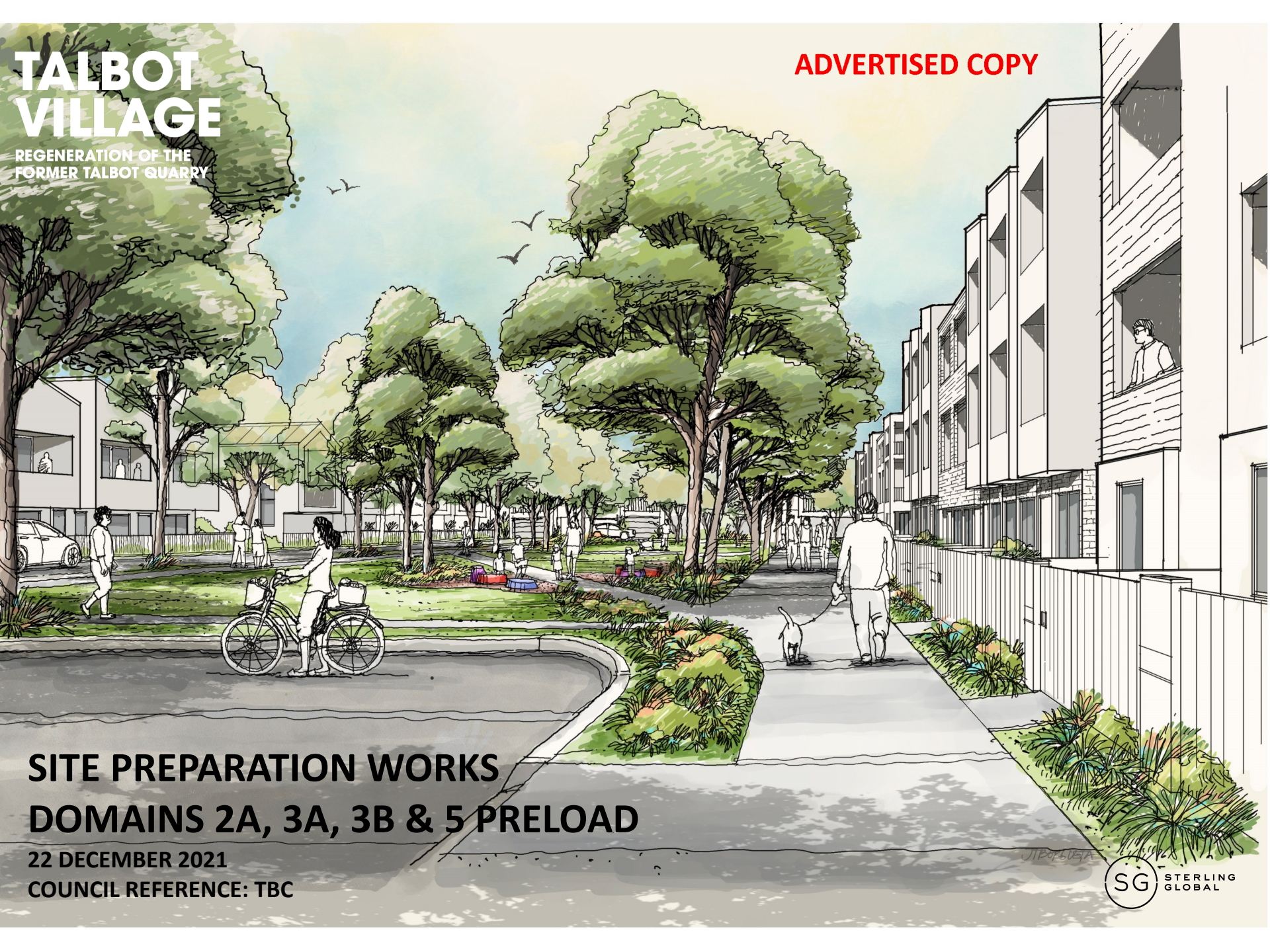


# TALBOT VILLAGE

REGENERATION OF THE FORMER TALBOT QUARRY

ADVERTISED COPY



## SITE PREPARATION WORKS DOMAINS 2A, 3A, 3B & 5 PRELOAD

22 DECEMBER 2021

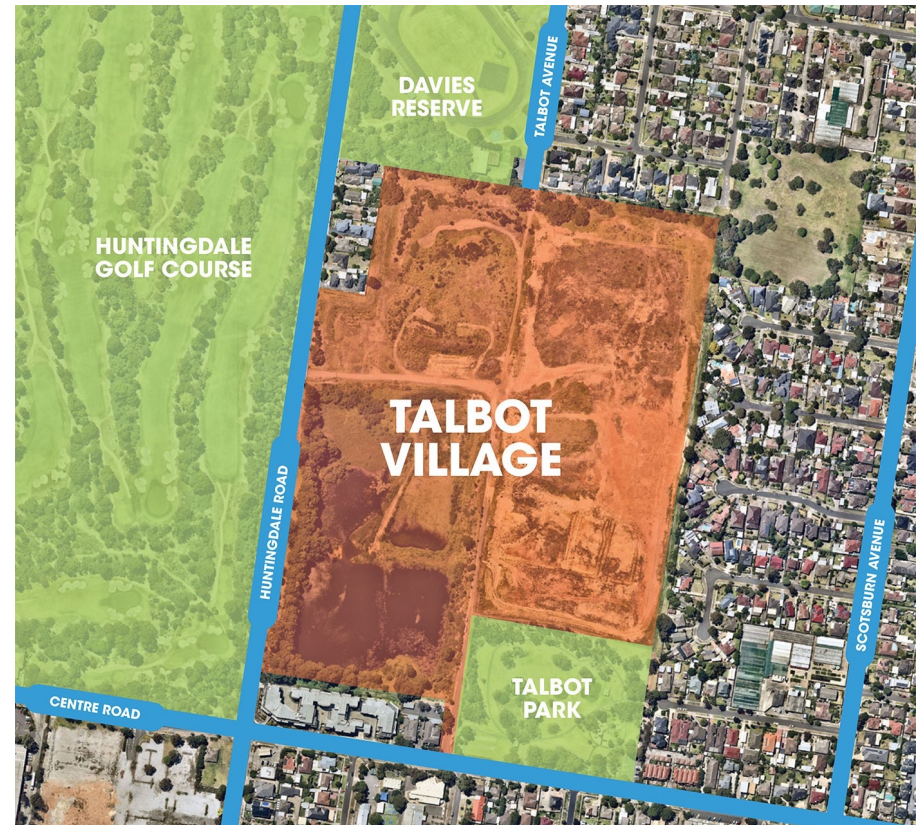
COUNCIL REFERENCE: TBC

# TALBOT VILLAGE VISION

Sterling Global is rehabilitating and redeveloping the former Talbot Quarry site in to a vibrant master planned community in Oakleigh South.

Having prepared a master plan for the site, designed by esteemed Urban Designers and Master Planners Hatch RobertsDay, Sterling Global has applied to rezone the land with a development plan.

In preparation for future building construction works (subject to planning approval), Sterling Global, and its team of highly experienced geotechnical and civil engineers, has determined the ground improvement strategy for the site and is seeking planning permission from the City of Monash for these works.



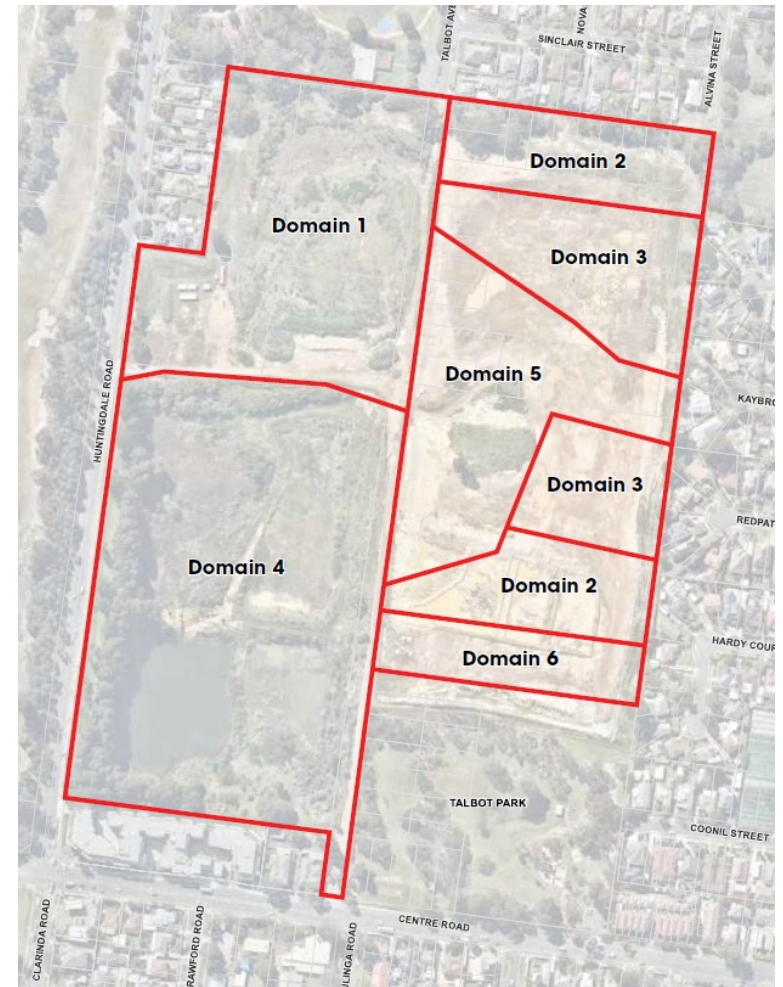
阅读中文版宣传单，并了解Talbot 社区重新开发工程（位于Huntingdale路Huntingdale高尔夫球场的对面），请访问 [www.talbotvillage.com.au/chinese](http://www.talbotvillage.com.au/chinese) 网站。

# SITE OVERVIEW - GEOTECHNICAL

The Talbot Village site has been both used as a sand quarry and municipal landfill. From the 1950s to 1990s the site was used as a sand quarry and has been progressively backfilled since the 1970s. Part of the site (the section adjacent to Davies Reserve) was a former municipal landfill. A large section of the site remains an open quarry pit. Other parts of the site have been backfilled with slimes.

Based on previous uses and similar geotechnical properties, the site has been categorised in to 6 domains.

Domain	Condition
1	Former Council landfill (previously a quarry pit)
2	Quarry pit backfilled with slimes and uncontrolled fill
3	Quarry pit backfilled with slimes and uncontrolled fill
4	Existing quarry void, up to 18 metres deep, partially backfilled with uncontrolled fill and slimes
5	Former sand processing and concrete batching plant area, shallow slimes are present in some areas
6	Quarry pit backfilled with slimes, uncontrolled fill and construction & demolition debris (such as concrete and timber)

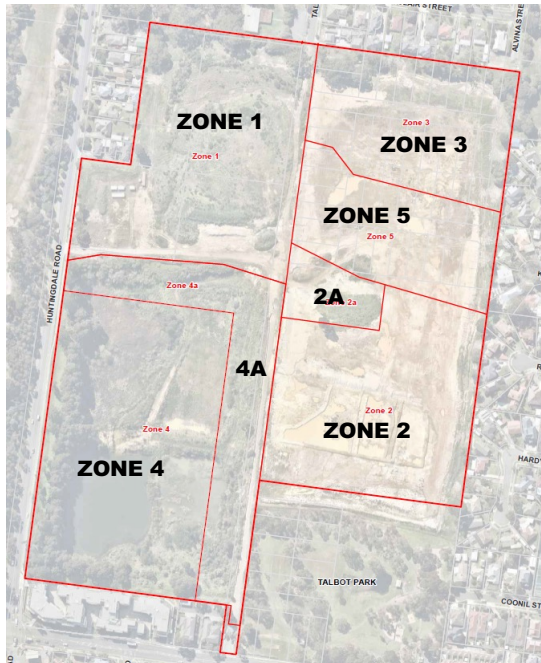


# SITE OVERVIEW - ENVIRONMENTAL

Due to previous uses as a sand quarry and municipal landfill, an environmental audit of the site is required prior to future use and development to assess any environmental risks and management requirements to enable development of sensitive uses such as residential.

The environmental audit of the former Talbot Quarry was completed in 2020, finding that the site is suitable for residential and other sensitive uses.

For the purpose of environmental assessment, the site has been classified into 5 zones, based on historical use and environmental characteristics.



## Key conclusions of the environmental audit:

- Landfill gas is being generated at the site. Prior to preloading works, a landfill gas venting trench must be installed behind neighbouring residential properties to protect against any landfill gas migration during ground improvement works
- Prior to construction of new buildings, a landfill cap and perimeter landfill gas venting trench must be installed. New buildings will have protection and ventilation measures included.
- Groundwater was found to be contaminated at the site and has been determined by the Environment Protection Authority (EPA) as having been cleaned up to the extent practicable (CUTEP)
- Some small areas of the site have soil contamination. The contamination at the site is not considered to pose an unacceptable risk to users of the site, surrounding residents, or the environment. Any excavation or movement of contaminated soil will need to be handled in accordance with applicable health and safety regulations. Prior to occupation of buildings, the site will be capped with 500mm of clean fill
- Bi-annual landfill gas and groundwater is ongoing at the site.

The statements of environmental audit outline the conditions under which building works at the site must be carried out. The environmental auditor must verify designs of protection measures and the construction of such works.

Further detail about the outcomes of the environmental audit can be found on the website,  
<https://www.talbotvillage.com.au/environmental-management>

# GEOTECHNICAL INVESTIGATION

Over the last 20 years, significant geotechnical investigations have occurred, undertaken by geotechnical engineers, Tetra Tech Coffey, engaged by Sterling Global and previous owners. The investigations have provided extensive information of the ground conditions at the site, informing the ground improvement and redevelopment process.

Preloading works undertaken to the eastern portion of the site has verified this method of ground improvement on top of slimes and provided a large volume of settlement data to enable prediction of the completion of the ground improvement and tolerable settlement criteria for structural design and building works.

From late 2020 to mid 2021 Coffey on behalf of Sterling Global undertook additional investigation at the site which included:

- Additional boreholes to determine the thickness of slimes and depth of landfill waste
- Cone Penetrometer, flat dilatometer and vane shear tests to assess the strength of the slimes
- Geotechnical modelling of collected investigation and settlement data to assess when the preload can be removed, predict long term settlement to meet tolerable settlement following construction and assess potential for differential settlement
- Recommend site wide ground improvement strategy



# GROUND IMPROVEMENT WORKS DONE TO DATE

## Domain 1

Historical investigation indicated that preloading would likely be an appropriate ground improvement method for the former landfill, classified as domain 1. In 2005 a trial embankment was undertaken to verify this prediction.

Preloading has been identified as the ground improvement technique for Domain 1

## Domains 2-6 (excluding 4)

In 2017 works commenced to preload the eastern half of the site. This was completed in 2019 and was done to all areas except within 30 metres of the boundary.

During the works, settlement plates were installed underneath the preload and settlement pins at the top. Monthly settlement monitoring occurs to track the progression of settlement and enable future settlement predictions to occur.

The collected data has demonstrated preloading to be an effective method of ground improvement.

Due to the 30m setback, additional works along the perimeter are required to ensure the entire quarry pit is preloaded as part of the ground improvement process.



# PROPOSED GROUND IMPROVEMENT STRATEGY

## Domains 1, 2, 3, 5 and 6

Preloading has been determined to be the dominant ground improvement strategy across all areas of the site with the exception of Domain 4.

Slimes and uncompacted landfill do not have sufficient ground strength to be able to safely support buildings. In order to compact the ground, each domain needs to undergo a period of preloading. The preload is created by bringing clean fill to site and creating a uniform stockpile across the entire former backfilled quarry pits. This applies to domains 1, 2, 3, 5 & 6.

The weight of the preload is a greater weight than that of future buildings meaning most ground settlement has occurred prior to construction and any settlement that has occurred after construction is within tolerable allowances to prevent damage to the structures.

Along with the preload, a series of settlement plates and pins are installed, and land surveyors record the ground level each month to monitor the settlement that is occurring. Tetra Tech Coffey, Sterling Global's geotechnical engineers, track the settlement trends to determine when the preload can be removed, and the ground is ready for construction of roads and buildings.

Once completed, the preload stockpile will be removed and used as backfill in the domain 4 quarry pit following commencement of those works.

# WHAT IS PRELOADING?

- Placement of fill over areas of ground that have poor structural properties – eg slimes and landfill
- Being a greater weight than future development, the load induces an amount of settlement prior to development such that new structures do not cause unacceptable levels of settlement
- Applies to all slimes areas and landfill (domains 1-6 excluding 4)
- Preload stockpiles should be a minimum of 2 metres high above final finished ground level of the future development
- Preload should cover the entire quarry pit for adequate ground improvement and minimisation of differential settlement
- Settlement is monitored by plates and surface pins to determine settlement trend and achievement of primary consolidation
- Preload stockpiles are removed and used as backfill for Domain 4
- Structures are designed with secondary consolidation considered such that any ongoing settlement occurs within tolerable ranges



## Primary consolidation

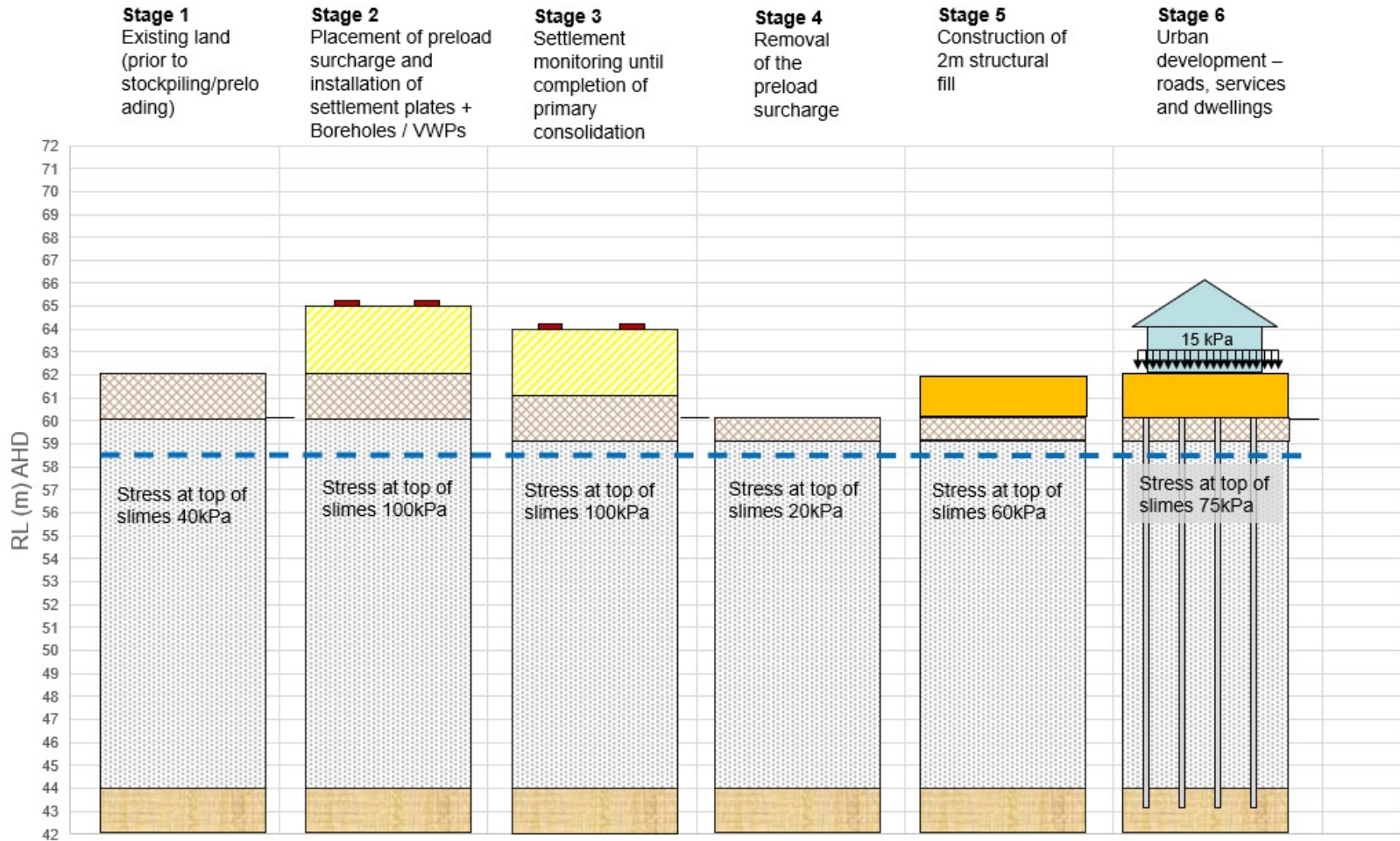
The achieved process that has removed excess water pressure, inducing ground settlement and improved bearing capacity. The can then be built upon with tolerable long term settlement.

## Secondary consolidation

The slower rate of consolidation over a longer period of time. Structures are designed to accommodate the gradual settlement



# PRELOADING PROCESS



**LEGEND**

	New Fill		Structural Fill		Piles to further support structures (if required)
	Old Fill		Groundwater table		Settlement Plates
	Slimes				
	Natural				

Stages

# GROUND IMPROVEMENT STRATEGY CONT'D

## Domain 4

The former quarry hole be backfilled with suitable fill material to create a new ground level for the future development.

Backfilling will be undertaken under the supervision of geotechnical engineers and constructed in accordance with Australian Standards (Guidelines for Earthworks for Residential Developments).

Settlement plates and pins will be installed progressively with ongoing settlement monitoring occurring during and following backfilling. The settlement will be tracked to determine when the ground is ready for construction of roads and buildings (primary consolidation).



**coffey**

Talbot Road Finance Pty Ltd  
Huntingdale Estate, Oakleigh South, VIC

Zone 4 Backfill Design Report  
GEOTABTF09257AA-AQ Rev10

25 September 2015

Real potential is uncovered only when you scratch beneath the surface

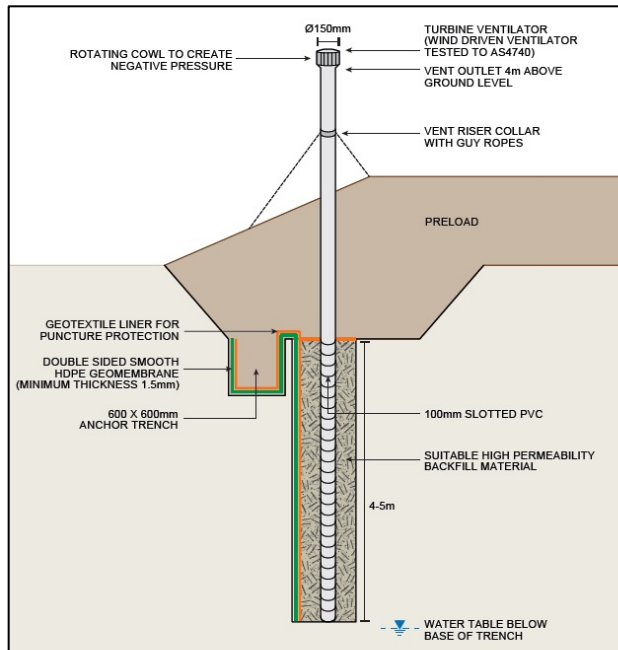
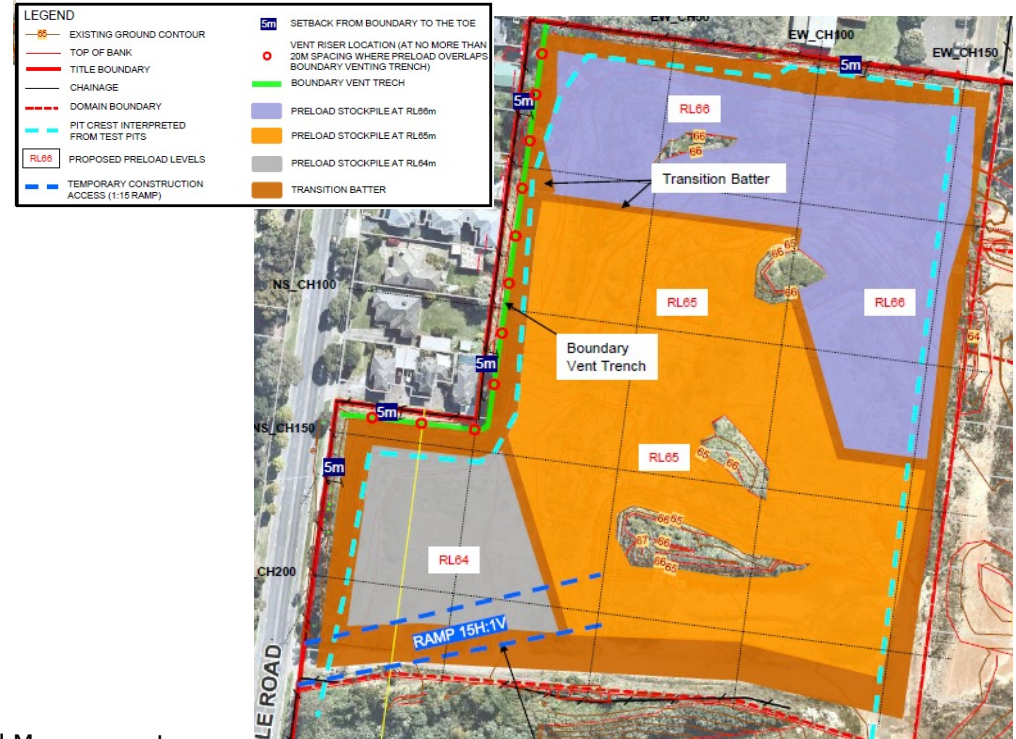
*\*All works will be undertaken in accordance with the requirements of the Statements of Environmental Audit including any required landfill gas or ground water monitoring*

# GROUND IMPROVEMENT WORKS TO DOMAIN 1

In October 2021, Sterling Global applied for a planning permit to preload Domain 1 and install a landfill gas venting trench. These works are part of a separate application and assessment process.

Works involve:

- Installation of the boundary landfill gas venting trench between the edge of the quarry pit and rear of the Huntingdale Road residential property boundaries prior to stockpiling works
- Importation of clean fill to form the preload stockpile. The stockpile will be set at three different levels in different parts of the domain
- The bottom of the stockpile will be offset 5m from the property boundary, to cover the entire former quarry pit



## Environmental Management

Preloading works are occurring on top of a <40 year old closed landfill which continues to produce landfill gases.

Whilst it is not expected, as a precaution, a landfill gas venting trench will be installed to intercept any lateral migration of landfill gas.

The trench acts as a landfill gas barrier behind the residential properties on Huntingdale Road. The trench will be lined with a plastic barrier and backfilled, ultimately being covered by the preload.

The trench does not draw landfill gas towards it and is installed as a precaution.

The trench is for the benefit and protection of neighbouring properties during rehabilitation of the site.

Regular landfill gas monitoring will occur during the preloading works.

# **ABOUT THIS PLANNING PERMIT APPLICATION**

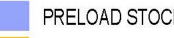
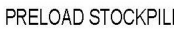


***GROUND IMPROVEMENT WORKS TO  
DOMAINS 2A, 3A, 3B & 5***

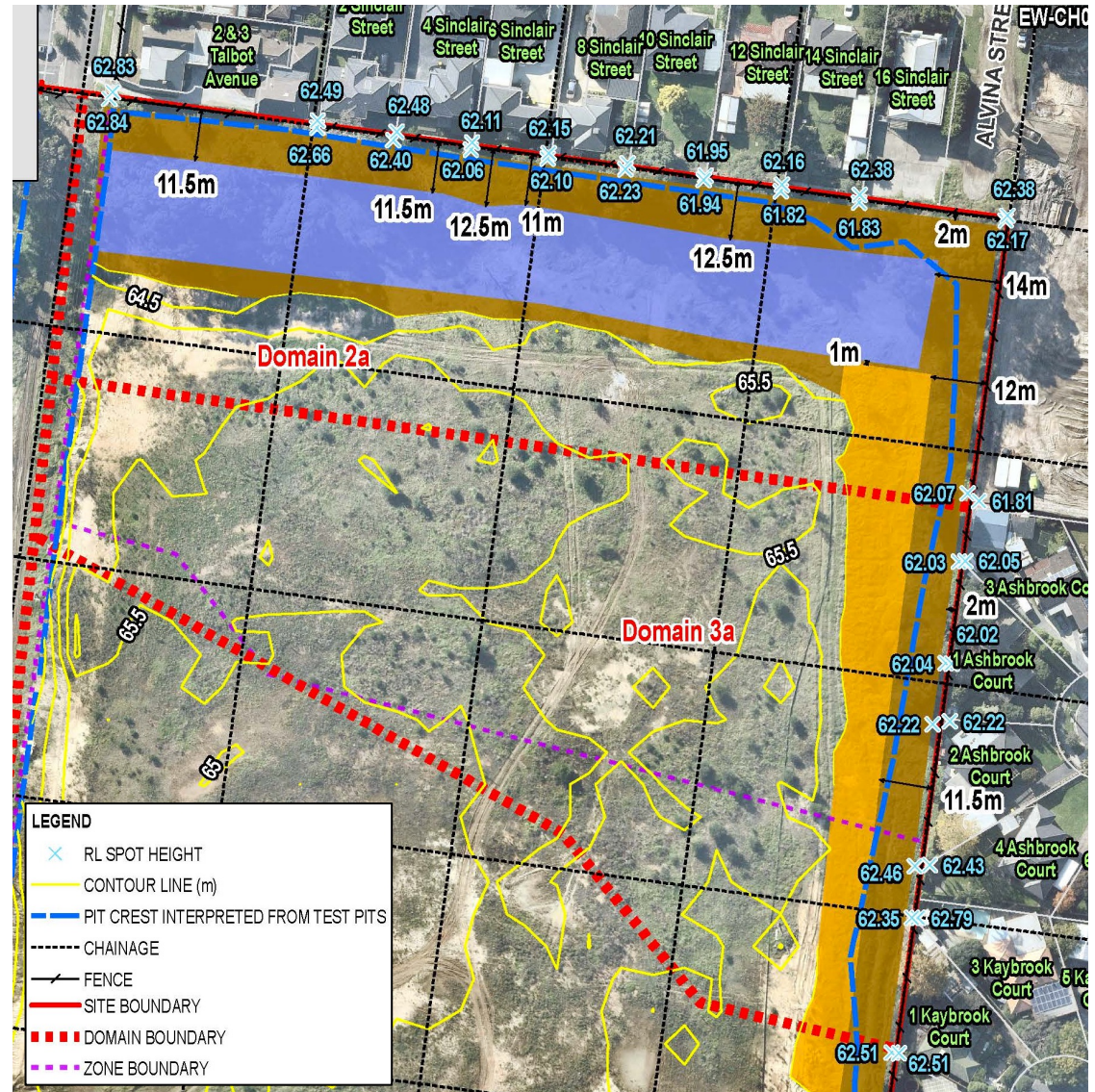
# NEXT STAGE OF SITE PREPARATION WORKS

Domains 2a, 3a, 3b and 5 were largely preloaded during the stockpiling works that took place in 2017-19. Further geotechnical investigations have established that additional preloading is required along the northern and eastern boundaries to ensure the full extent of the former quarry pits are appropriately preloaded to prepare the land for future development.

Sterling Global has applied for a planning permit to preload these additional areas in Domains 2a, 3a, 3b & 5. Works will involve:

- Removal of vegetation in the work zone including all perimeter trees in the work area
- Importation of clean fill to form the preload stockpile. The stockpile will be set at three different levels due to the natural grade of the land
- The bottom of the stockpile will be offset 2 metres from the property boundary
- The maximum height of the stockpiles are generally setback from the property boundary between 11 to 12 metres (except for Domain 3b which ranges from 8m to 11m)

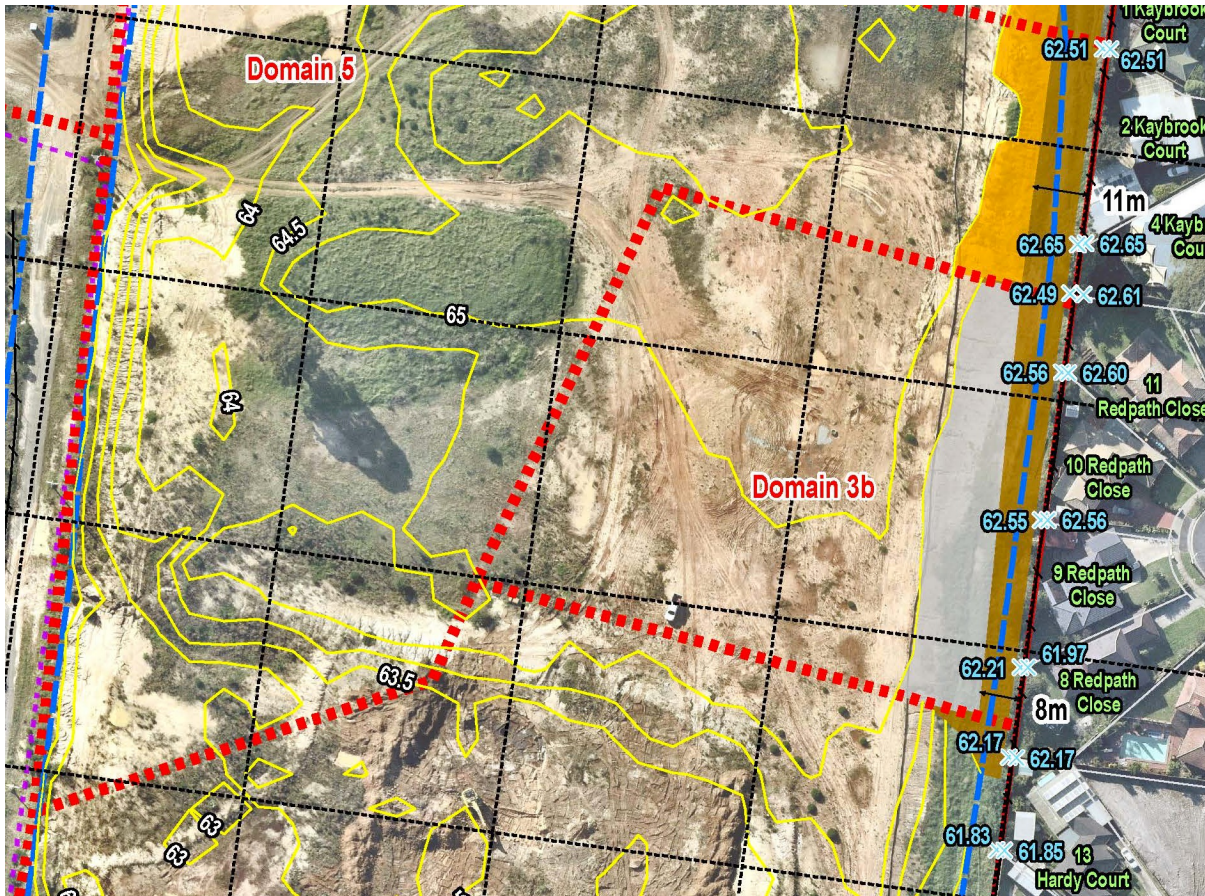
STOCKPILE AND BATTER			
	PRELOAD STOCKPILE AT RL 66M		PRELOAD STOCKPILE AT RL 64.5M
	PRELOAD STOCKPILE AT RL 65M		TRANSITION BATTER 3H:1V







Stockpiles in Domain 2a and 3a









# NEXT STAGE OF SITE PREPARATION WORKS

- At the completion of preloading the stockpile will be used as backfill material for the filling of the Domain 4 quarry hole. Houses are not proposed to be built on top of these preload stockpiles.
- The environmental auditor has determined that there is no requirement for a landfill gas venting trench to undertake these works due to the lack of landfill gas producing material present in these domains, and the distance from the Domain 1 landfill
- A swale drain will be construction around the perimeter at the base of the stockpile to direct storm water run off away from neighbouring properties

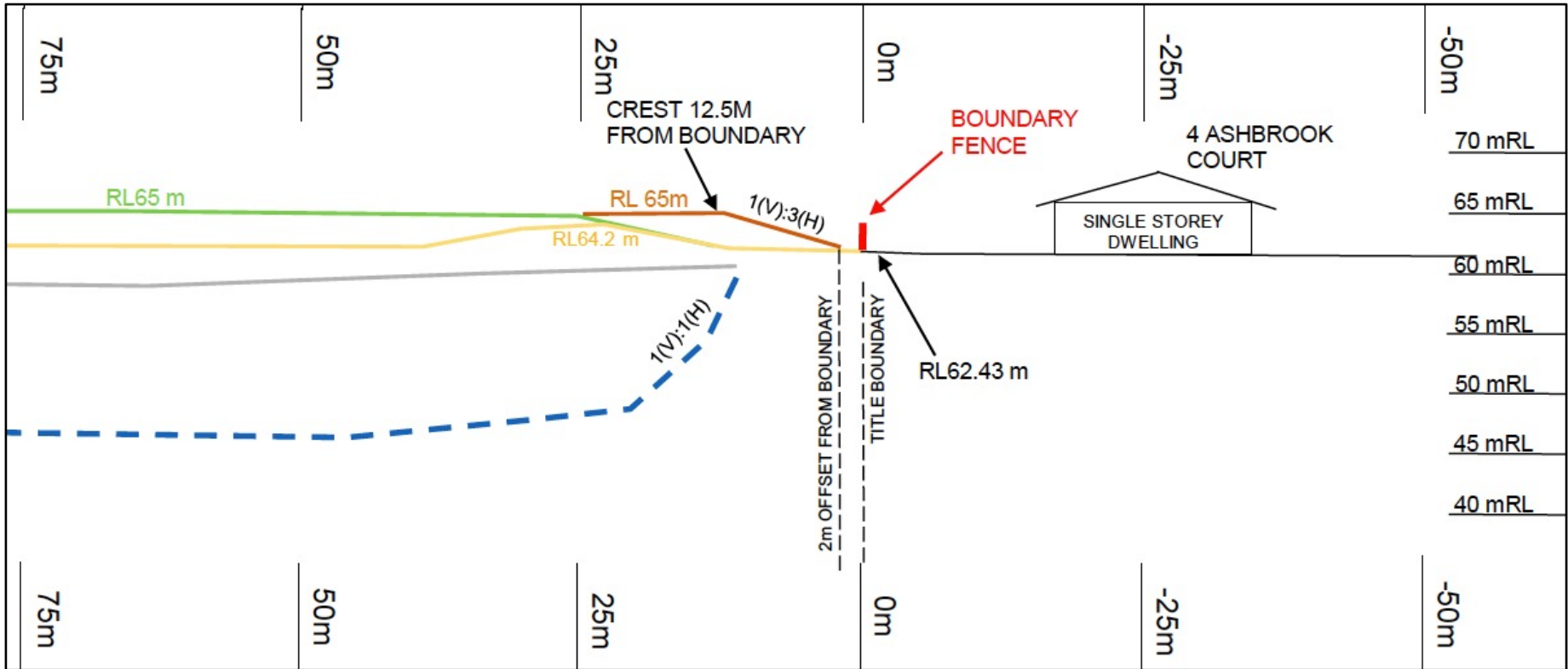


Stockpiles in Domain 5 and 3b

STOCKPILE AND BATTER	
	PRELOAD STOCKPILE AT RL 66M
	PRELOAD STOCKPILE AT RL 65M
	PRELOAD STOCKPILE AT RL 64.5M
	TRANSITION BATTER 3H:1V

LEGEND	
	RL SPOT HEIGHT
	CONTOUR LINE (m)
	PIT CREST INTERPRETED FROM TEST PITS
	CHAINAGE
	FENCE
	SITE BOUNDARY
	DOMAIN BOUNDARY
	ZONE BOUNDARY

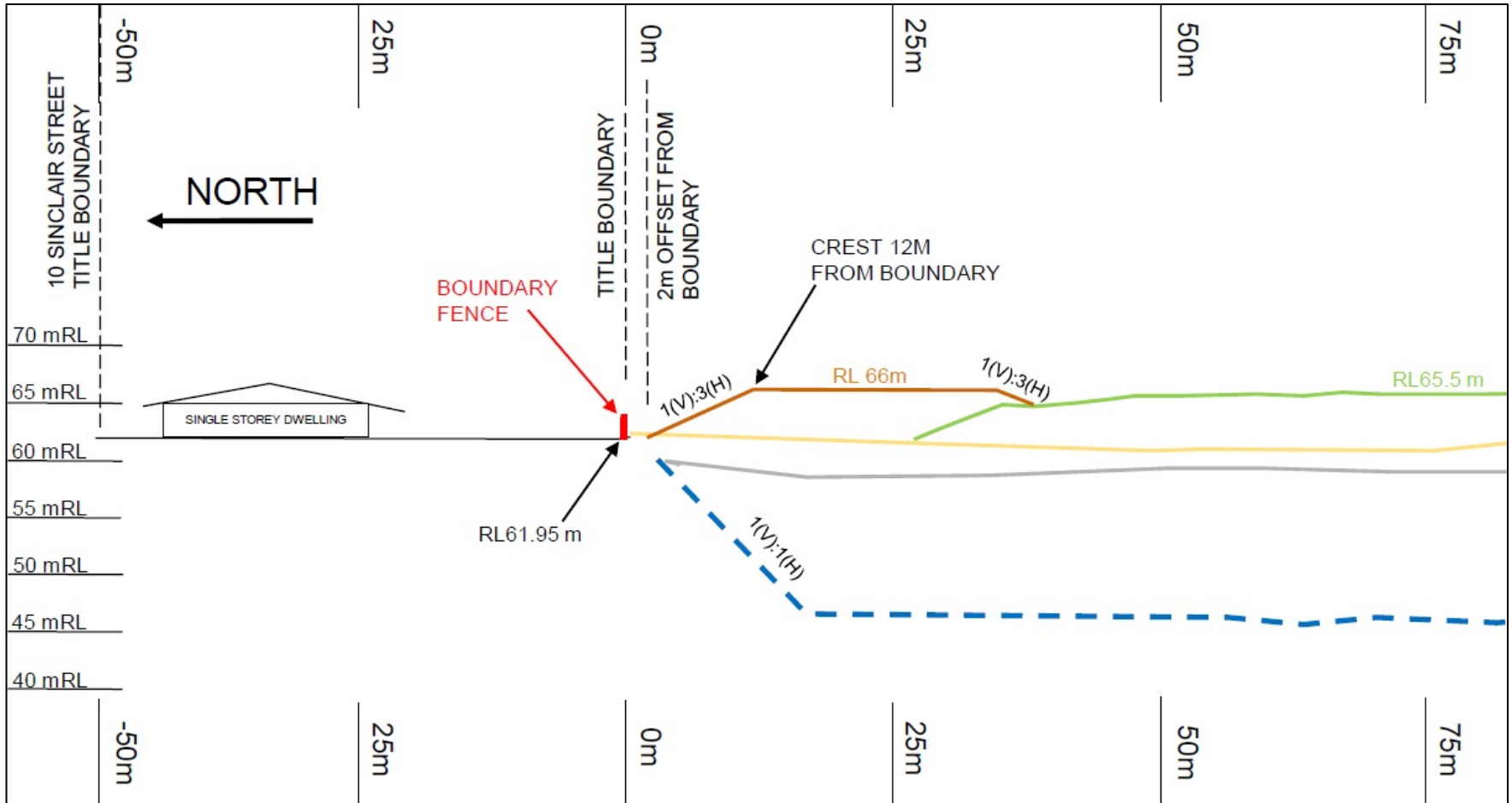
# PRELOADING OF DOMAINS 2A, 3A, 3B & 5



LEGEND			
	INFERRED PIT BATTER (APPROX.)		PRELOAD LEVEL
	TOP OF LANDFILL (APPROX.)		EXISTING GROUND LEVEL
	TOP OF OLD FILL (APPROX.)		TOP OF SLIMES

*\*Additional sections along the north and east are included within the application material*

# PRELOADING OF DOMAINS 2A, 3A, 3B & 5



LEGEND	
	INFERRED PIT BATTER (APPROX.)
	PRELOAD LEVEL
	TOP OF OLD FILL (APPROX.)
	EXISTING GROUND LEVEL
	TOP OF LANDFILL (APPROX.)
	TOP OF SLIMES



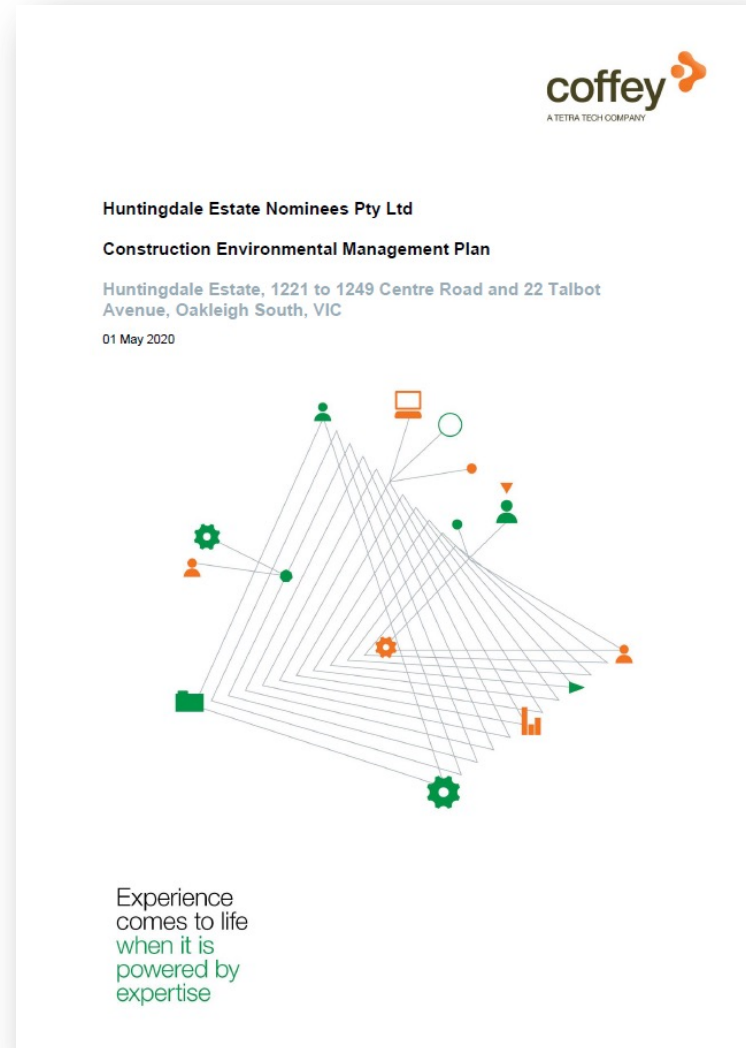
# PROGRAM OF WORKS

The below represents an indicative program of works. The program is subject to change as works progress and may be influenced by weather or supply chain of preload material. Residents will be kept informed.

Activity	Likely timeframe
Vegetation removal and site preparation	3 weeks
Importation and construction of preload	2-3 months
Settlement monitoring of preload	12-18 months
Removal of preload	Following completion of settlement monitoring as approved by the geotechnical engineer

# ENVIRONMENTAL MANAGEMENT

- All works are to be carried out in accordance with the Construction Environmental Management Plan attached to the Statement/s of Environmental Audit
- Landfill gas and groundwater monitoring will continue to occur in accordance with the monitoring plans endorsed by the EPA and Environmental Auditor
- There is not a requirement for any landfill gas venting trenches as part of these works
- Any asbestos encountered will be managed in accordance with the appropriate regulations and health and safety laws



# MANAGING COMMUNITY AMENITY

All works will be undertaken in accordance with the Construction Environmental Management Plan included in the environmental audit.

## Dust

The contractor will take steps to minimize dust as best as possible:

- Minimising vehicle speed on site
- Limiting work on dry windy days
- Water spraying on stockpiles and in works areas to suppress dust
- Application of dust suppressant on completed stockpile areas

## Noise

Unfortunately, noise can be expected during site works. To minimise the impact to adjoining residents, working hours are proposed to be limited to:

- Monday to Friday – 7am – 6pm
- Saturdays – 8am to 12pm
- No work on Sundays or public holidays

Machinery will work efficiently while close to the boundary and limit the amount of time working near neighbouring properties as best as possible.

## Stormwater

The stockpiling involves altering the levels of the land and changing the natural rainwater run off pathways. A swale will be built at the top of the stockpiles to collect and direct stormwater southwards. An additional swale will be provided around the perimeter of the stockpile to direct stormwater away from neighbouring properties

## Traffic

Construction access to the site is proposed to be only via Huntingdale Road.



# QUESTIONS?

## Why are there different stockpile heights?

The natural grade of the land is several metres from north to south. Creating a consistent level would mean the southern portion of the stockpile is taller than necessary. The stockpile will be stepped to three levels to minimise the height.

## Why is the stockpile setback 2 meters from the boundary?

When the quarry was excavated it was constructed generally between 2 and 9 metres from the property boundary. It is important to preload the entire quarry pit as much as practical to minimise differential settlement.

## Why are the trees being removed?

To control stormwater run off from the stockpiles, it is necessary to install a perimeter swale drain at the base of the stockpile. The current trees are located within the area of either the preload of perimeter swale. Trees need to be removed to enable adequate preloading and drainage works. During the development of Talbot Village extensive new canopy trees will be planted.

## Where does the imported material come from?

Typically, the material is brought from the excavation of soil from other building projects such as basements, level crossing removals, tunnels and freeway upgrades.

## Will there be a landfill gas venting trench?

The environmental auditor has determined that there is no requirement for a landfill gas venting trench to undertake these works due to the lack of landfill gas producing material present in these domains, and distance from the Domain 1 landfill.

## What checks occur to the material?

Before importation all fill material is screened, processed and checked in accordance with the Site Backfill Protocol which is endorsed and included in the Statement of Environmental Audit.

## When will works begin?

The works are subject to Council planning approval however we anticipate works to commence in late 2022.

## How long will the works take?

It is expected that it will take up to 4 months to prepare and construct the preload stockpile. This is dependent on the weather, however.

## How long will the preload stockpile remain?

The stockpile needs to remain until primary consolidation is reached and future settlement will be in tolerable limits for future buildings. This will be monitored monthly. It is expected to be 12-18 months.

## What happens to the stockpile after it is removed?

The stockpile will be used as backfill material for the filling of the Domain 4 quarry hole. Houses are not proposed to be built on top of the preload stockpiles

## How can I stay involved?

For the duration of the works, Sterling Global will chair a Community Reference Group (CRG) which will help the community understand what's happening during construction and provide us local perspective to help us manage construction impacts. Local residents will be invited to express their interest prior to works commencing and meetings will be held regularly.

# MEANING OF TERMS

## **Slimes**

Ground with poor geotechnical strength, similar to Coode Island Silt (as found in central Melbourne). Requires ground improvement to increase strength prior to development of new buildings.

## **Preloading**

Placement of fill to accelerate consolidation settlement of the land and improve geotechnical strength to enable development.

## **Settlement monitoring**

The period of time the preload remains on the land and monitoring of the settlement and confirmation of ground improvements to decide when construction can occur.

## **Unloading**

Removal of the preload fill and placement in Zone 4 quarry void

## **Structural fill**

Following removal or preload and existing fill, replacement with structural fill platform to new ground level in order to support future roads and buildings.

## **Landfill cap**

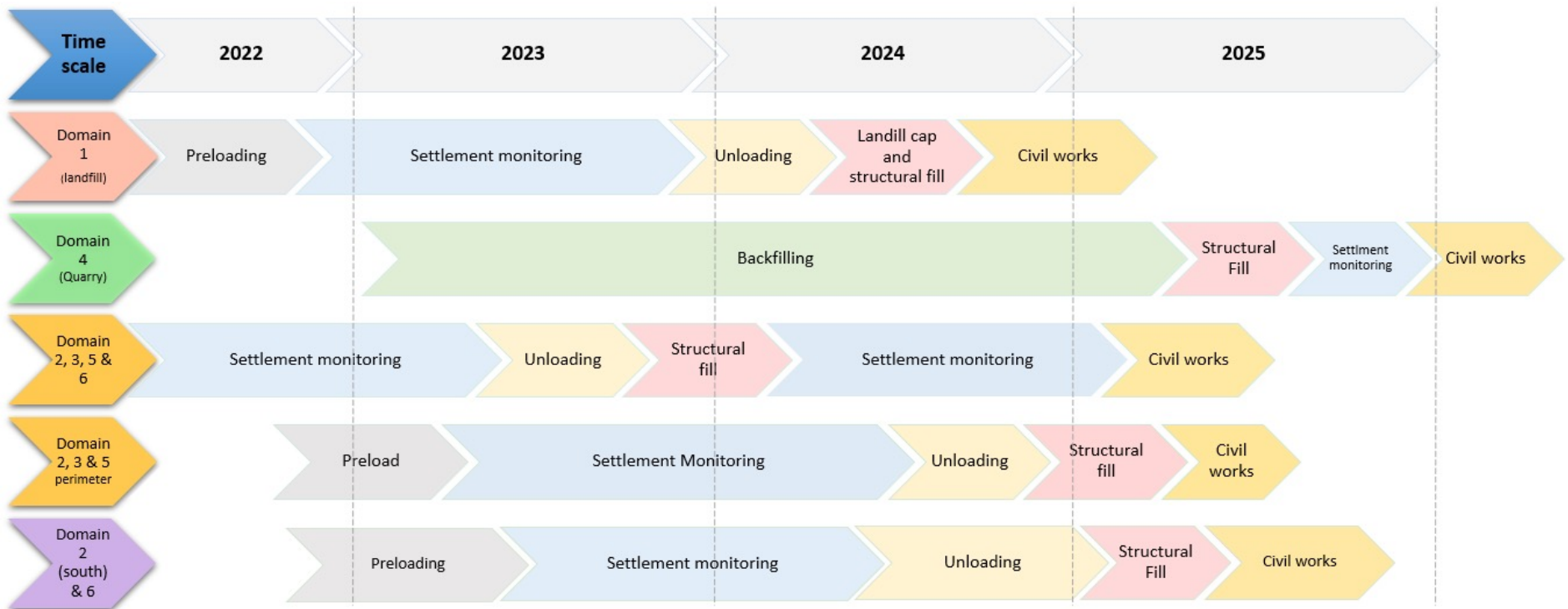
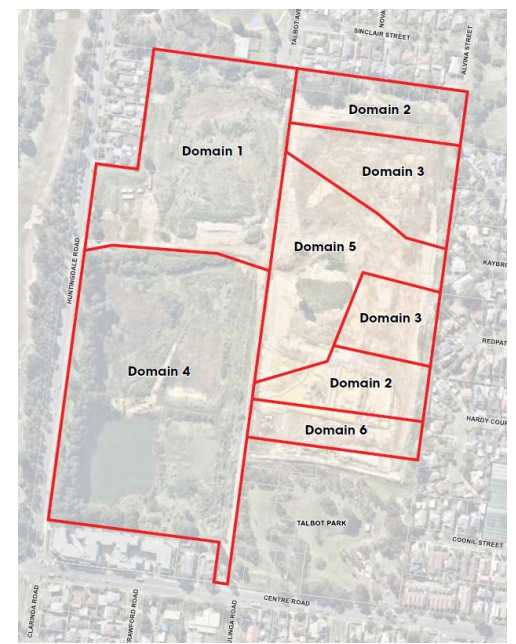
Engineered cap on top of the former landfill in accordance with the Statement of Environmental Audit

## **Civil works**

First stage of urban development, roads and services, prior to construction of buildings

# OVERALL PROGRAM

Works will occur across the site in stages. The below outlines an indicative timeline of the site preparation works. All works are subject to Council approval and geotechnical sign off to proceed to the next phase. Sequencing the program is indicative only and subject to regular review.



# WHAT NEXT?

## **Planning application for preloading Domain 1**

Monash City Council is currently considering Sterling Global's application for ground improvement works in Domain 1.

Subject to a planning permit being issued, works are anticipated to commence in mid 2022. Residents will be advised prior to construction commencing.

## **Other ground improvement works**

Sterling Global is currently preparing a planning permit application for the backfilling of the former quarry pit in Domain 4 to be submitted to Council in the coming months.

# CONTACT US

You can contact us in the following ways:

- Visit us at [www.talbotvillage.com.au](http://www.talbotvillage.com.au)
- Call us on 9021 0616
- Email us at [hello@talbotvillage.com.au](mailto:hello@talbotvillage.com.au)

# TALBOT VILLAGE

REGENERATION OF THE  
FORMER TALBOT QUARRY

