

BIO-RETENTION BASIN MAINTENANCE MANAGEMENT PLAN

VANTAGE YATALA INDUSTRIAL DEVELOPMENT STAGE 1 STORMWATER BASIN

ADDRESS

60 Stapylton Jacobs Well Road, Stapylton QLD

REAL PROPERTY DESCRIPTION

Lot 501 on SP295994

PREPARED FOR

Frasers Property (Australia) Pty Ltd

AUGUST 2021



gassman
development
perspectives

project coordination
urban + regional planning
landscape + urban design
engineering services
environmental management
visualisation + spatial services
surveying services
advisory services

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Approval for Issue

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1.	Mitchell Gassman	Civil Project Engineer RPEQ 16939		30 August 2021

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1.0 INTRODUCTION

Gassman Development Perspectives (GDP) has been engaged by Frasers Property (Australia) Pty Ltd (Client) to prepare a Stormwater Bio-basin Maintenance Management Plan over land situated at 60 Stapylton Jacobs Well Road, Stapylton (Lot 501 on SP295994) (the 'subject site').

This report has been prepared for submission to City of Gold Coast Council (Council) in response to Council Approval Condition Number 24 for Reconfiguring a Lot application over Lot 501 on SP295994 (Council ref. ROL/2020/123, dated 22 February 2021).

Condition 24 read as follow:

24 Bioretention basin maintenance management plan (specific condition)

- a *Prepare a bioretention basin maintenance management plan (MMP) prior to the plan sealing application of the subdivision and submit to Council. The MMP must be prepared by a Registered Professional Engineer Queensland (RPEQ) specialising in stormwater management in accordance with Planning Scheme Policy 11 – Land Development Guidelines and with reference to the Water by Design document Maintaining Vegetated Stormwater Assets, Version 1 February 2012.*
- b *The MMP must include, but not necessarily be limited to, the following key information:*
 - i *Design intent and description of the device(s).*
 - ii *The location and specific dimensions of the device(s).*
 - iii *Approved / designed water quality objectives.*
 - iv *Water quality monitoring procedures.*
 - v *Monitoring frequency.*
 - vi *Specifications and procedures for device(s) maintenance.*
 - vii *Plant and equipment access details for maintenance activities.*
 - viii *Maintenance activity schedule defining frequency, area (m²) per maintenance zone, hours, staff, plant and equipment, approximate costs per rotation, and per annum.*
 - ix *Performance indicators / intervention levels / triggers for reactive maintenance.*
 - x *Any necessary preventative maintenance measures.*
 - xi *Acceptable solutions for specific items, i.e. acceptable plant species substitutions based on availability, hydraulic conductivity, water quality objectives, etc.*
 - xii *Approximate lifecycle maintenance costs.*

2.0 BIO-RETENTION BASIN DETAILS

2.1 LOCATION AND SITE CHARACTERISTICS

The Bioretention Basin is situated in north-east corner of the subject site. The bioretention basin is bounded by Stapylton Jacobs Well Road to the north, existing industrial land to the east, proposed industrial lots in which it will service to the south and future Council road reserve to the west to which it will obtain legal access from. Refer to Figure 2.1 below.

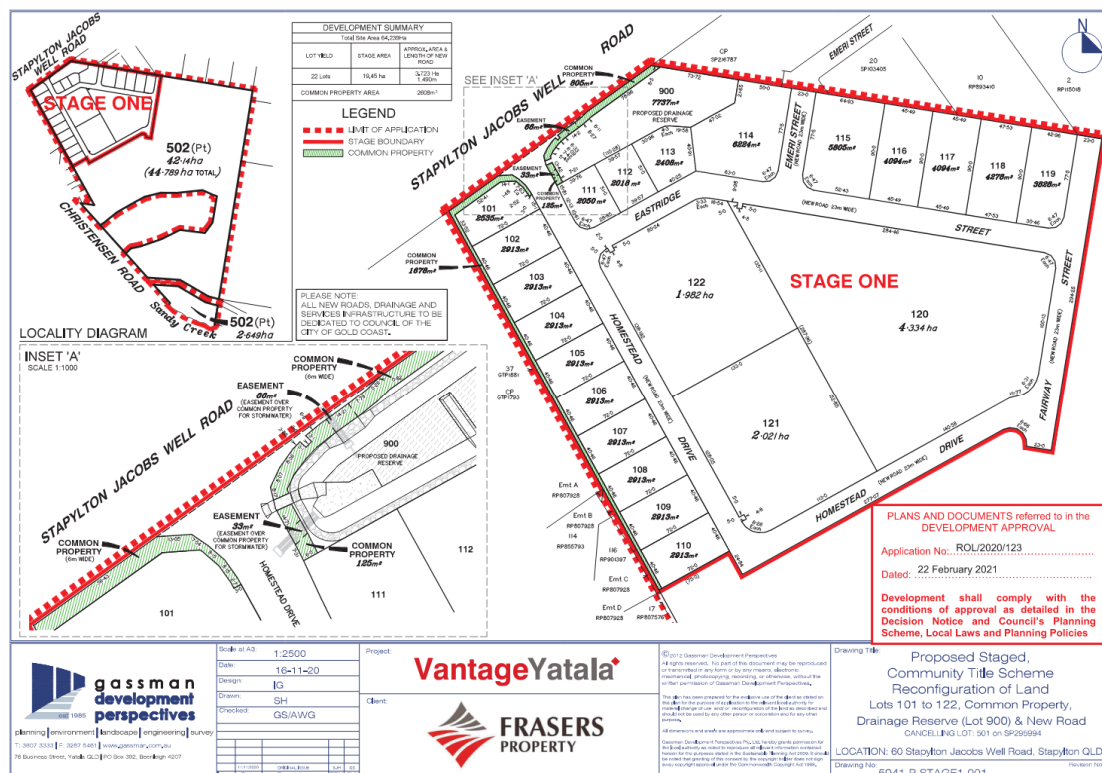


Figure 2.1: CoGC-approved ROL Plan

The current area of Stage 1 applicable to this Bio-basin Maintenance Management Plan is 19.45Ha of which 15.452Ha is contributing to the Stage 1 basin with the balance land being directed to the future Stage 2 stormwater bio-retention basin.

The subject site is zoned "Future Low and Medium Impact Industry" under City of Gold Coast's current City Plan. The current proposal is for twenty-two (22) industrial lot subdivision with an additional balance lots containing the stormwater easement and basin infrastructure necessary to service the site. This site will require bulk earthworks necessary to facilitate clear and flat earthwork pads suitable for this land use. Please refer to **Appendix A** for the Council-approved reconfiguration of lot plan.

The a small portion of the subject site, which includes the bio-renteton basin is in a flood prone area and sits within the extent of the Flood Overlay as defined in City of Gold Coast's City Plan Interactive Mapping – Version 8. This has previously been addressed through hthe approved Site-based Stormwater Management Plan (Rev 4, dated February 2021) for Stage 1 of the development.

2.2 DESIGN INTENT AND DESCRIPTION

The bio-retention basin for the subject site was designed in accordance with Bio-retention Technical Design Guidelines (2012) with the properties as outlined in Table 2.2.1 below. Outlet structures within the basins were designed to ensure an extended detention depth of 300mm over the filter media.

Parameter	Value
Geofabric Lining to Base	Yes
Hydraulic Conductivity (normal analysis)	200mm per hour
Orthophosphate Content	30mg per kg
Filter Media's TN Content	400mg per kg
Vegetation Properties	Basin to be vegetated with effective nutrient removal plants

Table 2.2.1: Properties of adopted Bio-retention Basin

Table 2.2.2 below details design specifications for the bio-retention basin.

Parameter	Value
Catchment	DEV-5
Type	Detention basin (in ground)
Internal Batter Slope on Basin Sides	1 in 3
Basin Floor RL	5.800 m AHD
Basin Embankment / Crown R.L	8.100 m AHD
Basin Transverse Weir Crest RL	7.660 m AHD
Freeboard to Crown	0.440m
Detention Volume Depth	1.689m to 1% AEP WSL (<i>measured from floor / IL of basin</i>)
Detention Volume to Crown	8,458 m ³ to RL 8.100m (<i>deducting 0.30m extended detention</i>)
Detention Volume to 1% AEP WSL	5,498 m ³ to RL 7.489m (<i>deducting 0.30m extended detention</i>)
Detention Volume to Weir Crest	6,208 m ³ to RL 7.660m (<i>deducting 0.30m extended detention</i>)
Low Flow Outlets	3 / 600mm x 600mm grated field inlet pits <i>Top of grate levels set at 0.300m above basin floor at RL6.10m AHD</i> 225mm dia. circular orifice <i>IL at 0.600m above basin floor at IL6.40m AHD</i>
High Flow Outlets	1 / 1500 x 2000mm grated field inlet pit <i>1.175m above basin floor at RL6.975m AHD</i> 10 metre wide broad crested transverse weir <i>1.860m above basin floor at RL7.660m AHD</i> <i>1.70 discharge coefficient for transverse weir</i> 2 / 825mm RCP laid at max. grade of 1.084%

Table 2.2.2: Summary of Design Parameters of Proposed Detention System

3.0 STORMWATER QUALITY

Stormwater quality analysis has been undertaken using MUSIC software to confirm the adequacy of proposed Stormwater Quality Improvement Devices (SQIDs) required to meet the State Planning Policy's (SPP 2014) Water Quality Objectives (WQOs) and the pollutant removal targets set by City of Gold Coast. A suitable treatment strategy addressing the typical pollutant types generated during construction and operation of an industrial development are outlined within this section of reporting.

3.1 POLLUTANTS OF CONCERN

A broad range of pollutants are typically generated during industrial development operational phases. Pollutants may include:

- Litter / gross pollutants
- Sediment
- Toxic materials
- Heavy metals
- Hydrocarbons
- Nutrients (i.e. nitrogen & phosphorous)
- Pathogens / faecal coliforms
- Oxygen demanding substance
- Surfactants
- Acid or alkaline substances
- Organochlorines & organophosphates
- Thermal pollution

3.2 STORMWATER QUALITY OBJECTIVES (OPERATIONAL PHASE)

City of Gold Coast have set stormwater quality objectives with the intent of "protecting receiving water quality by limiting the quantity (loads) of stormwater pollutants discharged into receiving waters from development such as that proposed over the subject site. These are summarised in Table 4.10 of City of Gold Coast's City Plan Version 8.0 Schedule 6.11 and outlined below.

Pollutant	Load Reduction Objective (in mean annual load)
Gross Pollutants (>5mm)	90%
Total Suspended Solids (TSS)	80%
Total Phosphorous (TP)	60%
Total Nitrogen (TN)	45%

Table 3.2: GCCC's Stormwater Quality Objectives (source: City Plan, Schedule 6.11)

3.3 PROPOSED STORMWATER QUALITY AND MANAGEMENT STRATEGY

The proposed subject site's industrial development poses a potential increase in pollutant contamination and increased discharge and concentration of stormwater runoff into receiving waterways.

The proposed bioretention basin will serve as an integrated stormwater treatment device for water quality management prior to downstream discharge.

3.4 WATER QUALITY MONITORING

(Sediment and Erosion Control Program - BORAL)

- Visual inspection of sediment and water quality control mechanisms will be carried out during (where possible) and after major rain events;
- A NATA registered laboratory shall conduct testing of the Total Suspended Solids, Turbidity and pH content of discharge from the sediment basins. Testing shall be conducted prior to dewatering the settling zone, during prolonged rainfall, a minimum of once every day until discharge stops. Testing is to occur as long as the basins are in operation;
- The contractor shall ensure, where possible, that water has drained from the settling zone of the basin, and preferably the sediment storage zone, prior to the next rainfall event that causes runoff. The sediment basins should be dewatered within 5 days of rainfall including testing and treatment; and

Water quality monitored in accordance with Section 7.5 of the Best Practice Erosion & Control (IECA Australasia, November 2008) and compared with water quality objectives. A monitoring report must be prepared and retained at the site office and made available to Council's inspectors upon request. The applicant must notify Council's Contributed Assets Section and Department of Environment and Heritage Protection of any non-compliance to water quality objectives and the corrective actions taken by the Applicant within 48 hours of the non-compliance.

4.0 GENERAL BASIN MAINTENANCE

4.1 REQUIREMENTS AND PROCEDURES

(Adoption Guidelines for Stormwater, CRC for Water Sensitive Cities, 2015)

Routine maintenance is important to ensure that biofilters function effectively in the long term. Regular inspections (or monitoring) are required to continually assess if the system is performing well against its objectives, and to detect issues that may require maintenance attention, before it develops to the point of requiring more significant and costly works to rectify. Both monitoring and maintenance are required for successful operation. The overall purpose is to maintain optimal functionality of the system to achieve water quality and hydrological performance targets.

City of Gold Coast Council requires that inlet and outlet structures are carefully monitored for erosion and build up of pollutant materials. Also, the proposed basin includes a sediment forebay which shall be inspected on a regular basis for removal of debris build up.

General bioretention basin maintenance shall typically include:

- Assessment of basin condition to identify sediment build up and/or erosion, recification of damage to basin, and declogging of the bioretention basin, including replacement of vegetation where required;
- Removal of weeds and dead vegetation and replacement with ne planting according toe design specifications;
- Inspection of inflow and overflow structures for blockage and damage;
- Sediment removal from basin vegetation areas;
- Sediment forebay maintenance and clearing of sediment deposits;
- Pest monitoring and control.
- Regular watering of vegetation until plants are established and actively growing;

(Council of The City of Gold Coast Planning Scheme Policies)

All maintenance activities must be specified in a maintenance plan (and associated maintenance inspection forms) to be documented and submitted to Council as part of the Development Approval process. Maintenance personnel and asset managers will use this plan to ensure the bioretention basins continue to function as designed.

Council of The City of Gold Coast Planning Scheme Policies require inspections and maintenance to be carried out every 1 – 6 months, dependant on the bioretention basin size and complexity.

The required maintenance procedures includes a Bioretention Basin Maintenance Checklist (Refer **Appendix D**) for which inspection records are to be kept.

4.2 PLANT AND EQUIPMENT ACCESS

The bio-retention basin design incorporates safe and suitable vehicular and personnel access to facilitate maintenance.

4.3 MAINTENANCE ACTIVITY SCHEDULE

(Adoption Guidelines for Stormwater, CRC for Water Sensitive Cities, 2015)

Routine maintenance activities aim to support ongoing biofilter function. If conducted effectively and in a timely manner, maintenance will prevent any escalation of problems and avoid the need for costly rectification or system resets. Typical maintenance tasks and frequencies are outlined in *Table 4.3* below.

FILTER MEDIA		
Maintenance task	Explanation	Frequency
Sediment and accumulation / clogging	Inspect for the accumulation of an impermeable surface layer, ponding of water for more than a few hours following rain, or widespread moss growth	3 monthly After rain
Holes, erosion or scour	Check for erosion, scour or preferential flow pathways, particularly near inflow point/s and batter slopes	3 monthly After rain
Filter media surface porosity	Inspect for accumulation of an impermeable layer on the filter media and areas of increased sediment deposition, particularly near inlet/s	3 monthly After rain
Damage	Check for damage to the profile from vehicles, signs of pedestrian traffic across the filter surface, such as worn pathways	6 monthly
Litter control	Check for accumulation of litter, particularly in sediment pits, inlets, outlets and overflows	3 monthly As desired for aesthetics
Moss growth	Inspect for moss growth. Moist systems or those with deep shading of the surface may have excessive moss growth across the surface	6 monthly During wettest months
VEGETATION		
Establishment	Additional monitoring and maintenance works are required to ensure a healthy and diverse vegetation cover develops, and that stormwater flows move through the system as the design intended. New seedlings will require regular watering and irrigation, protection from high sediment loads and high flows.	High frequency on first 3 months After large rain Bimonthly in wetter months Up until 2 years
Plant health and covering	Inspect plants for signs of disease, dieback, pest infection, stunted growth or senescent plants and assess the degree of plant cover across the surface. Provide watering or irrigation to support plants through long, dry periods.	3 monthly As desired for aesthetics During long dry spells

Weeds	Check for weeds and remove as they emerge	3 monthly As desired for aesthetics
Pruning and harvesting (if feasible)	Consider occasional use of harvesting plants to permanently remove nutrients and heavy metals stored in aboveground plant material, and to promote new plant growth and further nutrient and metal uptake. Pruning may also benefit aesthetics	Once or twice a year
DRAINAGE		
Inlet pits/zones, overflow pits, grates	Ensure inflow areas and grates over pits are clear of litter and debris and in good and safe condition. Remove sediment from pits and entry sites	Monthly and occasionally after rain
Underdrain	Ensure that underdrain pipes are not blocked, to allow the system to drain as designed and prevent waterlogging of the plants and filter media	6 monthly After rain
Sediment forebay /Pre-treatment zone	Removal of accumulated sediment and debris	Twice a year
Raised outlet	Check that the weir/up-turned pipe is clear of debris	6 monthly After rain
OTHER ROUTINE TASKS		
Inspection after rainfall	Occasionally observe the biofilter after a rainfall event to check infiltration. Identify signs of poor drainage such as prolonged ponding on the filter media surface	Twice a year after rain

Table 4.3: Inspections and maintenance (Source: *Adoption Guidelines for Stormwater Biofiltration Systems*, CRC for Water Sensitive Waters, 2015)

5.0 PERFORMANCE INDICATORS

An inspection assessment is to be undertaken using performance indicators in order to record the condition of an asset. Please refer to Table 5.0 that guides if a performance indicator is not compliant and what maintenance measures are to be taken.

What to Look For	Performance Indicator
SURROUNDS	
Damaged or removed structure e.g. traffic bollards	No damage that poses a risk to public safety or structural integrity
DETENTION AREA	
Erosion	Minor erosion only that does pose a risk to public safety or structural integrity and would not worsen if left untended
Depression or Mounds	No surface depression or mounds > 100mm
Isolated Pools of Water	No isolated pools/depression that could provide mosquito habitate
Litter	No litter
Vegetation	Minimum 95% vegetation cover (minimal bare patches)
	Average Plant height > 500mm
	Plants healthy and free from disease
	Excessive Plant growth
Weeds	No declared weeds (or declared weeds are controlled) <10% cover of invasive/pest plant species.
BIORETENTION BASIN	
Erosion/scouring	Minor erosion only that does not pose a risk to public safety or structural integrity and would not worsen if left unattended.
Crust of fine sediment	No surface crushing
Depression or Mounds	No surface depression or mounds > 100mm.
Hydraulic conductivity and permeability	Filter media if draining freely, whereby water is not ponded on the surface for more than 12 hours after rainfall and there is no obvious impermeable or clay-like surface on the filter media.
Underdrains/clean out points	Clean out points not damaged and end caps securely in place.
Litter	No litter.
Unusual odours, colours or substances (oil and grease)	None detected.
Vegetation	Minimum 95% vegetation cover (minimal bare patches).
	Average Plant height > 500mm.
	Plants healthy and free form disease.
Algal or moss growth	Maximum 10% of surface covered with algae
	No moss growth.

Weeds	No declared weeds (or declared weeds are controlled) <10% cover of invasive/pest plant species.
OUTLET	
Erosion	Outlet is structurally sound and there is no evidence of erosion or subsidence/settlement.
Damaged or removed structure e.g. pit lids or grates	No damage that poses a risk to public safety or structural integrity.
Sediment, litter debris	No blockage.
Outlet free draining	No downstream impediments to the release of water and no evidence of malfunction.

Table 5.0: Performance Indicators (Source: *Water by design*, Maintaining Vegetated Stormwater Assets version 1, February)

6.0 PREVENTATIVE MAINTENANCE MEASURES

Please refer to Table 6.0 that outlines defect or failure and preventative maintenance for bioretention systems.

Defect or Failure	Preventative Maintenance
Ponding Water on surface or reduce filtration rate	Structural collapse as a result of using incorrect media or poor installation
Scour and short-circuiting of flow at outlet pit	Under-drains that are not sealed into outlet pit can result in flow short – circuiting down the side of pit and scouring filter media, the transition layer and the drainage layer.
	Erosion of the bio-retention batters. Filter cloth is not extended up to the batters of the bioretention system resulting in scour down the outside edge of the filter cloth.
Scour and short-circuiting at the edge of bioretention system	When the conceptual design does not allow space for batters and designers are forced to put vertical walls. This provides a risk of flow scouring where the wall is extended down the side of the filter media at the interface with the wall.
Scour around the high-flow weir	If the weir crest and grouted rock protection is not extended up the batters of the bioretention system. Scour may occur around the edge of weir as flows will skirt the weir.
Failure of the bioretention bunds	The bunds can fail if they are constructed too low.
Failure of Plants	Plants may fail to thrive if the filter media does not meet specifications, particularly for water-hold capacity and organic content.
	Unsuitable watering during establishment of plants.
	Not right amount of fertiliser or mulch during establishment.
	Poor plant spacing less than five to six plants per m ² .
	Excessive weed cover

Table 6.0: Preventative Maintenance (Source: *Water by design*, Consturciton and Establishment Guidelines: Swales, Bioretention Systems and Wetlands version 1.1, April 2010)

7.0 PLANTS INSTALLATION AND ESTABLISHMENT

7.1 PLANT INSTALLATION

For the bio basin to perform effectively healthy plant growth is needed. It will help with pollutant removal and preserve a specified porosity in filter media. As the depth of filter media is less than 600mm, installation of tree species is not suitable. Only native groundcovers and shrubs should be considered appropriate. Its necessary vegetation installation to provide a cover of 90% within two growing seasons in accordance to the following densities:

Plant Type	Installation
Ground covers	Six to eight plant per m ²
Shrubs	One plant per 2 – 20 m ²

Table 7.1.1: Plant Planting Densities

It is recommended to plant a minimum of six plant species of local origin for bio diversity and local climate compatibility. Selecting plant species should be based on the following norms:

- local ecology and landscape suitability
- expected wetting and drying regime suitability
- Bio-retention performance objective compatibility

Minimum 50% of bioretention filter area should be planted with core species listed in Table 7.1.2 obtained from Table 19 of the Water by Design Bioretention Technical Guidelines (2014) and the rest of species based on the conditions discussed above. A mulch layer of depth between 50 and 75 mm should be considered to the bio basin surface to help with soil moisture and weeds suppression.

Species Name	Common Name	Type
Carex appressa	Tall Sedge	Groundcover sedge
Ficinia nodosa	Knobby Club-sedge	Groundcover sedge
Imperata cylindrica	Blady Grass	Groundcover grass
Lepidosperma laterale	Variable Sword-sedge	Groundcover sedge
Lomandra hystrix	River Mat-rush	Groundcover herb
Lomandra longifolia	Spiny-headed Mat-rush	Groundcover herb
Pennisetum alopecuroides	Swamp Foxtail Grass	Groundcover grass
Poa labillardieri	Common Tussock Grass	Groundcover grass
Themeda australis	Kangaroo Grass	Groundcover grass
Callistemon sieberi	River Bottlebrush	Shrub
Leptospermum liversidgei	Olive Tea-tree	Shrub
Melaleuca thymifolia	Thyme Honey Myrtle	Shrub

Table 7.1.2: Bioretention Basin Plant Species (Source: *Water by design*, Bioretention Technical Design Guidelines version 1.1, October 2014)

7.2 PLANT ESTABLISHMENT

The plant in the bioretention areas before going to maintenance phase will undergo period of early establishment. Establishment of healthy plant within bioretention will require control of both weed control and watering. The first two years is the most important period for the vegetation maintenance. During these two years plants will establish and grow to maturity. It is significant during this period to control weed growth which is achieved through optimal planting densities.

For successful growth of vegetation within bioretention system the first four months of watering is critical. Watering frequency should be adopted and modified depending on rainfall, maturity of plant and water holding capacity of the soil. Please refer to *Table 7.2* for vegetation watering frequency.

Watering Frequency	
Week 1-6	5 times/weekly
Weeks 6-10	3 times/weekly
Weeks 11-15	2 times/weekly

Table 7.2: Vegetation Watering Frequency

8.0 MAINTENANCE COSTS

8.1 SCHEDULED MAINTENANCE

8.2 LIFECYCLE COSTS

(Adoption Guidelines for Stormwater, CRC for Water Sensitive Cities, 2015)

Estimated costs from the life cycle of biofiltration systems are summarised in *Table 8.2*. Factors driving differences in cost include:

- System size and complexity;
- Site characteristics;
- Catchment characteristics;
- Experience of personnel, and;
- Flexibility of the design.

Stage	Source	Estimated typical cost
		Bioretention basin
Establishment	<i>Water Sensitive Urban Design Life Cycle Costing – Data Analysis Report</i> Melbourne Water (2013)	~ 2-5 times routine costs
Maintenance	<i>Water Sensitive Urban Design Life Cycle Costing – Data Analysis Report</i> Melbourne Water (2013)	In-house & case studies data: 700 m ² plus – \$3-\$4/yr/m ²
	<i>Guide to the Cost of Maintaining Bioretention Systems</i> Water by Design (2015)	• Precinct-scale (100-800m²) - Understorey vegetation only: \$5/yr/m² • Canopy and understorey: <\$1/yr/m² • Large systems (>800m²) – Understorey vegetation only: ≥\$5/yr/m² • Canopy and understorey: ≥ \$1/yr/m² (cost per m² filter media, excludes administration costs)
	<i>A Business Case for Best Practice Urban Stormwater Management: Case Studies</i> Water by Design (2010b)	Establishment maintenance (first 2 years) - \$15/m ² /yr (including landscaping cost of \$2.50/m ² /yr) – weeding, replanting, sediment removal Ongoing maintenance - \$5/m ² /yr

Renewal	<i>What does it cost to build a water quality treatment system?</i> Knights et al. (2010)	Estimate 20-40% of original construction cost (based on cost of excavation and replacement of filter media, re-planting), but not including cost of disposal of potentially contaminated media, nor any structural rectification works to correct poor design or construction.
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Table 8.2: Life cycle cost estimates for biofiltration (Source: Adoption Guidelines for Stormwater, CRC for Water Sensitive Cities, 2015)

Appendix A – Reconfiguraton of Lot Stamped Approved Plan (ROL/2020/123)

Appendix B – Stormwater Layout and Bioretention Basin Stamped Approved Plans

EXTERNAL INTERSECTION
DESIGN SHOWN FOR
REFERENCE ONLY

EXISTING BOX CULVERTS TO
BE EXTENDED. SUBJECT TO
DETAILED DESIGN

600x600 FIELD INLET WITH DOME TOP. GRATE LEVEL =
6.10m AHD (300mm ABOVE BASIN FLOOR IL)

2 x 825mm ϕ RCP HIGH FLOW
OUTLET PIPES AT MAXIMUM
GRADE OF 1.084%. CUSTOM
CHAMBER REQUIRED

BIO-RETENTION FILTER MEDIA 0.70m DEPTH (EXCLU. DRAINAGE LAYERS).
REFER SITE BASED STORMWATER MANAGEMENT PLAN FOR PARAMETERS.
200mm/hr SATURATED HYDRAULIC CONDUCTIVITY

PROVIDE 1.8m HIGH CHAIN WIRE FENCE. INSTALL TO PERIMETER
OF BIO-RETENTION BASIN ON PROPERTY BOUNDARY. PROVIDE
MASTER-KEYED GATE AT MAINTENANCE ACCESS DRIVEWAY
LOCATION

STAPYLTON JACOBS WELL ROAD.
STANDARD VECRG PROFILE TO DTM.
STANDARDS: 5.50m MIN. WIDTH TO
N.K.L.

1.0m WIDE BENCH TO BATTERS IN
CUT TO CoGC REQUIREMENTS
(MAX. HEIGHT 2.5m INTERVALS)

SUBSOIL DRAIN
CLEANOUT
REFER TO DETAIL

TRANSFORMER SUBSTATION.
REFER TO ELECTRICAL PLANS FOR
DETAILS

CONCRETE MAINTENANCE ACCESS
DRIVEWAY TO SEDIMENT FOREBAY
AT 1 in 4 MAX. GRADE

1.8m HIGH BLACK
MAINTENANCE ACCESS
MASTER LOCKABLE
CHAIN WIRE GATE.
REFER TO STD DWG
CoGC 05-014

1.8m HIGH BLACK
CHAIN WIRE FENCE.
REFER STD DWG CoGC
05-014

HOMESTEAD DRIVE

3.0m CONCRETE
DRIVEWAY. REFER
TYPICAL DETAILS

SOLID PVC SUBSOIL DRAINAGE
COLLECTOR PIPE ϕ 0.50% MIN.
GRADE TO FIELD INLET PIT

3.0m CONCRETE
DRIVEWAY. REFER
TYPICAL DETAILS

3.0m CONCRETE
DRIVEWAY. REFER
TYPICAL DETAILS

BOULDER RETAINING WALL. HEIGHT
VARIES. 5.0m MAXIMUM HEIGHT 4V:1H
RAKING FACE. 0.6m SETBACK TO TOE

COARSE SEDIMENT FOREBAY TO
IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

COARSE SEDIMENT FOREBAY TO
IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

COARSE SEDIMENT FOREBAY TO
IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

COARSE SEDIMENT FOREBAY TO
IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

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IPWEAQ STD DWG DS-075.
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DEPTH. REFER CALCULATIONS
OPPOSITE

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IPWEAQ STD DWG DS-075.
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DEPTH. REFER CALCULATIONS
OPPOSITE

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IPWEAQ STD DWG DS-075.
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OPPOSITE

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IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

COARSE SEDIMENT FOREBAY TO
IPWEAQ STD DWG DS-075.
175.2m² SURFACE. AREA 0.200m
DEPTH. REFER CALCULATIONS
OPPOSITE

BIO-RETENTION NOTES:

MINIMUM BIO-RETENTION 'PROFILE' IS TO BE
1.00m AND IS TO CONSIST OF THE FOLLOWING:

• 0.70 OF SANDY LOAM MATERIAL WITH A
HYDRAULIC CONDUCTIVITY OF 200mm/h AND A
PARTICLE SIZE OF 0.45-0.50mm.

• 0.10m OF COARSE SAND. PARTICLE SIZE
TYPICALLY 0.5-2.0mm.

• 0.20m OF GRAVEL DRAINAGE. PARTICLE SIZE
2-5mm SCREENING.

AGRICULTURAL PIPE TO BE INCLUDED IN FREE
DRAINING AREAS TO ASSIST IN DRYING OUT THE
DEVICE

BIO RETENTION - COARSE SEDIMENT FOREBAY SIZING GUIDE CALCULATIONS

$$V_s = A_s \times R \times L \times F = 7.234 \text{ m}^3$$

$$R = 1 - \left[\frac{1}{n} \times \frac{V_s}{A_s} \right]^{0.5} = 0.8$$

$$0.8 = 1 - \left[\frac{1}{n} \times \frac{0.10}{0.5 \times 2423/A_s} \right]^{0.5} \quad A_s = 234.72 \text{ m}^2$$

$$D_s = \frac{V_s}{A_s} = \frac{7.234}{234.72} = 0.031 \text{ m}$$

OPTIMIZATION OF MINIMUM FOREBAY SIZE:

$$D_s = \frac{7.234 \text{ m}^3}{175.2 \text{ m}^2} = 0.041 \text{ m}$$

$V_s = 7.234 \text{ m}^3$ (Workings Above)

$A_s = 15.071 \text{ ha}$ (Refer Catchment Plans)

UNMITIGATED POST-DEVELOPMENT FLOW
 $Q = 1.956 \text{ m}^3/\text{s}$ (3 month ARI - 0.5 x 63.2% AEP)

$V_s = 0.1 \text{ m/s}$ (Recommended for Imm Particle)

$R = 0.8$ (Recommended 80% Capture)

$L_s = 0.6$ (From Healthy Waterways Guide)

$n = 0.5$ (Recommended Turbulence)

$F_c = 1.0$ (Frequency of Clean Out / Yr)

REFER TO BIO RETENTION TECHNICAL
DESIGN GUIDELINES FOR FURTHER
INFORMATION

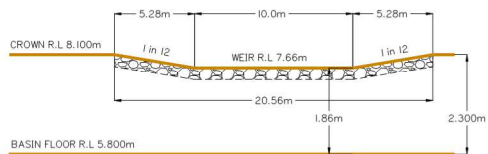
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: MIN/2020/541

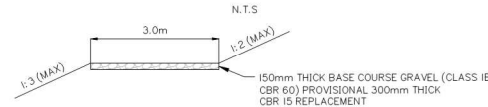
Dated: 16 October 2020

Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
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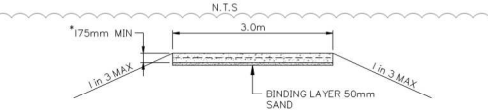
AEP (%)	MAX. WATER ELEVATION (m) A.H.D.	MAX. WATER DEPTH (m)
63.2	6.635	0.835
50	6.720	0.920
20	7.057	1.257
10	7.179	1.379
5	7.256	1.456
2	7.357	1.557
1	7.489	1.689



EMERGENCY WEIR - TYPICAL ELEVATION



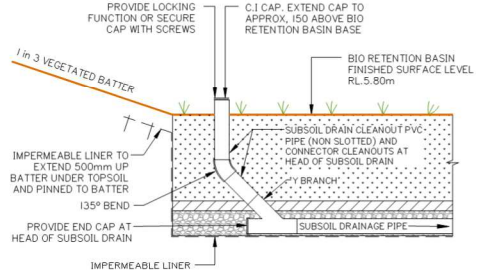
MAINTENANCE ACCESS TRACK - TYPICAL SECTION



3.0m CONCRETE DRIVEWAY DETAILS

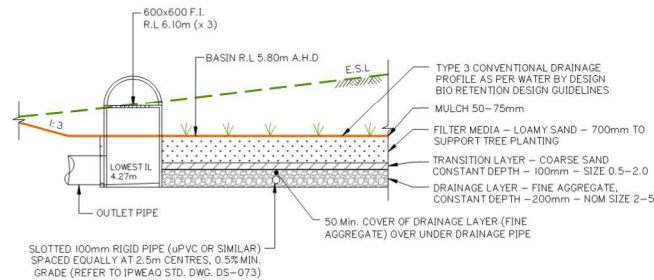
BIORETENTION BASIN 1 LAYOUT PLAN

SCALE 1:500 (A1)



SUBSOIL DRAIN CLEANOUT - IN BASIN

N.T.S.



TYPICAL BIO-RETENTION BASIN DETAIL

N.T.S.

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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DRAWING TITLE OPERATIONAL PHASE BIORETENTION BASIN SHEET 1 OF 2

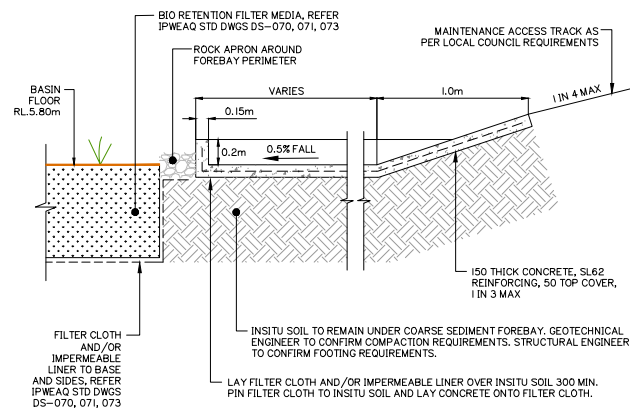
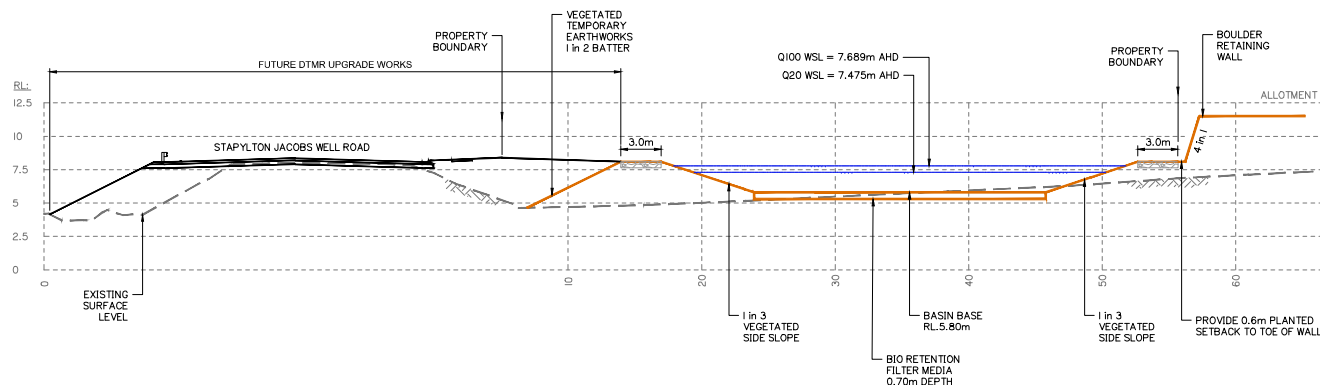
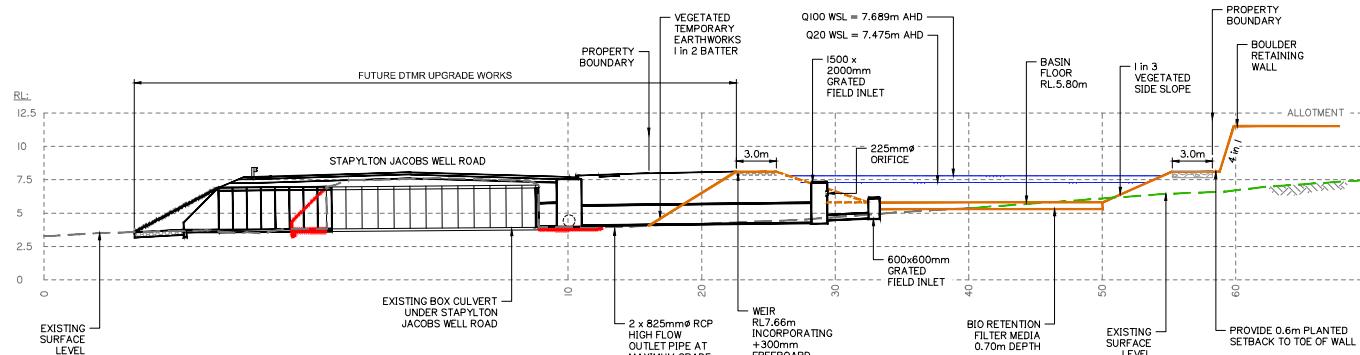
Issue	Date	Description	BA	MG	CHK
C	02-09-2020	MINOR CHANGES TO STAGE 1	BA	MG	
B	11-06-2020	INFORMATION REQUEST RESPONSE	BA	MG	
A	01-05-2020	ORIGINAL ISSUE	BA	MG	

SCALE IN METRES

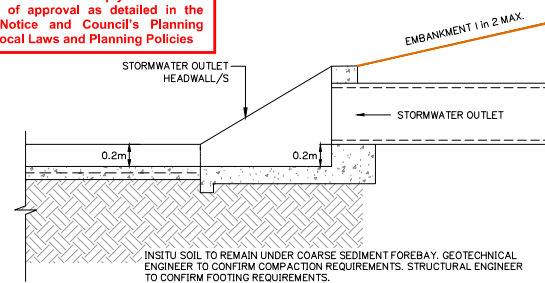


Scale at A1:	1:500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	02-09-2020

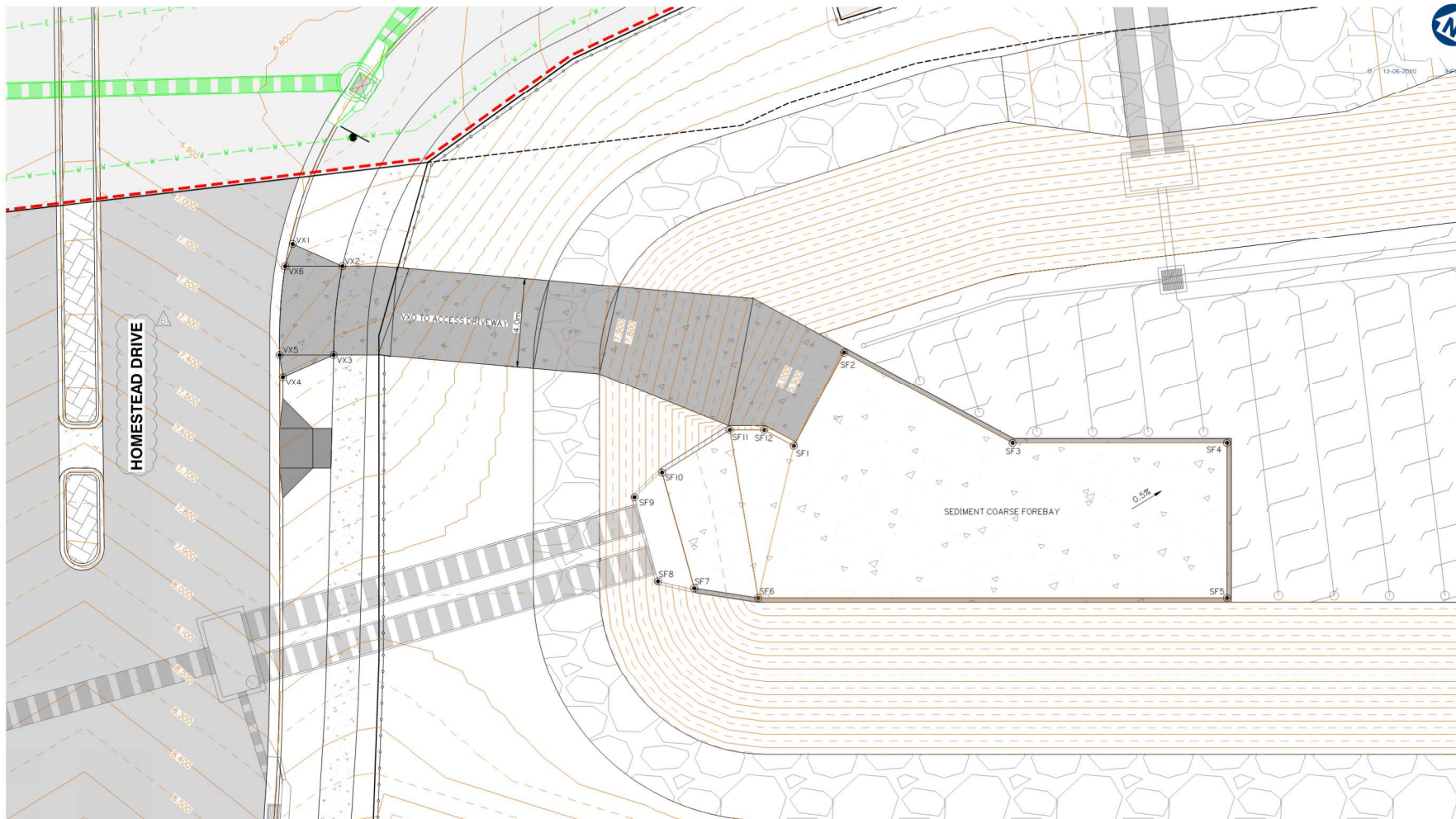
Drawing No: 5941 ENG OPW1 570 Rev. No: C



N.T.S



N.T.S



VXO TO ACCESS DRIVEWAY SETOUT TABLE				
POINT	EASTING	NORTHING	RL (m AHD)	DESCRIPTION
VX1	2208.421	7017.003	7.064	BACK OF KERB
VX2	2210.880	7017.223	7.195	RAMP
VX3	2212.468	7013.530	7.455	RAMP
VX4	2210.941	7011.540	7.420	RAMP
VX5	2210.325	7012.342	7.212	INVERT OF KERB
VX6	2208.606	7015.963	6.978	INVERT OF KERB

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No.: MIN/2020/541

Dated: 16 October 2020

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COARSE SEDIMENT FOREBAY SETOUT TABLE			
POINT	EASTING	NORTHING	RL (m AHD)
SF1	2232.724	7020.018	5.800
SF2	2232.665	7024.838	5.800
SF3	2241.340	7024.945	5.750
SF4	2249.837	7029.652	5.720
SF5	2253.250	7023.497	5.800
SF6	2234.654	7013.194	5.800
SF7	2231.908	7012.177	6.000
SF8	2230.325	7011.648	6.000
SF9	2227.539	7014.481	6.000
SF10	2228.087	7016.063	6.000
SF11	2229.841	7019.247	5.800
SF12	2231.200	7020.000	5.800

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

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RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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DRAWING TITLE
OPERATIONAL PHASE
BIORETENTION BASIN
SETOUT DETAILS

Issue	Date	Description	BA	MG	CHK
C	02-09-2020	MINOR CHANGE TO STAGE 1	BA	MG	
B	12-06-2020	INFORMATION REQUEST RESPONSE	BA	MG	
A	01-05-2020	ORIGINAL ISSUE	BA	MG	

SCALE IN METRES



1:100 (FULL SIZE A1)
1:200 (HALF SIZE A3)

Scale at A1: 1:100

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

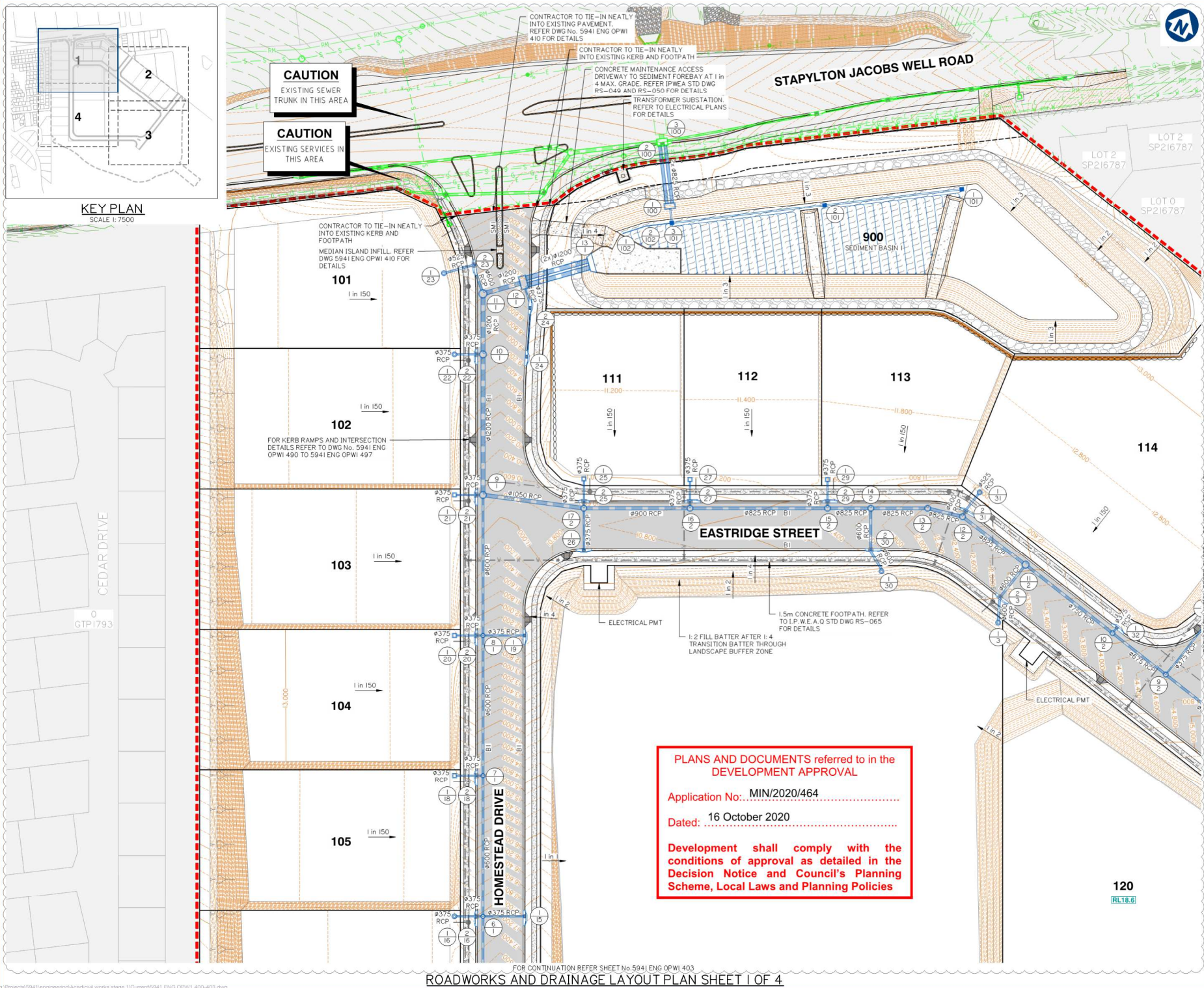
Signed:

Date: 02-09-2020

Drawing No: 5941 ENG OPW1 572
Rev. No: C

OPERATIONAL PHASE BIORETENTION BASIN SETOUT DETAILS

Appendix C – Approved Civil and Landscape OPW Plan



Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

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ROAD, STAPYLTON QLD 4207

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COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
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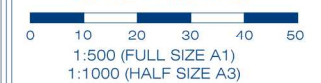
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DRAWING TITLE
ROADWORKS AND
DRAINAGE LAYOUT PLAN
SHEET 1 OF 4

Issue	Date	Description	Author	Check
C	02-09-2020	MINOR CHANGES TO STAGE 1	BA	MG
B	12-06-2020	INFORMATION REQUEST RESPONSE	BA	MG
A	01-05-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1: 1:500

Designed: IG

Drafted: BA

Approved: MG

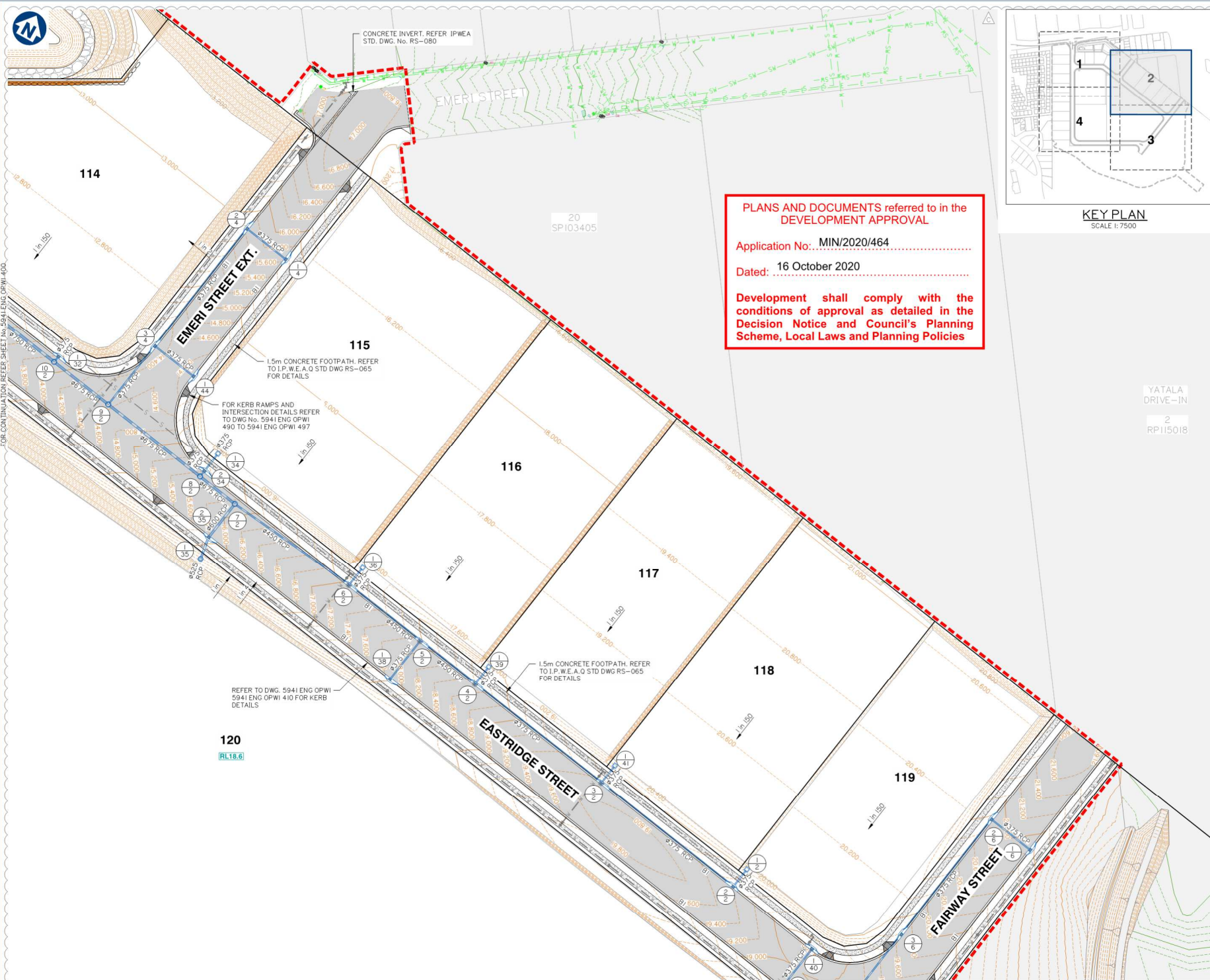
RPEQ: 16939

Signed: [Signature]

Date: 02-09-2020

Drawing No: 5941 ENG OPW1 400

Rev. No: C



PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL



FOR CONTINUATION REFER SHEET No. 5941 ENG OPW1 401

120
RL18.6

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No.: MIN/2020/464

Dated: 16 October 2020

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1.5m CONCRETE FOOTPATH. REFER
TO I.P.W.E.A.Q STD DWG RS-065
FOR DETAILS

MEDIAN ISLAND INFILL. REFER
DWG 5941 ENG OPW1 410 FOR
DETAILS

HOMESTEAD DRIVE

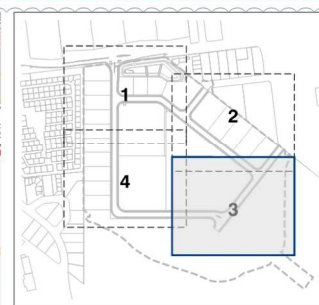
CONTRACTOR TO TERMINATE LINE
54 3.0m PAST EXTENT OF STAGE 1
PAVEMENT. BOARD AND SAND BAG
PIPE FOR CONNECTION IN FUTURE
STAGES

FUTURE STAGES

EASTRIDGE STREET

FAIRWAY STREET

119



KEY PLAN
SCALE 1:7500

FUTURE
STAGE

FOR KERB RAMPS AND
INTERSECTION DETAILS REFER
TO DWG No. 5941 ENG OPW1 490
TO 5941 ENG OPW1 497

REFER TO DWG. 5941 ENG OPW1
5941 ENG OPW1 410 FOR KERB
DETAILS

1.5m CONCRETE FOOTPATH. REFER
TO I.P.W.E.A.Q STD DWG RS-065
FOR DETAILS

PROPOSED ROCK SCOUR PROTECTION TO
OUTLET HEADWALL. REFER DWG 5941 ENG
OPW1 411 FOR DETAILS

1% GRADE ON OUTLET CHANNEL TO
DISCHARGE SWALE - DIRECTED TO
TEMPORARY SEDIMENT BASIN

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

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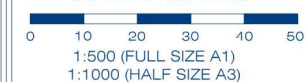
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DRAWING TITLE
ROADWORKS AND
DRAINAGE LAYOUT PLAN
SHEET 3 OF 4

Issue	Date	Description	DRN	CHK
C	02-09-2020	MINOR CHANGE TO STAGE 1	BA	MG
B	12-08-2020	INFORMATION REQUEST RESPONSE	BA	MG
A	01-05-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1: 1:500

Designed: IG

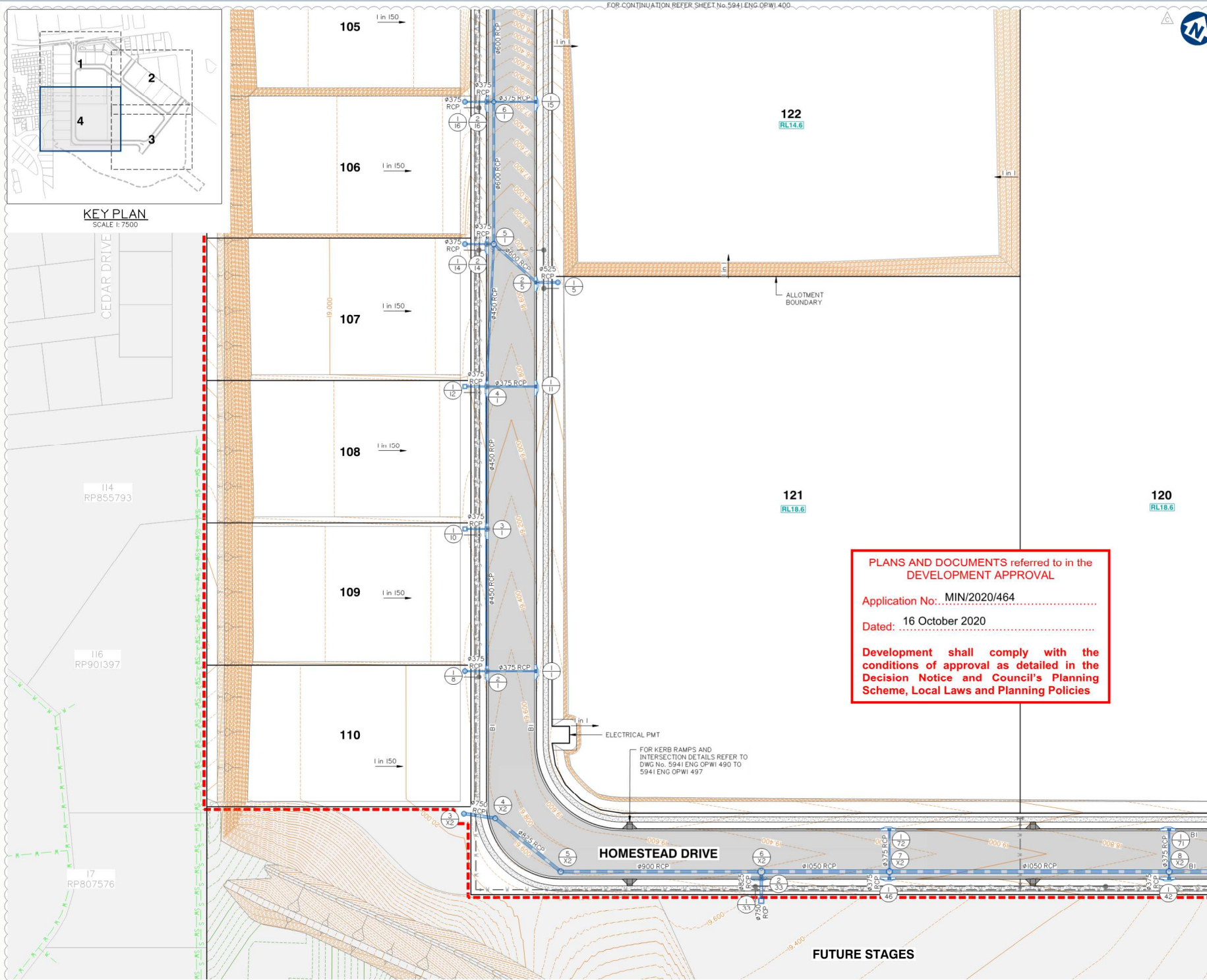
Drafted: BA

Approved: MG

RPEQ: 16939

Signed:
Date: 02-09-2020

Drawing No: 5941 ENG OPW1 402
Rev. No: C



FOR CONTINUATION REFER SHEET No.5941 ENG OPW1 400

FOR CONTINUATION REFER SHEET No.5941 ENG OPW1 402

KEY PLAN
SCALE 1:7500

PLANS AND DOCUMENTS referred to in the
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Application No.: MIN/2020/464

Dated: 16 October 2020

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Client:

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PROPERTY

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

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Lot: 501

Plan: SP295994

Local Authority: CITY OF GOLD COAST
COUNCIL

Level Datum: AHD

Meridian: -

Contour Interval: -

PSM: -

RL: -

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DRAWING TITLE

ROADWORKS AND
DRAINAGE LAYOUT PLAN
SHEET 4 OF 4

Issue	Date	Description	DRN	CHK
C	02-09-2020	MINOR CHANGE TO STAGE 1	BA	MG
B	12-06-2020	INFORMATION REQUEST RESPONSE	BA	MG
A	01-05-2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES

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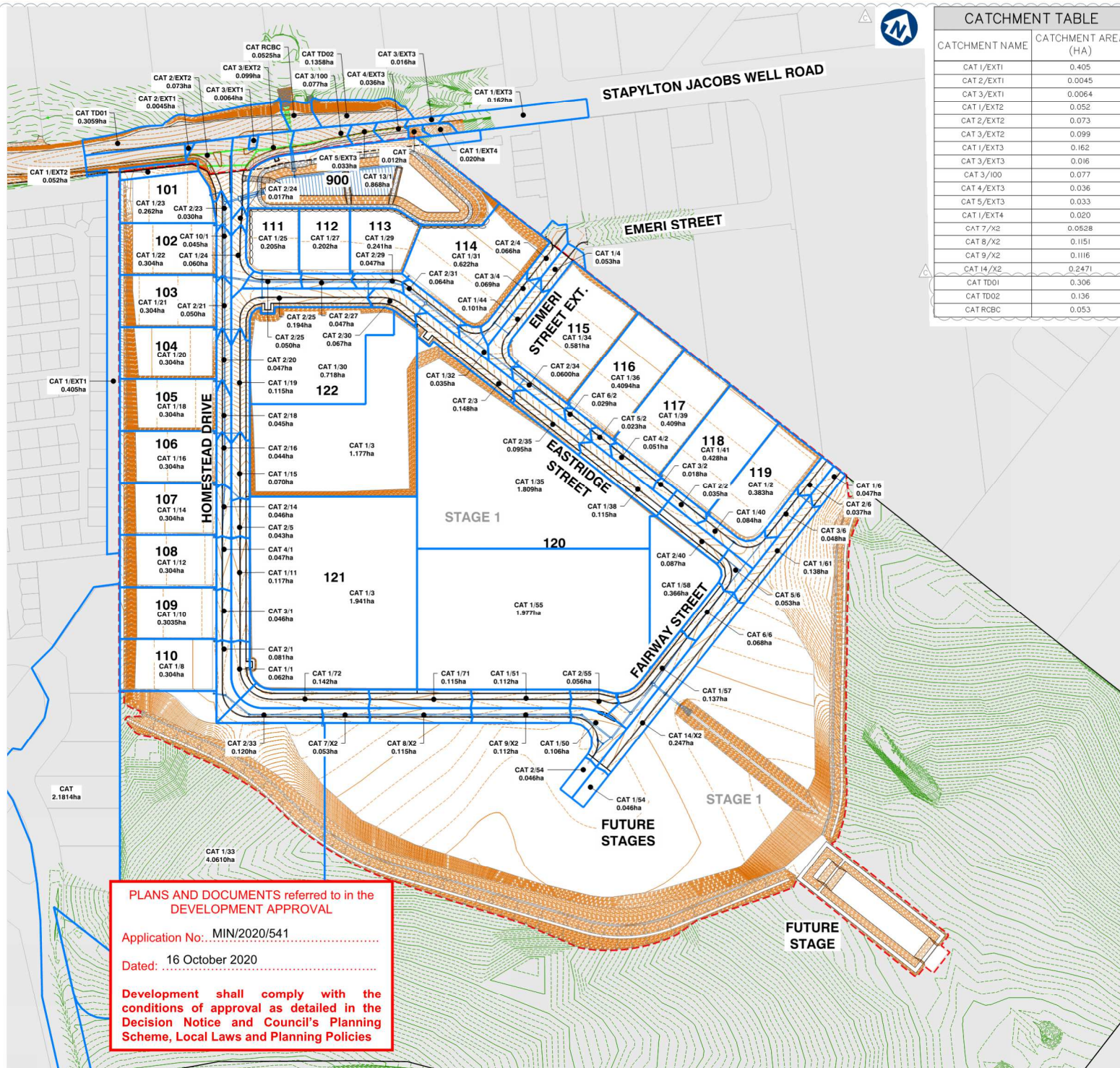
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Scale at A1:	1:500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	02-09-2020

Drawing No: 5941 ENG OPW1 403

Rev. No: C

CATCHMENT TABLE	
CATCHMENT NAME	CATCHMENT AREA (HA)
CAT 1/1	0.062
CAT 2/1	0.081
CAT 3/1	0.046
CAT 4/1	0.047
CAT 7/1	0.045
CAT 8/1	0.047
CAT 10/1	0.046
CAT 13/1	0.868
CAT 1/2	0.383
CAT 2/2	0.035
CAT 3/2	0.035
CAT 4/2	0.051
CAT 5/2	0.023
CAT 6/2	0.029
CAT 10/2	0.035
CAT 11/2	0.064
CAT 1/3	1.177
CAT 2/3	0.148
CAT 2/4	0.066
CAT 3/4	0.069
CAT 2/5	0.043
CAT 1/6	0.047
CAT 2/6	0.037
CAT 3/6	0.048
CAT 5/6	0.053
CAT 6/6	0.068
CAT 1/8	0.303
CAT 1/10	0.303
CAT 1/11	0.117
CAT 1/12	0.304
CAT 1/14	0.304
CAT 2/14	0.046
CAT 1/15	0.070
CAT 1/16	0.304
CAT 2/16	0.044
CAT 1/18	0.304
CAT 1/19	0.115
CAT 1/20	0.304
CAT 1/21	0.304
CAT 2/21	0.050
CAT 1/23	0.262
CAT 2/23	0.030
CAT 1/24	0.060
CAT 2/24	0.017
CAT 1/25	0.205
CAT 2/25	0.050
CAT 1/26	0.194
CAT 1/27	0.202
CAT 2/27	0.047
CAT 1/29	0.0241
CAT 2/29	0.047
CAT 1/30	0.720
CAT 2/30	0.062
CAT 1/31	0.622
CAT 2/31	0.064
CAT 1/32	0.035
CAT 1/33	4.061
CAT 1/35	1.809
CAT 2/35	0.095
CAT 1/38	0.115
CAT 1/40	0.084
CAT 2/40	0.087
CAT 1/44	0.101
CAT 1/50	0.112
CAT 1/51	0.106
CAT 1/54	0.046
CAT 2/54	0.046
CAT 1/55	1.977
CAT 1/57	0.137
CAT 1/58	0.366
CAT 1/61	0.138
CAT 1/71	0.115
CAT 1/72	0.142



CATCHMENT TABLE	
CATCHMENT NAME	CATCHMENT AREA (HA)
CAT 1/EXT1	0.405
CAT 2/EXT1	0.0045
CAT 3/EXT1	0.0064
CAT 1/EXT2	0.052
CAT 2/EXT2	0.073
CAT 3/EXT2	0.099
CAT 1/EXT3	0.162
CAT 3/EXT3	0.016
CAT 3/100	0.077
CAT 4/EXT3	0.036
CAT 5/EXT3	0.033
CAT 1/EXT4	0.020
CAT 7/X2	0.0528
CAT 8/X2	0.1151
CAT 9/X2	0.1116
CAT 14/X2	0.2471
CAT TD01	0.306
CAT TD02	0.136
CAT RCBC	0.053

Issue	Date	Description	BA	MG	CHK
C	02-09-2020	MINOR CHANGE TO STAGE 1	BA	MG	
B	12-06-2020	INFORMATION REQUEST RESPONSE	BA	MG	
A	01-05-2020	ORIGINAL ISSUE	BA	MG	

Scale at A1:	1:1500
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	<i>[Signature]</i>
Date:	02-09-2020

IN FAVOURABLE GROUND
CONDITIONS PROVIDE
PRECAST CONCRETE
ROCLA CPO PIT BASE (OR
EQUIVALENT) TO SUIT
SPECIFIED DIAMETER OF
SHAFT UP TO 1200 DIA.

ALTERNATELY (OR
EXCEEDING 1200 DIA)
PROVIDE 250mm THICK
CAST IN-SITU
REINFORCED CONCRETE
BASE, 2 LAYERS SL82
MESH ON 50MM THICK
BLINDING CONCRETE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY
CONVERTER SLAB FOR CPO
PITS 1200ø, 1500ø, 1800ø

LINE	1
------	---



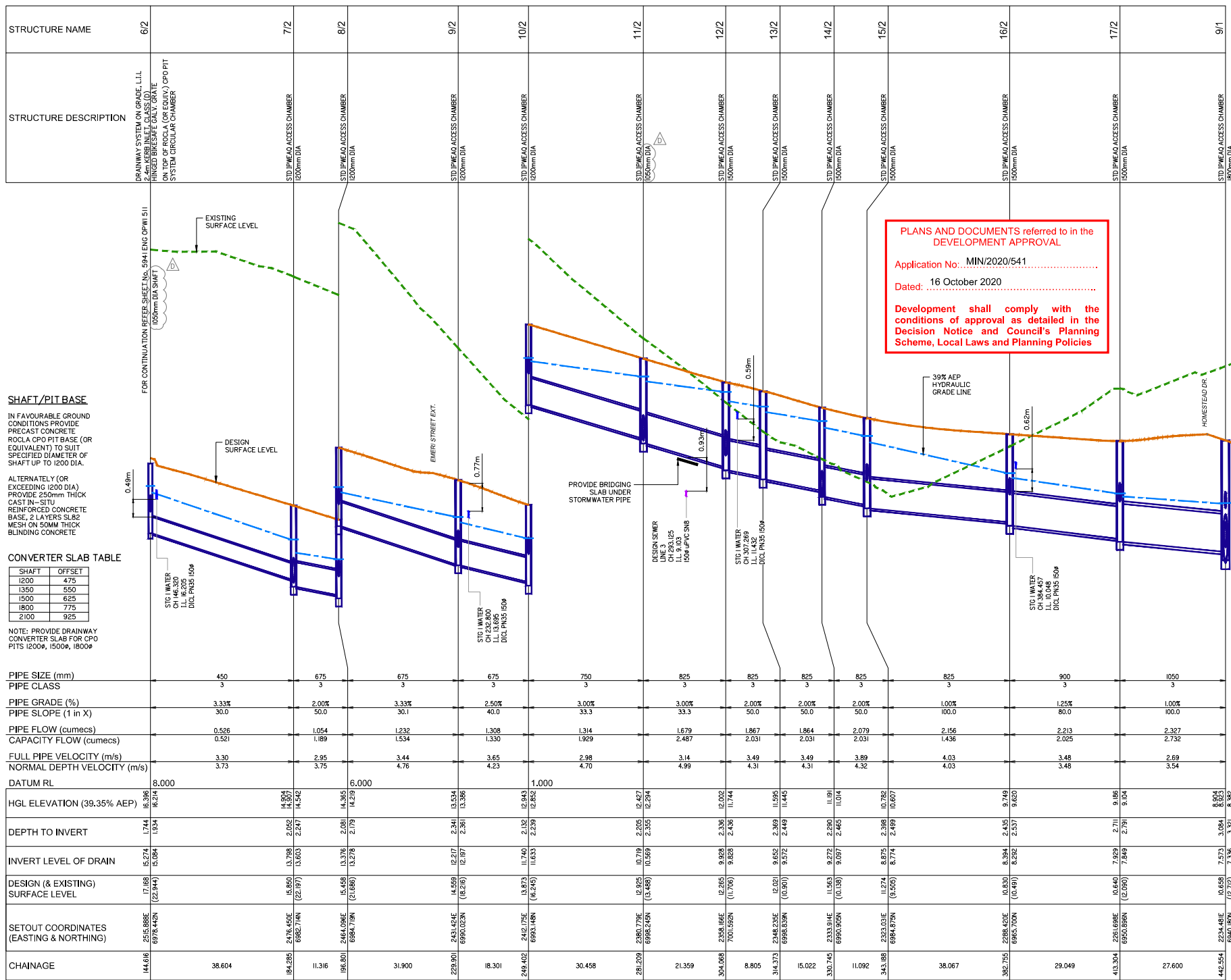
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

D	10-09-2020	RESPONSE TO REFUG. 4			BA MC
C	02-09-2020	MINOR CHANGE TO STAGE 1			BA MC
B	12-06-2020	INFORMATION REQUEST RESPONSE			BA MC
A	01-05-2020	ORIGINAL ISSUE			BA MC
Issue	Date	Description		DRN	CH

HORZ:  Scale 1:500 - Lengths are in Metres.

VERT:  Scale 1:50 - Lengths are in Metres.

Drawing No:
5941 ENG OPW1 511





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Oldfield Road & Logan | 10 Business Street, Yatala QLD 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501

Plan: SP295994

Local Authority: CITY OF GOLD COAST COUNCIL

Level Datum: AHD

Meridian: -

Contour Interval: -

PSM: -

RL: -

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ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 3 OF 18

Rev	Date	Description	By	CHK
D	19-09-2020	RESPONSE TO RFP No. 4	BA	MS
C	09-09-2020	MINOR CHANGE TO STAGE 1	BA	MS
B	03-09-2020	RESPONSE TO RFP NO. 4	BA	MS
A	01-09-2020	ORIGINAL ISSUE	BA	MS

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1:

AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

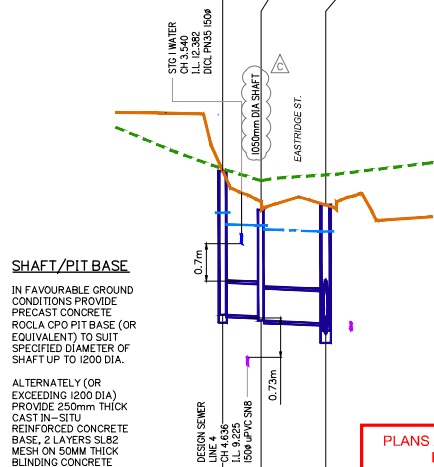
Signed: 

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 512

Rev. No: D

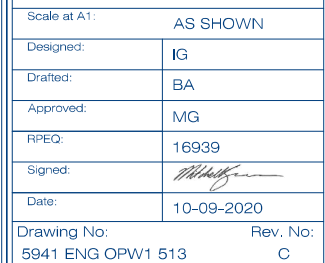
g:\Projects\5941\engineering\civil\work stage 1\Current\5941 ENG OPW1 512.dwg



SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

PIPE SIZE (mm)	600	600
PIPE CLASS	3	3
PIPE GRADE (%)	0.50%	0.50%
PIPE SLOPE (1 in X)	200.0	200.0
PIPE FLOW (cumecs)	0.339	0.381
CAPACITY FLOW (cumecs)	0.434	0.434
FULL PIPE VELOCITY (m/s)	1.20	1.35
NORMAL DEPTH VELOCITY (m/s)	1.70	1.73
DATUM RL	1.000	
HGL ELEVATION (39.35% AEP)	12.783 12.952	12.544 12.469
DEPTH TO INVERT	2.691	1.997 2.077
INVERT LEVEL OF DRAIN	0.671	0.641 0.761
DESIGN (& EXISTING) SURFACE LEVEL	13.562 (13.599)	12.988 (13.379)
SETOUT COORDINATES (EASTING & NORTHING)	2381.944E 6979.820N	2378.639E 6986.388N
CHAINAGE	0.000	17.894 19.287
	6.016	10.888

Projects\5941\engineering\Acad\civil works stage 1\Current\5941 ENG OPW1 510.dwg



STRUCTURE NAME	1/10	3/1
STRUCTURE DESCRIPTION	STD IPWEAO GRATED FIELD INLET (IN LOT) 900x900mm	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET CLASS (D) HINED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER

SHAFT/PIT BASE

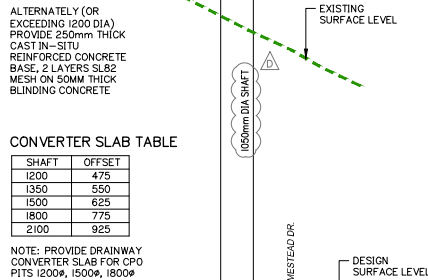
IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SL82 MESH ON 50mm THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

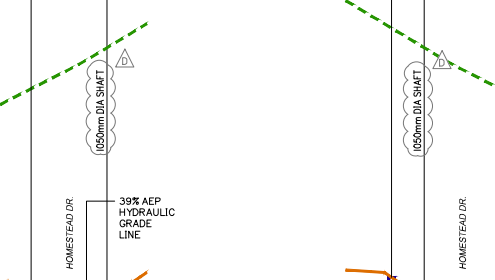
NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200mm, 1500mm, 1800mm



PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.087
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.79
NORMAL DEPTH VELOCITY (m/s)	1.59
DATUM RL	11.000
HGL ELEVATION (39.35% AEP)	18.316
DEPTH TO INVERT	1.975
INVERT LEVEL OF DRAIN	17.477
DESIGN (& EXISTING) SURFACE LEVEL	18.450
SETOUT COORDINATES (EASTING & NORTING)	2344.867E 6722.832N
CHAINAGE	0.000

LINE 10

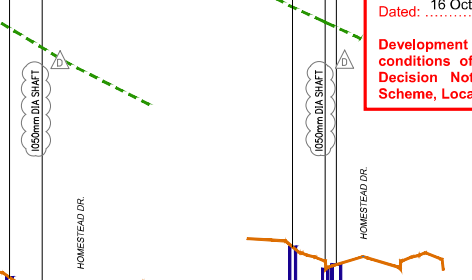
STRUCTURE NAME	1/11	4/1
STRUCTURE DESCRIPTION	STD IPWEAO GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L BIKESAFE GRATE (C.D.)	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET CLASS (D) HINED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER



PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.087
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.79
NORMAL DEPTH VELOCITY (m/s)	1.59
DATUM RL	10.000
HGL ELEVATION (39.35% AEP)	17.816
DEPTH TO INVERT	1.975
INVERT LEVEL OF DRAIN	17.477
DESIGN (& EXISTING) SURFACE LEVEL	18.450
SETOUT COORDINATES (EASTING & NORTING)	2344.867E 6722.832N
CHAINAGE	0.000

LINE 11

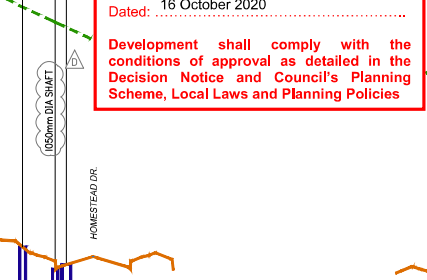
STRUCTURE NAME	1/12	4/1
STRUCTURE DESCRIPTION	STD IPWEAO GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L BIKESAFE GRATE (C.D.)	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET CLASS (D) HINED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER



PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.087
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.79
NORMAL DEPTH VELOCITY (m/s)	1.59
DATUM RL	10.000
HGL ELEVATION (39.35% AEP)	17.816
DEPTH TO INVERT	1.975
INVERT LEVEL OF DRAIN	17.477
DESIGN (& EXISTING) SURFACE LEVEL	18.450
SETOUT COORDINATES (EASTING & NORTING)	2344.867E 6722.832N
CHAINAGE	0.000

LINE 12

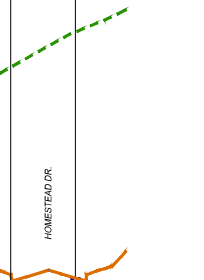
STRUCTURE NAME	1/14	2/14	5/1
STRUCTURE DESCRIPTION	STD IPWEAO MANHOLE 600x600 GRATE SET WITH CONVERTER SLAB	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET CLASS (D) HINED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER	STD IPWEAO ACCESS CHAMBER 1350mm DIA



PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.087
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.79
NORMAL DEPTH VELOCITY (m/s)	1.59
DATUM RL	9.000
HGL ELEVATION (39.35% AEP)	17.816
DEPTH TO INVERT	1.975
INVERT LEVEL OF DRAIN	17.477
DESIGN (& EXISTING) SURFACE LEVEL	18.450
SETOUT COORDINATES (EASTING & NORTING)	2344.867E 6722.832N
CHAINAGE	0.000

LINE 14

STRUCTURE NAME	1/15	6/1
STRUCTURE DESCRIPTION	STD IPWEAO GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L BIKESAFE GRATE (C.D.)	STD IPWEAO ACCESS CHAMBER 1050mm DIA



PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.087
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.79
NORMAL DEPTH VELOCITY (m/s)	1.59
DATUM RL	8.000
HGL ELEVATION (39.35% AEP)	17.816
DEPTH TO INVERT	1.975
INVERT LEVEL OF DRAIN	17.477
DESIGN (& EXISTING) SURFACE LEVEL	18.450
SETOUT COORDINATES (EASTING & NORTING)	2344.867E 6722.832N
CHAINAGE	0.000

LINE 15

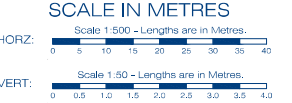
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No.: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

D	19-09-2020	RESPONSE TO RFP No. 4	BA	MS
C	09-09-2020	MINOR CHANGE TO STAGE 1	BA	MS
B	03-09-2020	PRELIMINARY DESIGN RESPONSE	BA	MS
A	01-09-2020	PRELIMINARY DESIGN RESPONSE	BA	MS
Issue	Date	Description	DRN	CHK



Scale at A1:	AS SHOWN
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	<i>[Signature]</i>
Date:	10-09-2020

STRUCTURE NAME	1/16
STRUCTURE DESCRIPTION	STD IPWEA MANHOLE 600/600 GRATE SET 1650mm DIA
	2/16
	6/1

SHAFT/PIT BASE

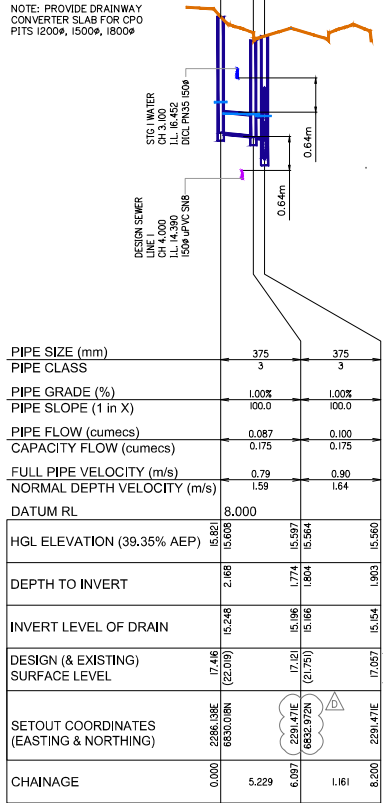
IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCCA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

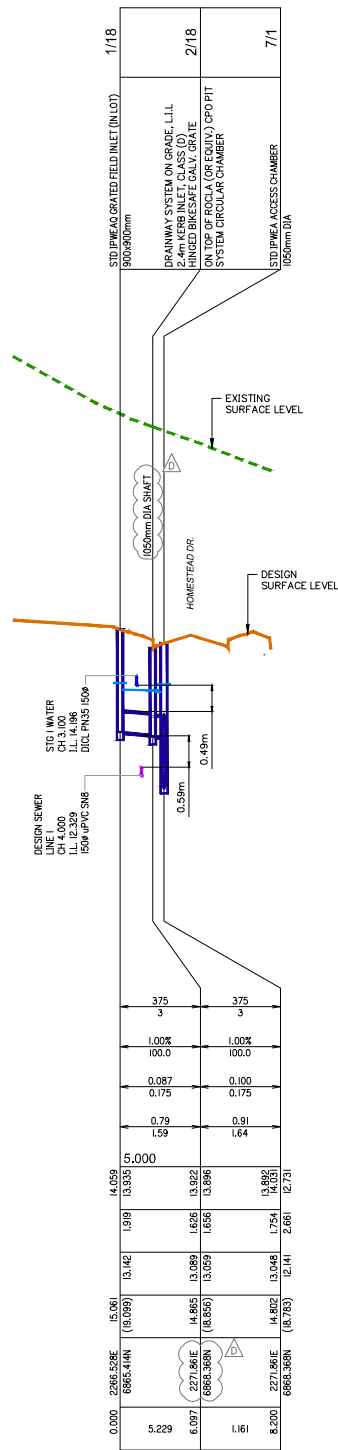
CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

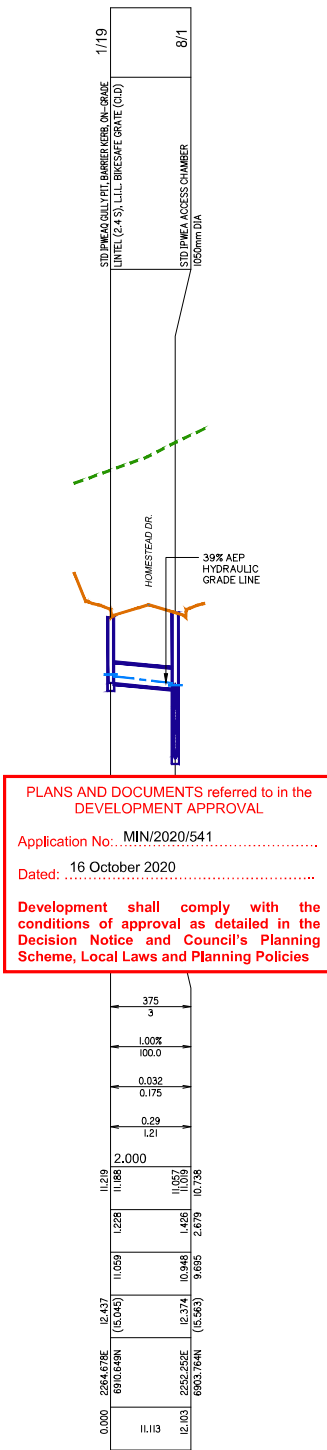
NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#



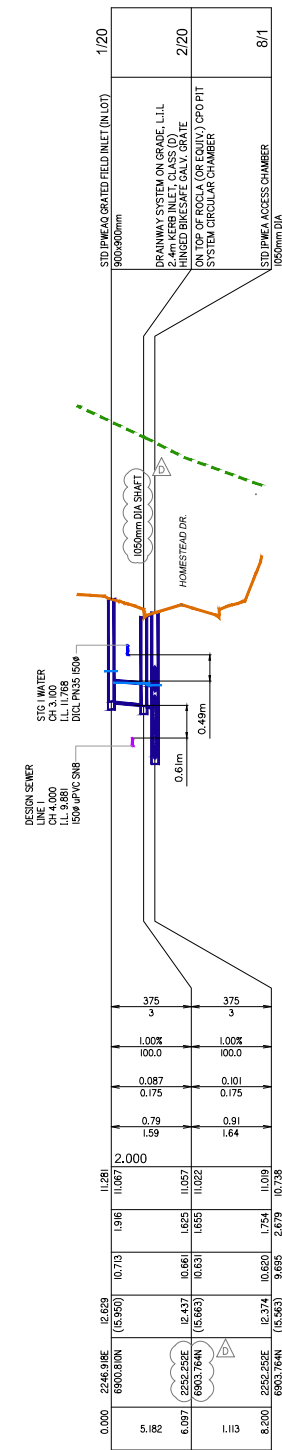
LINE 16



LINE 18

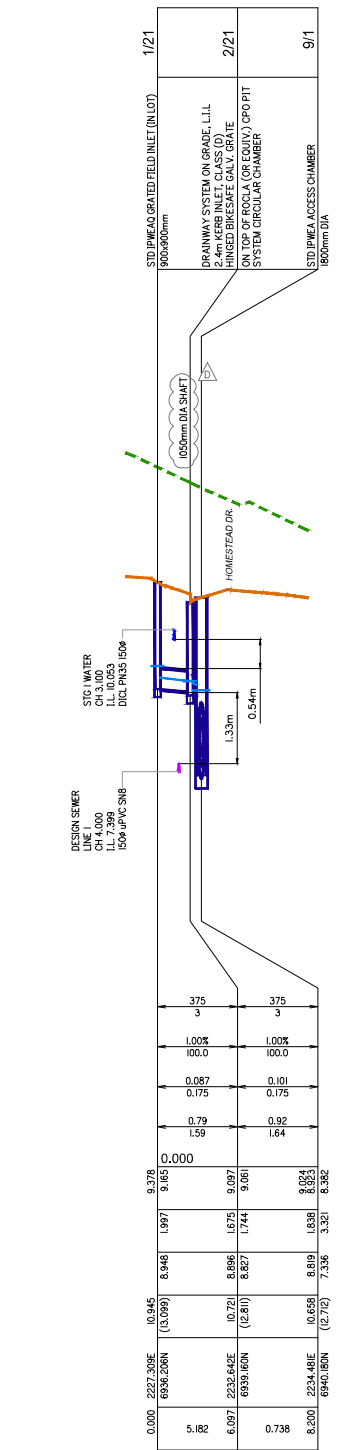


LINE 19



LINE 20

6904.784N



LINE 21

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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DRAWING TITLE
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 7 OF 18

Issue	Date	Description	Drawn	Check
D	19/09/2020	RESPONSE TO RFP No. 4	BA	VYS
C	09/09/2020	MINOR CHANGE TO STAGE 1	BA	VYS
B	03/09/2020	PRELIMINARY DESIGN RESPONSE	BA	VYS
A	01/09/2020	PRELIMINARY DESIGN RESPONSE	BA	VYS

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1: AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 516
Rev. No: D

STRUCTURE NAME	1/22
STRUCTURE DESCRIPTION	STD PIPE/40 MANHOLE 600x600 GRATE SET WITH CONVERTER SLAB 1500mm DIA
	2/22
	DRAINWAY SYSTEM ON GRADE, L.L.L HINGED BRESSE GALLY GRATE ON TOP OF ROULA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	10/1
	STD PIPE/40 ACCESS CHAMBER 1800mm DIA

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROULA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.087	0.100
CAPACITY FLOW (cumecs)	0.175	0.175
FULL PIPE VELOCITY (m/s)	0.79	0.91
NORMAL DEPTH VELOCITY (m/s)	1.59	1.64
DATUM RL	-2.000	
HGL ELEVATION (39.35% AEP)	8.03 8.040	8.027 7.998
DEPTH TO INVERT	2.050	1.876 1.716
INVERT LEVEL OF DRAIN	7.440	7.369 7.319
DESIGN (& EXISTING) SURFACE LEVEL	9.037 (8.482)	9.014 (8.233)
SETOUT COORDINATES (EASTING & NORTHING)	2007.698E 6971.602N	2013.035E 6974.556N
CHAINAGE	0.000 5.182	6.097 0.738

LINE 22

STRUCTURE NAME	1/23
STRUCTURE DESCRIPTION	STD PIPE/40 MANHOLE 600x600 GRATE SET WITH CONVERTER SLAB 1500mm DIA
	2/23
	DRAINWAY SYSTEM ON GRADE, L.L.L HINGED BRESSE GALLY GRATE ON TOP OF ROULA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	11/1
	STD PIPE/40 ACCESS CHAMBER 2100mm DIA

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROULA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	525	600
PIPE CLASS	3	3
PIPE GRADE (%)	0.25%	0.20%
PIPE SLOPE (1 in X)	399.9	500.0
PIPE FLOW (cumecs)	0.075	0.084
CAPACITY FLOW (cumecs)	0.215	0.275
FULL PIPE VELOCITY (m/s)	0.35	0.30
NORMAL DEPTH VELOCITY (m/s)	0.91	0.85
DATUM RL	-3.000	
HGL ELEVATION (39.35% AEP)	7.758 7.737	7.738 7.727
DEPTH TO INVERT	3.248	1.594 1.664
INVERT LEVEL OF DRAIN	6.234	6.214 6.144
DESIGN (& EXISTING) SURFACE LEVEL	9.482 (9.125)	9.487 (8.669)
SETOUT COORDINATES (EASTING & NORTHING)	2007.698E 6971.602N	2013.035E 6974.556N
CHAINAGE	0.000 7.973	6.028 7.112

LINE 23

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

STRUCTURE NAME	1/24
STRUCTURE DESCRIPTION	STD PIPE/40 ULT PIT BARRED KERB, ON-SHADE UNTEL (C-F-3), L.L.L BRESSE GRATE (C.D.)
	2/24
	STD PIPE/40 ULT PIT BARRED KERB, ON-SHADE UNTEL (C-F-3), L.L.L BRESSE GRATE (C.D.)
	12/1
	OVERSIZE CHAMBER CAST-IN-SITU 300x600mm - REFER TO TAIL PLAN

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROULA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	5.00%	2.00%
PIPE SLOPE (1 in X)	20.0	50.0
PIPE FLOW (cumecs)	0.017	0.022
CAPACITY FLOW (cumecs)	0.392	0.248
FULL PIPE VELOCITY (m/s)	0.16	0.20
NORMAL DEPTH VELOCITY (m/s)	1.78	1.38
DATUM RL	-2.000	
HGL ELEVATION (39.35% AEP)	7.813 7.815	7.714 7.616
DEPTH TO INVERT	7.722	1.263 1.513
INVERT LEVEL OF DRAIN	7.722	7.060 6.810
DESIGN (& EXISTING) SURFACE LEVEL	9.177 (8.688)	8.487 (8.723)
SETOUT COORDINATES (EASTING & NORTHING)	2007.698E 6971.602N	2013.035E 6974.556N
CHAINAGE	0.000 13.225	6.028 7.112

LINE 24

STRUCTURE NAME	1/25
STRUCTURE DESCRIPTION	STD PIPE/40 GRATED FIELD INLET (IN LOT) 900x900mm
	2/25
	DRAINWAY SYSTEM IN SAG, L.L.L HINGED BRESSE GALLY GRATE ON TOP OF ROULA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	17/2
	STD PIPE/40 ACCESS CHAMBER 1500mm DIA

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROULA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.059	0.073
CAPACITY FLOW (cumecs)	0.175	0.175
FULL PIPE VELOCITY (m/s)	0.53	0.66
NORMAL DEPTH VELOCITY (m/s)	1.43	1.52
DATUM RL	-1.000	
HGL ELEVATION (39.35% AEP)	9.416 9.314	9.235 9.211
DEPTH TO INVERT	1.826	1.470 1.540
INVERT LEVEL OF DRAIN	9.138	9.084 9.014
DESIGN (& EXISTING) SURFACE LEVEL	10.864 (11.524)	10.705 (11.942)
SETOUT COORDINATES (EASTING & NORTHING)	2007.698E 6971.602N	2013.035E 6974.556N
CHAINAGE	0.000 5.329	0.956 0.738

LINE 25

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 8 OF 18

Issue	Date	Description	DRN	CHK
D	19-09-2020	RESPONSE TO RFP No. 4	BA	LVS
C	09-09-2020	MINOR CHANGE TO STAGE 1	BA	LVS
B	03-09-2020	RESPONSE TO RFP No. 4	BA	LVS
A	01-09-2020	ORIGINAL ISSUE	BA	LVS

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	10-09-2020

Drawing No: 5941 ENG OPW1 517
Rev. No: D

STRUCTURE NAME	1/26	
STRUCTURE DESCRIPTION	STD IPWEAQ DULLY PIT BARBER KERB IN S4S UNTEL (2.4'S), L.L. BIKESAFE GRATE (D.I.)	17/2

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50mm THICK BLINDING CONCRETE

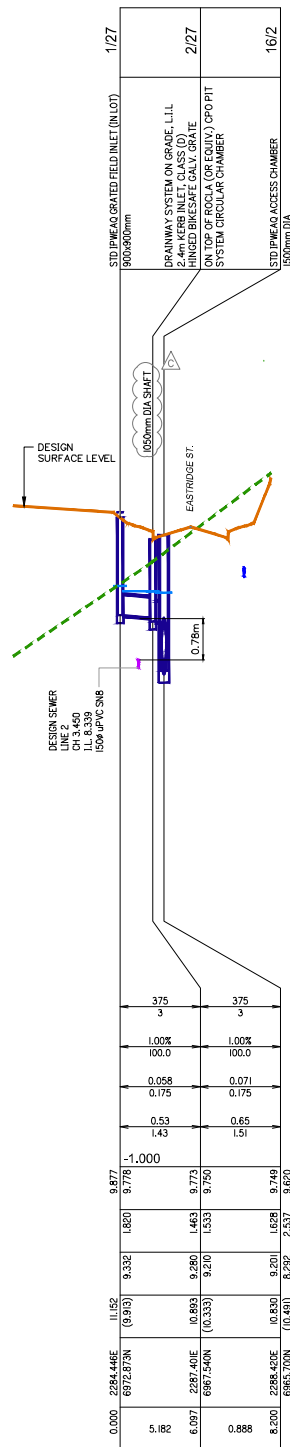
CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

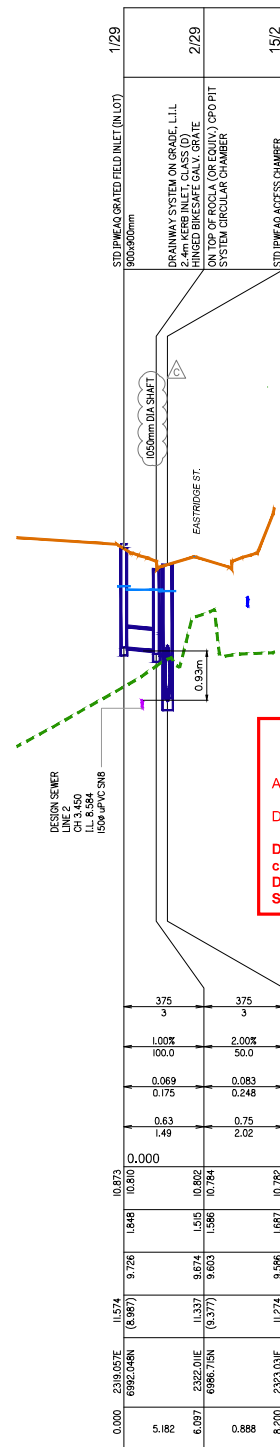
NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.056
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.51
NORMAL DEPTH VELOCITY (m/s)	1.41
DATUM RL	0.000
HGL ELEVATION (39.35% AEP)	9.842
DEPTH TO INVERT	1.354
INVERT LEVEL OF DRAIN	9.170
DESIGN (& EXISTING) SURFACE LEVEL	10.375 (12.300)
SETOUT COORDINATES (EASTING & NORTING)	2337.618E 6940.250N
CHAINAGE	0.000 10.956

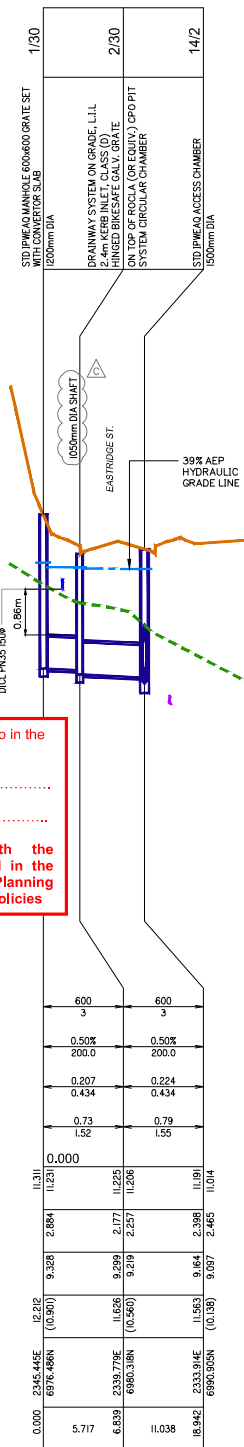
LINE 26



LINE 27



LINE 29



LINE 30

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No.: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Client:



FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO BE PRINTED IN COLOUR

RPD:

Lot: 501
 Plan: SP295994
 Local Authority: CITY OF GOLD COAST COUNCIL
 Level Datum: AHD
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 Contour Interval: -
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DRAWING TITLE

STORMWATER DRAINAGE LONGITUDINAL SECTIONS

SHEET 9 OF 18

Issue	Date	Description	Drawn	Checked
C	19/09/2020	RESPONSE TO RPTING 4	BA	MG
H	19/09/2020	MINOR CHANGE TO STAGE 1	MG	MG
A	21/09/2020	CORRECTION ISSUE	BA	DVS

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1: AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 518

Rev. No: C

STRUCTURE NAME	1/31		
STRUCTURE DESCRIPTION	STD IPWEAQ MANHOLE 600x600 GRATE SET WITH CONVERTER SLAB 1500mm DIA	2/31 DRAINWAY SYSTEM ON GRADE, L.L.L HINGED BIKESAFE GALV. GRATE ON TOP OF ROCCA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER	12/2 STD IPWEAQ ACCESS CHAMBER 1500mm DIA

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCCA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

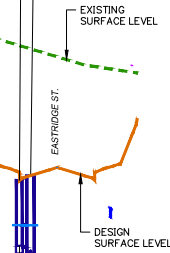
SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	525	600
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	2.00%
PIPE SLOPE (1 in X)	100.0	50.0
PIPE FLOW (cumecs)	0.179	0.197
CAPACITY FLOW (cumecs)	0.430	0.869
FULL PIPE VELOCITY (m/s)	0.83	0.70
NORMAL DEPTH VELOCITY (m/s)	1.90	2.48
DATUM RL	0.000	
HGL ELEVATION (39.35% AEP)	12.01 12.96	12.00 12.95
DEPTH TO INVERT	2.139 0.440	1.795 0.395
INVERT LEVEL OF DRAIN	10.871 12.520	11.155 12.555
DESIGN (& EXISTING) SURFACE LEVEL	12.579 (11.571)	13.801 (11.590)
SETOUT COORDINATES (EASTING & NORTHING)	2350.11E 700.070N	2350.13E 700.558N
CHAINAGE	0.000 5.484	0.781

LINE 31

STRUCTURE NAME	1/32		
STRUCTURE DESCRIPTION	STD IPWEAQ GULLY PIT BARRED KERB ON GRADE LUNTEL (2.4 S), L.L.L. BIKESAFE GRATE (C/D)		10/2 STD IPWEAQ ACCESS CHAMBER 1200mm DIA



LINE 32

PIPE SIZE (mm)	750	825
PIPE CLASS	3	3
PIPE GRADE (%)	0.40%	0.40%
PIPE SLOPE (1 in X)	250.0	250.0
PIPE FLOW (cumecs)	1.168	1.202
CAPACITY FLOW (cumecs)	0.704	0.908
FULL PIPE VELOCITY (m/s)	2.64	2.25
NORMAL DEPTH VELOCITY (m/s)	2.64	2.25
DATUM RL	7.000	
HGL ELEVATION (39.35% AEP)	19.10 17.886	17.833 17.591
DEPTH TO INVERT	2.493 17.033	2.268 16.928
INVERT LEVEL OF DRAIN	15.393 15.853	15.615 15.369
DESIGN (& EXISTING) SURFACE LEVEL	19.536 (18.571)	19.431 (18.917)
SETOUT COORDINATES (EASTING & NORTHING)	2465.00E 6672.04N	2465.88E 6672.27N
CHAINAGE	5.032 6.097	0.888

LINE 33

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.167	0.184
CAPACITY FLOW (cumecs)	0.175	0.175
FULL PIPE VELOCITY (m/s)	1.51	1.67
NORMAL DEPTH VELOCITY (m/s)	1.81	1.80
DATUM RL	7.000	
HGL ELEVATION (39.35% AEP)	14.893 14.513	14.466 14.376
DEPTH TO INVERT	1.699 14.059	1.364 13.938
INVERT LEVEL OF DRAIN	13.194 12.827	13.012 12.578
DESIGN (& EXISTING) SURFACE LEVEL	15.520 (14.827)	15.458 (15.458)
SETOUT COORDINATES (EASTING & NORTHING)	2464.43E 6996.795N	2464.09E 6994.78N
CHAINAGE	5.182 6.097	1.038

LINE 34

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No.: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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DRAWING TITLE
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 10 OF 18

Issue	Date	Description	Drawn	CHK
C	19/09/2020	RESPONSE TO RPTING 4	BA	MG
E	19/09/2020	MINOR CHANGES TO STAGE 1	MG	MG
A	21/09/2020	CHECKLIST ISSUE	BA	DVS

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1: AS SHOWN

Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	10-09-2020

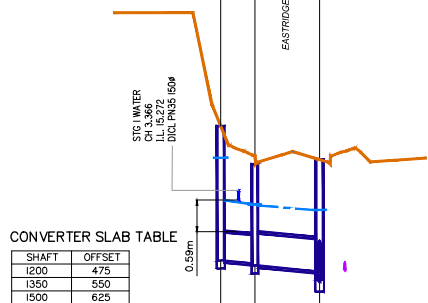
Drawing No: 5941 ENG OPW1 519 Rev. No: C

STRUCTURE NAME	1/35		
STRUCTURE DESCRIPTION	STD IPW/40 MANHOLE 600/600 GRATE SET 250mm DIA	2/35	7/2
	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET, CLASS (D) ON TOP OF ROULA (OR EQUIV) CPO PIT SYSTEM CIRCULAR CHAMBER		
	STD IPW/40 ACCESS CHAMBER 250mm DIA		

SHAFT/PIT BASE

IN FAVOURABLE GROUND
CONDITIONS PROVIDE
PRECAST CONCRETE
ROULA CPO PIT BASE (OR
EQUIVALENT) TO SUIT
SPECIFIED DIAMETER OF
SHAFT/UP TO 1200 DIA.

ALTERNATELY (OR
EXCEEDING 1200 DIA)
PROVIDE 250mm THICK
CAST IN-SITU
REINFORCED CONCRETE
BASE, 2 LAYERS SL.82
MESH ON 50MM THICK
BLINDING CONCRETE



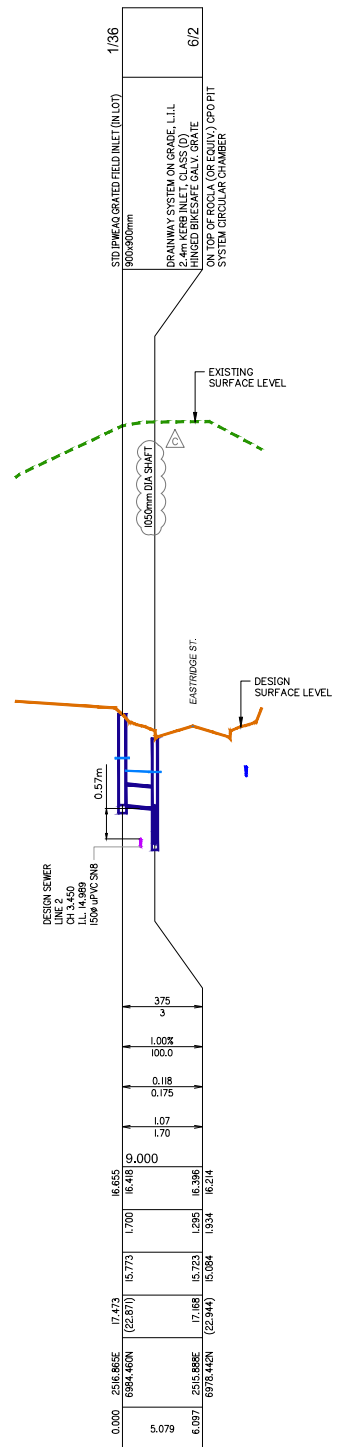
CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

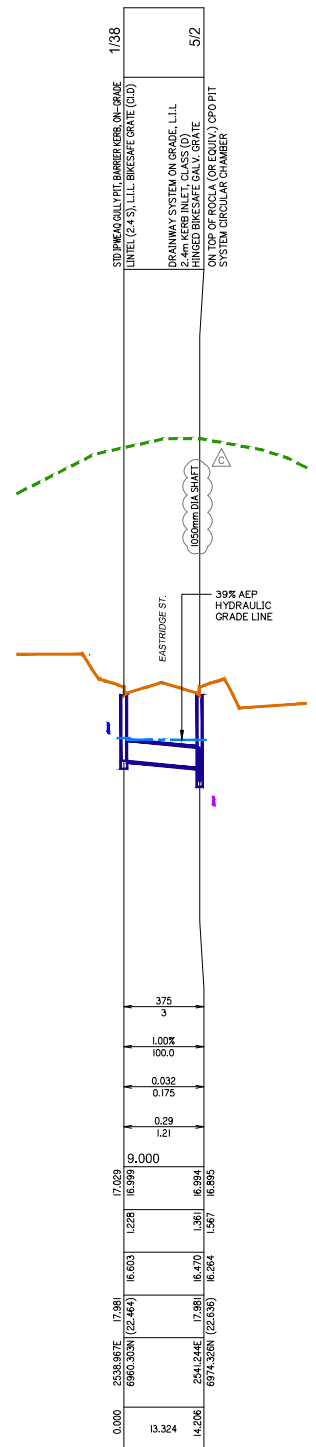
NOTE: PROVIDE DRAINWAY
CONVERTER SLAB FOR CPO
PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	525	600
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.521	0.547
CAPACITY FLOW (cumecs)	0.430	0.614
FULL PIPE VELOCITY (m/s)	2.40	1.94
NORMAL DEPTH VELOCITY (m/s)	2.40	2.45
DATUM RL	8.000	
HGL ELEVATION (39.35% AEP)	15.804 (15.801)	15.813 (15.810)
DEPTH TO INVERT	2.517	1.856 (1.856)
INVERT LEVEL OF DRAIN	13.283 (13.286)	13.953 (13.953)
DESIGN (& EXISTING) SURFACE LEVEL	15.319 (15.323)	15.814 (15.813)
SETOUT COORDINATES (EASTING & NORTING)	2475.489E 6864.433N	2474.51E 6970.761N
CHAINAGE	0.000 5.319	11.038 18.511

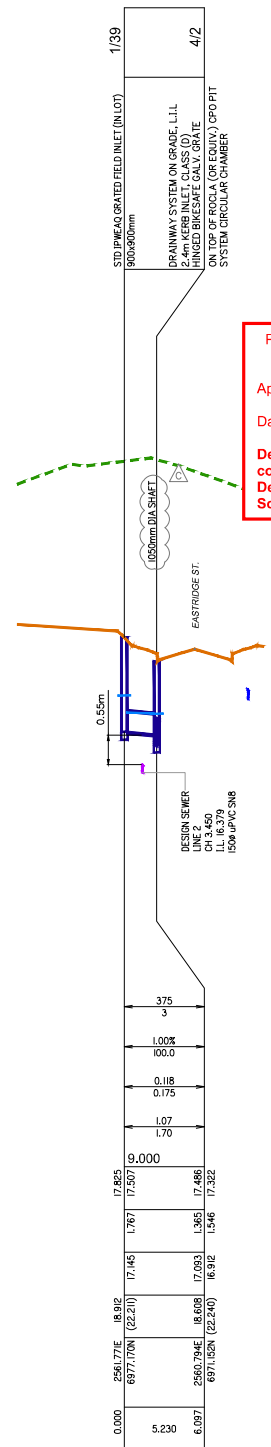
LINE 35



LINE 36



LINE 38



LINE 39

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies

STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 11 OF 18

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
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RPD:

Lot: 501
Plan: SP235994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

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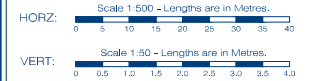
ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE

STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 11 OF 18

Issue	Date	Description	Drawn	Checked
C	19/09/2020	RESPONSE TO RPTING.4	BA	MG
H	02/10/2020	MINOR CHANGES TO STAGE 1	MG	MG
A	01/10/2020	CHANGING ISSUE	BA	DVS

SCALE IN METRES



Scale at A1:	AS SHOWN
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	10-09-2020
Drawing No:	5941 ENG OPW1 520
Rev. No:	C

STRUCTURE NAME	1/40
STRUCTURE DESCRIPTION	STD PIPEAO GULLY PIT, BARRIER KERB, IN SAG UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	2/40
	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET, CLASS (D) ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	4/6
	STD PIPEAO ACCESS CHAMBER 1000mm DIA

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375	375
PIPE CLASS	3	3
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.024	0.049
CAPACITY FLOW (cumecs)	0.175	0.175
FULL PIPE VELOCITY (m/s)	0.22	0.44
NORMAL DEPTH VELOCITY (m/s)	L11	L36
DATUM RL	8.000	
HGL ELEVATION (39.35% AEP)	17.53	17.53
DEPTH TO INVERT	1.32	1.44
INVERT LEVEL OF DRAIN	17.445	17.391
DESIGN (& EXISTING) SURFACE LEVEL	18.07	18.07
SETOUT COORDINATES (EASTING & NORTING)	2690.036E 6957.74N	2670.346E 6937.62N
CHAINAGE	0.000	13.404

LINE 40

STRUCTURE NAME	1/41
STRUCTURE DESCRIPTION	STD PIPEAO GULLY PIT, BARRIER KERB, IN SAG UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	3/2
	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET, CLASS (D) HINGED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	1/41
	STD PIPEAO ACCESS CHAMBER 1000mm DIA

LINE 41

STRUCTURE NAME	1/42
STRUCTURE DESCRIPTION	STD PIPEAO GULLY PIT, BARRIER KERB, IN SAG UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	8/X2
	DRAINWAY SYSTEM ON GRADE, L.L.L 2.4m KERB INLET, CLASS (D) HINGED BIKESAFE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER
	1/42
	STD PIPEAO ACCESS CHAMBER 1000mm DIA

LINE 42

STRUCTURE NAME	1/44
STRUCTURE DESCRIPTION	STD PIPEAO GULLY PIT, BARRIER KERB, IN SAG UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	3/4
	STD PIPEAO GULLY PIT, BARRIER KERB, IN SAG UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	1/44
	STD PIPEAO ACCESS CHAMBER 1000mm DIA

LINE 44

STRUCTURE NAME	1/46
STRUCTURE DESCRIPTION	STD PIPEAO GULLY PIT, BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L. BIKESAFE GRATE (CLD)
	7/X2
	STD PIPEAO ACCESS CHAMBER 1000mm DIA
	1/46
	STD PIPEAO ACCESS CHAMBER 1000mm DIA

LINE 46

STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 12 OF 18



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Gold Coast & Logan | 10 Business Street, Yatala QLD | PO Box 382, Beenleigh 4207

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
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RPD:

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Plan: SP295994

Local Authority: CITY OF GOLD COAST COUNCIL

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DRAWING TITLE

STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 12 OF 18

D	19-09-2020	RESPONSE TO RFP No. 4	BA	MS
C	09-09-2020	MINOR CHANGE TO STAGE 1	BA	MS
B	13-08-2020	RESPONSE TO RFP No. 4	BA	MS
A	01-09-2020	ORIGINAL ISSUE	BA	MS
Issue	Date	Description	DRN	CHK

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1:

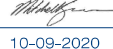
AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

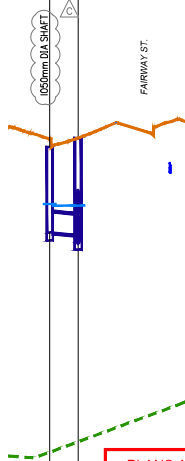
Signed: 

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 521

Rev. No: D

STRUCTURE NAME	1/50	3/54
STRUCTURE DESCRIPTION	DRAINWAY SYSTEM GAG, L.L.L. 2.4m KERB INLET CLASS (D) HINGED BIKESAFE GAG, GRAVE ON TOP OF ROCLA (OR EQUIV.) CPO PIT SYSTEM CIRCULAR CHAMBER	STD IPWEAQ ACCESS CHAMBER 1500mm DIA



SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

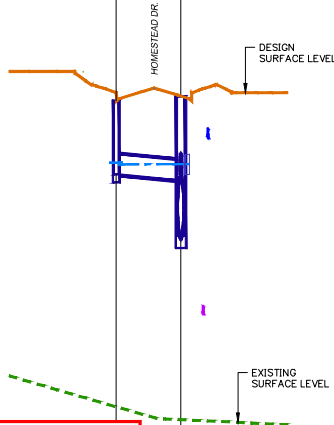
SHAFT	OFFSET
475	
550	
625	
775	
925	

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	375
PIPE CLASS	3
PIPE GRADE (%)	1.00%
PIPE SLOPE (1 in X)	100.0
PIPE FLOW (cumecs)	0.031
CAPACITY FLOW (cumecs)	0.175
FULL PIPE VELOCITY (m/s)	0.28
NORMAL DEPTH VELOCITY (m/s)	1.20
DATUM RL	5.000
HGL ELEVATION (39.35% AEP)	16.843 16.844
DEPTH TO INVERT	1.599 1.610
INVERT LEVEL OF DRAIN	16.10 16.107
DESIGN (& EXISTING) SURFACE LEVEL	17.861 (1.950) 17.574 (2.162)
SETOUT COORDINATES (EASTING & NORTHING)	2652.534E 6765.51N 2652.781E 6764.72N
CHAINAGE	0.000 4.328 5.318

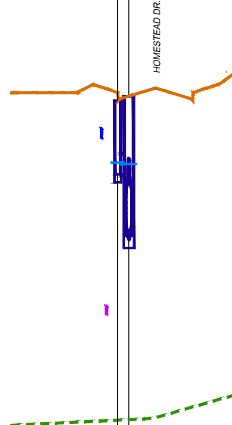
LINE 50

STRUCTURE NAME	1/51	9/X2
STRUCTURE DESCRIPTION	STD IPWEAQ GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L. BIKESAFE GRAVE (C.D.)	STD IPWEAQ ACCESS CHAMBER 1500mm DIA



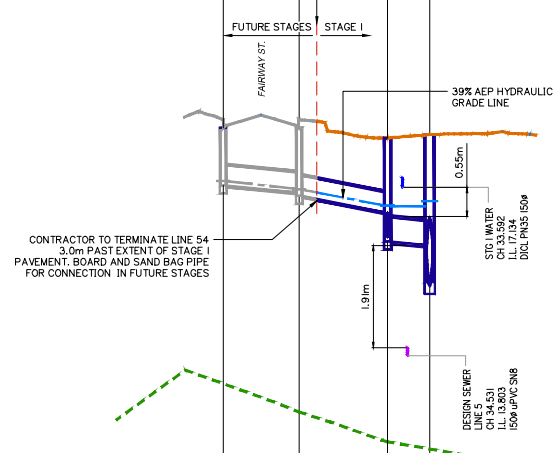
LINE 51

STRUCTURE NAME	1/52	9/X2
STRUCTURE DESCRIPTION	STD IPWEAQ GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L. BIKESAFE GRAVE (C.D.)	STD IPWEAQ ACCESS CHAMBER 1500mm DIA



LINE 52

STRUCTURE NAME	1/54	2/54	3/54	11/X2
STRUCTURE DESCRIPTION	STD IPWEAQ GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L. BIKESAFE GRAVE (C.D.)	STD IPWEAQ GULLY PIT BARRIER KERB, ON-GRADE UNTEL (2.4 S), L.L.L. BIKESAFE GRAVE (C.D.)	STD IPWEAQ ACCESS CHAMBER 1500mm DIA	STD IPWEAQ ACCESS CHAMBER 2100mm DIA



LINE 54

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No.: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP2395994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
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ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE
STORMWATER DRAINAGE
LONGITUDINAL SECTIONS
SHEET 13 OF 18

Issue	Date	Description	Rev	CHK
D	19-09-2020	RESPONSE TO REF No. 4	BA	MG
C	09-09-2020	MINOR CHANGE TO STAGE 1	BA	MG
B	13-09-2020	RESPONSE TO REF No. 4	BA	MG
A	01-09-2020	DESIGN NOTE	BA	MG

SCALE IN METRES

HORIZ: Scale 1:500 - Lengths are in Metres.

VERT: Scale 1:50 - Lengths are in Metres.

Scale at A1: AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 522

Rev. No: D

STRUCTURE NAME	1/102	2/102	3/101
STRUCTURE DESCRIPTION	PIPE CONNECTION - NO MANHOLE	DEFLECTION / PVC BEND	SDI PIPE/LO GRATED FIELD INLET (IN LOT) 630x630mm (300mm ABOVE BASIN L)

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SL82 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	150	150
PIPE CLASS	uPVC SNI10	uPVC SNI10
PIPE GRADE (%)	1.00%	1.00%
PIPE SLOPE (1 in X)	100.0	100.0
PIPE FLOW (cumecs)	0.000	0.000
CAPACITY FLOW (cumecs)	0.013	0.013
FULL PIPE VELOCITY (m/s)	0.00	0.00
NORMAL DEPTH VELOCITY (m/s)	0.00	0.00
DATUM R.L.	-5.000	-5.000
HGL ELEVATION (39.35% AEP)	5.395	5.395
DEPTH TO INVERT OF PIPE	0.999	1.058
INVERT LEVEL OF PIPE	4.401	4.732
DESIGN (& EXISTING) SURFACE LEVEL	5.000 (5.000)	5.000 (5.000)
SETOUT COORDINATES (EASTING & NORTHING)	2033.280E 7025.540N	2037.850E 7030.520N
PIPE CHAINAGE	0.000	6.830

LINE 102

PIPE SIZE (mm)	225
PIPE CLASS	uPVC SNI10
PIPE GRADE (%)	0.50%
PIPE SLOPE (1 in X)	200.0
PIPE FLOW (cumecs)	0.000
CAPACITY FLOW (cumecs)	0.032
FULL PIPE VELOCITY (m/s)	0.00
NORMAL DEPTH VELOCITY (m/s)	0.00
DATUM R.L.	-5.000
HGL ELEVATION (39.35% AEP)	6.400
DEPTH TO INVERT OF PIPE	0.228
INVERT LEVEL OF PIPE	6.400
DESIGN (& EXISTING) SURFACE LEVEL	6.400 (6.400)
SETOUT COORDINATES (EASTING & NORTHING)	2241.174E 7038.457N
PIPE CHAINAGE	0.000

LINE 103

STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 16 OF 18

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

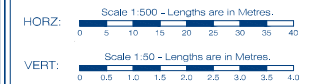
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ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

DRAWING TITLE STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 16 OF 18

Issue	Date	Description	Drawn	CHK
C	19/09/2020	RESPONSE TO RPTING 4	BA	MG
B	18/09/2020	MINOR CHANGE TO STAGE 1	BA	MG
A	01/09/2020	ORIGINAL ISSUE	BA	DVS

SCALE IN METRES



Scale at A1: AS SHOWN

Designed: IG

Drafted: BA

Approved: MG

RPEQ: 16939

Signed:

Date: 10-09-2020

Drawing No: 5941 ENG OPW1 525 Rev. No: C

STRUCTURE NAME	10/X2	11/X2	12/X2	13/X2	14/X2	OUT/X2
STRUCTURE DESCRIPTION	STD PIPE/EO ACCESS CHAMBER 1500mm DIA	STD PIPE/EO ACCESS CHAMBER 2100mm DIA	STD PIPE/EO ACCESS CHAMBER 1800mm DIA	STD PIPE/EO ACCESS CHAMBER 2100mm DIA	DRAINWAY SYSTEM IN S/S, L.L.L. 2.4m KERB INLET, GLASS (O) HINED BIKESPE GALV. GRATE ON TOP OF ROCLA (OR EQUIV.) CPO PITT SYSTEM CIRCULAR CHAMBER	1500mm SINGLE OUTLET HEADWALL PROVIDE APRON AND CUT-OFF WALL PROVIDE ROCK SCOUR PROTECTION PROVIDE ROCK OUTLET SCOUR PROTECTION

SHAFT/PIT BASE

IN FAVOURABLE GROUND CONDITIONS PROVIDE PRECAST CONCRETE ROCLA CPO PIT BASE (OR EQUIVALENT) TO SUIT SPECIFIED DIAMETER OF SHAFT UP TO 1200 DIA.

ALTERNATELY (OR EXCEEDING 1200 DIA) PROVIDE 250mm THICK CAST-IN-SITU REINFORCED CONCRETE BASE, 2 LAYERS SLB2 MESH ON 50MM THICK BLINDING CONCRETE

CONVERTER SLAB TABLE

SHAFT	OFFSET
1200	475
1350	550
1500	625
1800	775
2100	925

NOTE: PROVIDE DRAINWAY CONVERTER SLAB FOR CPO PITS 1200#, 1500#, 1800#

PIPE SIZE (mm)	1050	1050	1200	1200	1200
PIPE CLASS	3	3	3	3	3
PIPE GRADE (%)	0.50%	0.50%	0.50%	1.00%	0.72%
PIPE SLOPE (1 in X)	200.0	200.0	200.0	100.0	138.4
PIPE FLOW (cumecs)	1.698	1.735	2.221	2.464	2.520
CAPACITY FLOW (cumecs)	1.932	1.932	2.758	3.900	3.316
FULL PIPE VELOCITY (m/s)	1.96	2.00	1.96	2.18	2.23
NORMAL DEPTH VELOCITY (m/s)	2.52	2.52	2.71	3.65	3.22
DATUM R.L.	4.000				
HGL ELEVATION (39.35% AEP)	16.814 16.802	16.959 16.281	16.970 16.199	15.575 15.575	15.547 15.461
DEPTH TO INVERT OF PIPE	2.608 2.588	2.677 2.757	2.732 2.894	2.911 2.931	14.476 14.445
INVERT LEVEL OF PIPE	14.403 14.403	14.284 14.524	14.247 14.294	14.606 14.596	14.476 14.476
DESIGN (& EXISTING) SURFACE LEVEL	18.090 (12.040)	17.942 (12.056)	17.604 (12.647)	17.561 (12.637)	15.921 (12.709)
SETOUT COORDINATES (EASTING & NORTHING)	2649.30E 6776.68N	2671.07E 6771.686N	2679.62E 6824.518N	2690.91E 6822.685N	2833.860E 6799.476N
PIPE CHAINAGE	522.225 27.801	551.376 23.574	576.300 27.047	604.697 10.300	632.000 15.273

LINE X2

STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 18 OF 18

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No. MIN/2020/541

Dated: 16 October 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Client:



FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON QLD 4207

THIS DRAWING IS INTENDED TO
BE PRINTED IN COLOUR

RPD:

Lot: 501
Plan: SP295994
Local Authority: CITY OF GOLD COAST
COUNCIL
Level Datum: AHD
Meridian: -
Contour Interval: -
PSM: -
RL: -

ISSUED FOR APPROVAL
NOT FOR CONSTRUCTION

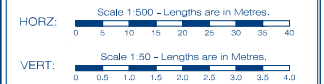
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ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH GENERAL NOTES

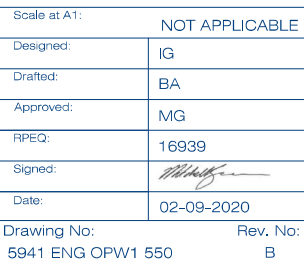
DRAWING TITLE STORMWATER DRAINAGE LONGITUDINAL SECTIONS SHEET 18 OF 18

Issue	Date	Description	DRN	CHK
D	19/09/2020	RESPONSE TO REF No. 4	BA	MG
C	09/09/2020	MINOR CHANGE TO STAGE 1	BA	MG
B	13/08/2020	RESPONSE TO REF No. 3	BA	MG
A	01/08/2020	ORIGINAL ISSUE	BA	MG

SCALE IN METRES



Scale at A1:	AS SHOWN
Designed:	IG
Drafted:	BA
Approved:	MG
RPEQ:	16939
Signed:	
Date:	10-09-2020
Drawing No:	5941 ENG OPW1 527
Rev. No:	D

[illegible]

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme. Local Laws and Planning Policies

[illegible]

[illegible]



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planning | environment | landscape | engineering | survey

T: 3807 3333 | F: 3287 5461 | www.gassman.com.au

Access Business Park | 70 Business Street, Yatala QLD

Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL RD,
STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

Notes:

WARNING
BEWARE OF UNDERGROUND
SERVICES

Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.
Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

1. Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
2. The Contractor shall verify the location and depth of all services prior to commencing on site.
3. The Contractor shall be liable for any damage to services during landscape works.
4. The Contractor shall verify the location of any existing trees shown to be retained and protect them during works.
5. All trees shall be planted in locations shown on the plan.
6. Any change to plant species must have the approval of the Landscape Architect.
7. Trees shall be planted no less than the following distances from landscape elements:
• Footpaths: 0.6m
• Driveways: 3.0m
• Stormwater & sewerage pits: 2.0m
• Intersections: 10.0m
• Service crossings: 2.0m
• Kerb & Channel: 0.6m
• Street lights: 7.5m
8. Construction certification for all structural elements is to be provided prior to practical completion being granted.

Associated Consultants:

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Drawing Title:

LANDSCAPE
COVERSHEET AND
LOCALITY PLAN

No.	Date	Description	By	Scale
1	23-06-20	FOR OPW APPROVAL	J. Swanepoel	N.T.S.

Scale at A1: N.T.S.

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 000 Rev. No: A

VANTAGE YATALA

STAGE 1 LANDSCAPE STREETScape

60 STAPYLTON JACOBS WELL RD, 82 CHRISTENSEN RD AND 31 YELLOWWOOD RD, STAPYLTON

INTERNAL STREETScape - OPERATIONAL WORKS APPROVAL



Drawing Index

- 000 LANDSCAPE COVERSHEET AND LOCALITY PLAN
- 001 LANDSCAPE SPECIFICATIONS & PLANT SCHEDULES
- 200 LANDSCAPE SURFACE FINISHES PLANS 200 / 212
- 500 LANDSCAPE TREE PLANTING PLANS 500 / 512
- 600 LANDSCAPE SHRUB PLANTING PLANS 600 / 612
- 900 LANDSCAPE TYPICAL DETAILS 901 / 902

LOCALITY PLAN

Principal

FRASERS PROPERTY (AUSTRALIA) PTY. LTD.
LEVEL 3, 1C HOMEBUSH BAY DRIVE,
RHODES, NSW 2138



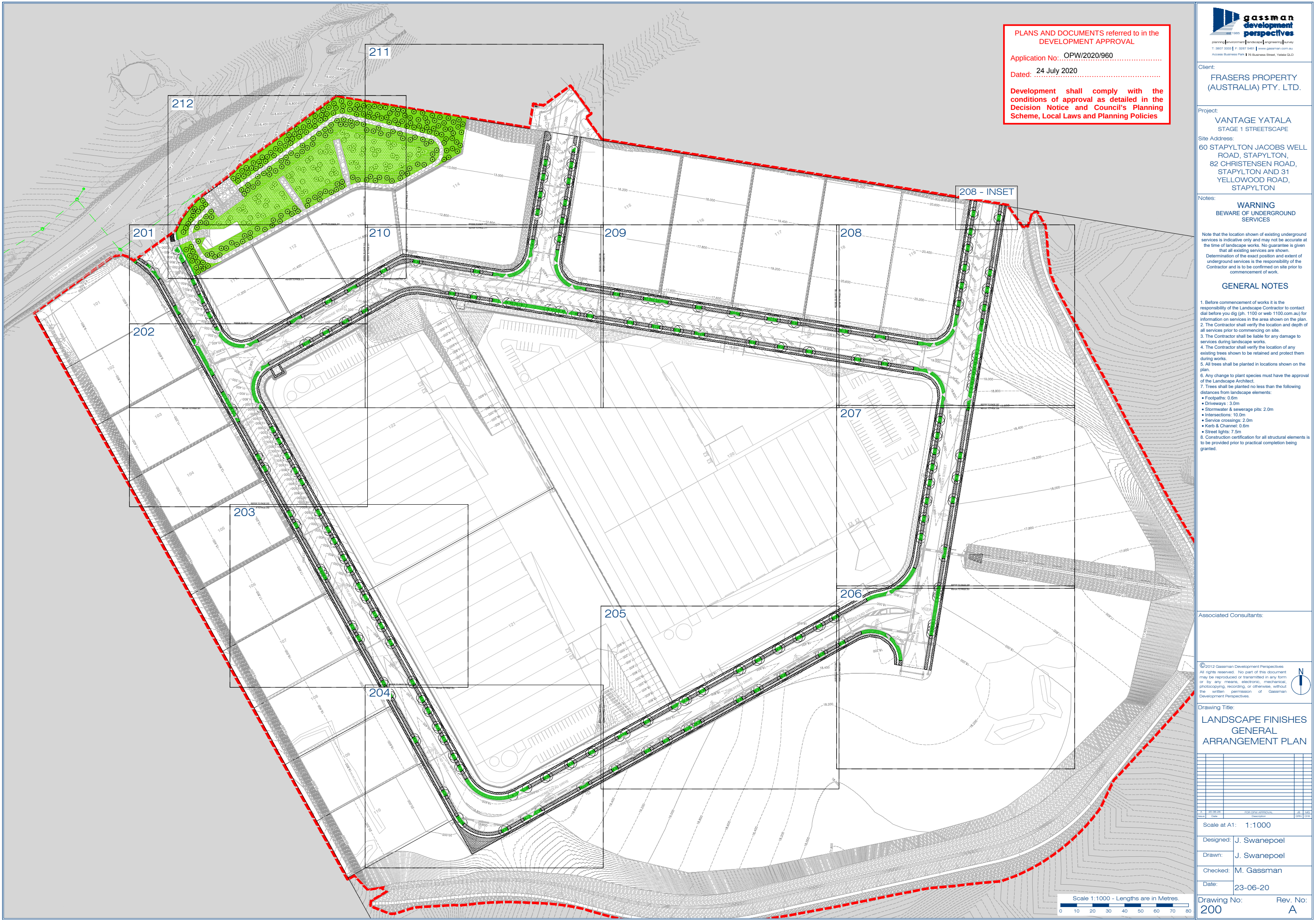
76 Business Street,
Yatala, QLD, 4207
Tel: +61 7 3807 3333
Fax: +61 7 3287 5461
e: mail@gassman.com.au
w: www.gassman.com.au

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies



PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

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T: 3807 3253 | F: 3267 5461 | www.gassman.com.au

Access Business Park | 70 Business Street, Yatala QLD

Client:

FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

Notes:

WARNING
BEWARE OF UNDERGROUND SERVICES

Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.
Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

- Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
- The Contractor shall verify the location and depth of all services prior to commencing on site.
- The Contractor shall be liable for any damage to services during landscape works.
- The Contractor shall verify the location of any existing trees shown to be retained and protect them during works.
- All trees shall be planted in locations shown on the plan.
- Any change to plant species must have the approval of the Landscape Architect.
- Trees shall be planted no less than the following distances from landscape elements:
 - Footpaths: 0.6m
 - Driveways: 3.0m
 - Stormwater & sewerage pits: 2.0m
 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
- Construction certification for all structural elements is to be provided prior to practical completion being granted.

Associated Consultants:

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Drawing Title:

LANDSCAPE FINISHES
GENERAL
ARRANGEMENT PLAN

No.	Rev.	Date	Description	By	Appr.
1	1	23-06-20	FOR COUNCIL APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: 1:1000

Designed: J. Swanepoel

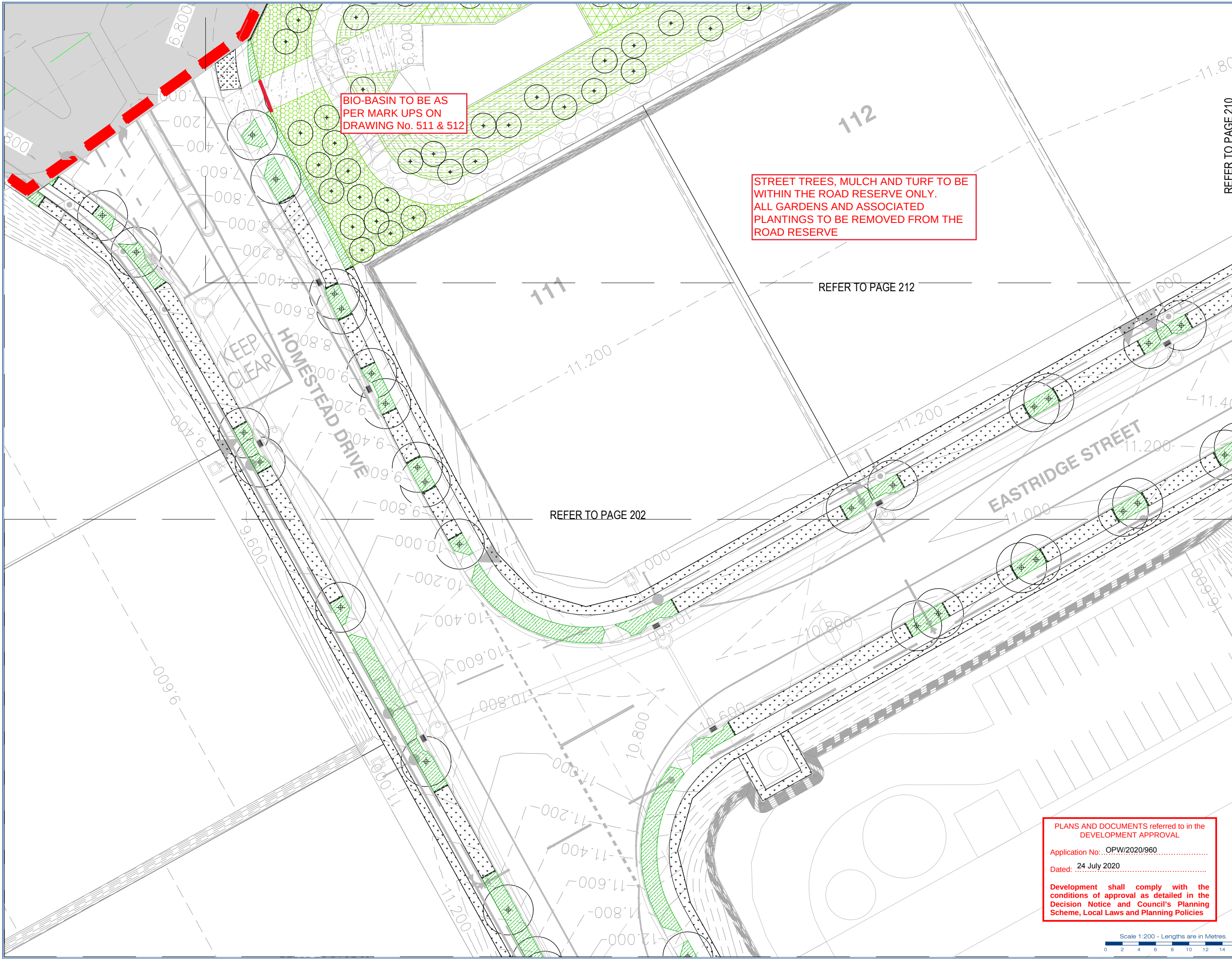
Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 200

Rev. No: A



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T: 0857 555111 | F: 0857 555111 | www.gassman.com.au
Access Business Park | 70 Business Street, Yatala QLD

Client:
FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:
**WARNING
BEWARE OF UNDERGROUND
SERVICES**

Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.
Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

- Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
- The Contractor shall verify the location and depth of all services prior to commencing on site.
- The Contractor shall be liable for any damage to services during landscape works.
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- All trees shall be planted in locations shown on the plan.
- Any change to plant species must have the approval of the Landscape Architect.
- Trees shall be planted no less than the following distances from landscape elements:
 - Footpaths: 0.6m
 - Driveways: 3.0m
 - Stormwater & sewerage pits: 2.0m
 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
- Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:
LANDSCAPE FINISHES

No.	Description	Date	By	Check
1	Issue			
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 201 Rev. No: A

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: **OPW/2020/960**

Dated: **24 July 2020**

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres.

0 2 4 6 8 10 12 14 16

Scale 1:200 - Lengths are in Metres.



0 2 4 6 8 10 12 14 16

REFER TO PAGE 202

Client:
FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:
VANTAGE YATALA
STAGE 1 STREETScape
Site Address:
60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

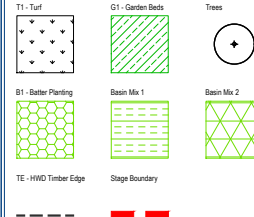
Notes:
WARNING
BEWARE OF UNDERGROUND
SERVICES

Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.
Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

1. Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
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4. The Contractor shall verify the location of any existing trees shown to be retained and protect them during works.
5. All trees shall be planted in locations shown on the plan.
6. Any change to plant species must have the approval of the Landscape Architect.
7. Trees shall be planted no less than the following distances from landscape elements:
 - Footpaths: 0.6m
 - Driveways: 3.0m
 - Stormwater & sewerage pits: 2.0m
 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
8. Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND



Associated Consultants:

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Drawing Title:

LANDSCAPE FINISHES

No.	Description	Area (m ²)	Material	Notes
1	Turf	15.200	106	
2	Garden Beds	17.800	107	
3	Trees	18.800	108	
4	Better Planting	19.000	109	
5	Basin Mix 1	19.200	110	
6	Basin Mix 2	19.400	111	
7	HWD Timber Edge	19.600	112	
8	Stage Boundary	19.800	113	

Scale at A1: 1:200

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 203
Rev. No: A

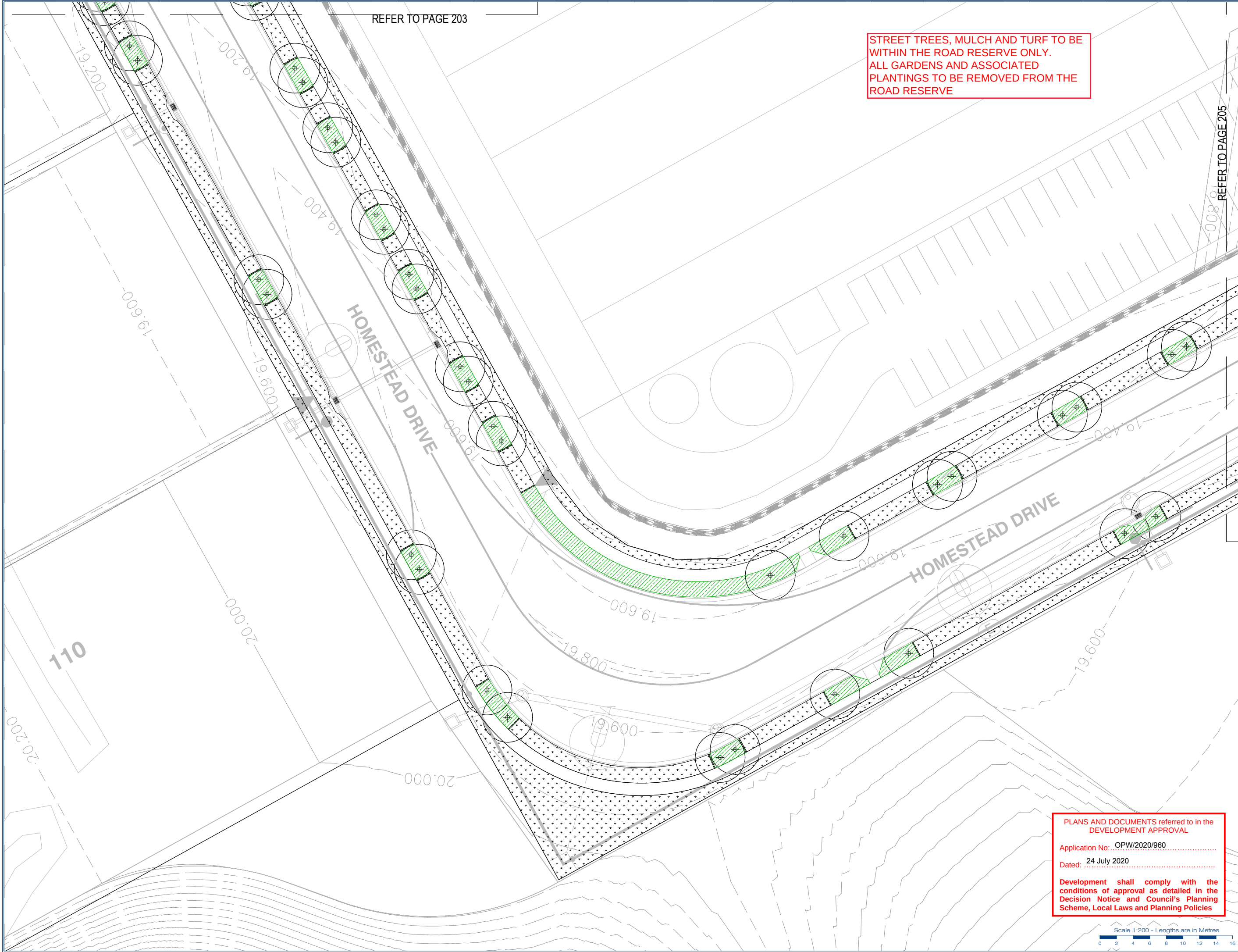
STREET TREES, MULCH AND TURF TO BE
WITHIN THE ROAD RESERVE ONLY.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

HOMESTEAD DRIVE

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL
Application No: OPW/2020/960
Dated: 24 July 2020
Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies

REFER TO PAGE 204

Scale 1:200 - Lengths are in Metres.
0 2 4 6 8 10 12 14 16



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Client:
**FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.**

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:
**WARNING
BEWARE OF UNDERGROUND
SERVICES**

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 - Driveways: 3.0m
 - Stormwater & sewerage pits: 2.0m
 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
- Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HMD Timber Edge	Stage Boundary	

Associated Consultants:

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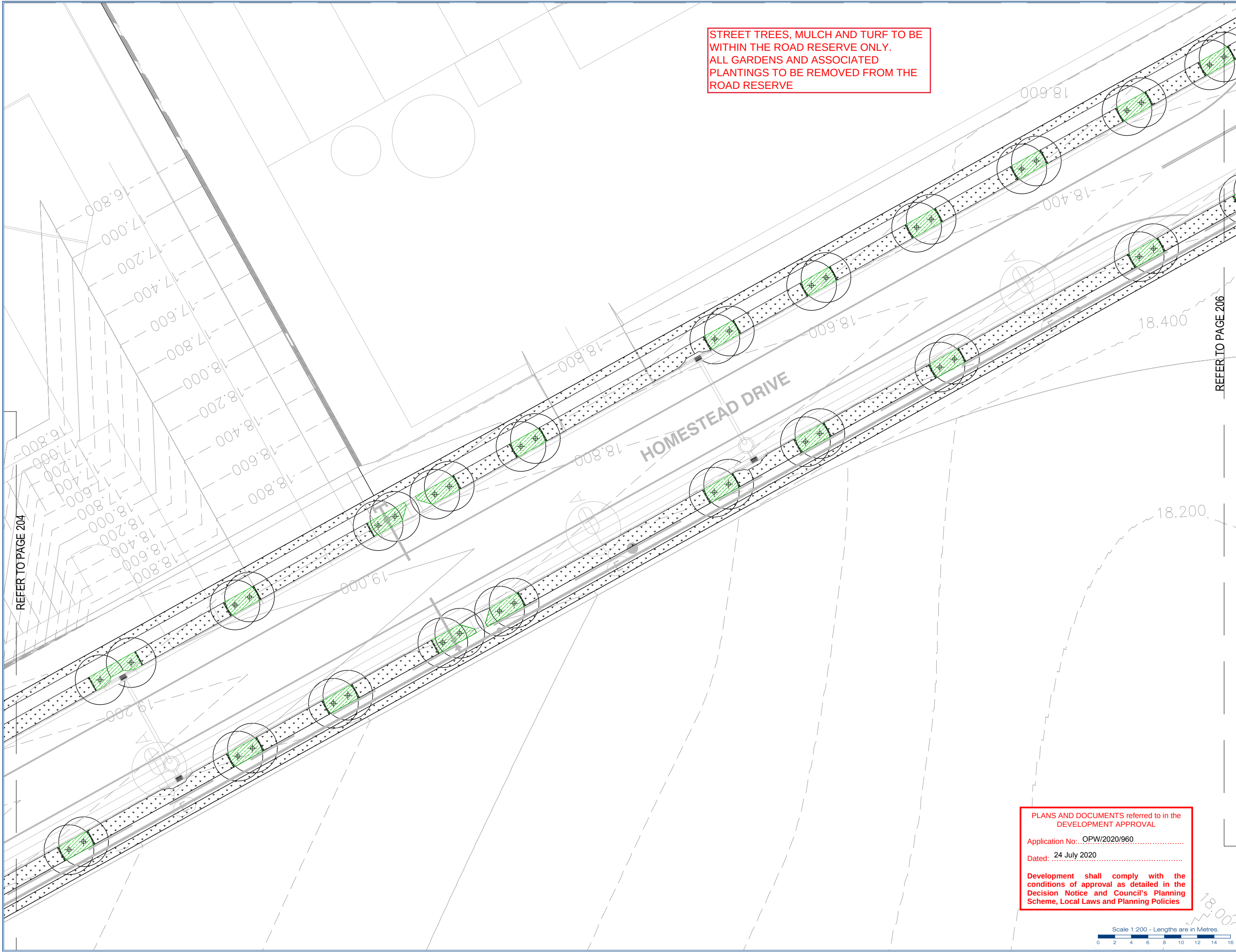
Drawing Title:
LANDSCAPE FINISHES

Author	Design	Check	Draw	Rev
J. Swanepoel	J. Swanepoel	M. Gassman	J. Swanepoel	1

Scale at A1: 1:200

Designed: J. Swanepoel
Drawn: J. Swanepoel
Checked: M. Gassman
Date: 23-06-20

Drawing No: 204
Rev. No: A



STREET TREES, MULCH AND TURF TO BE
WITHIN THE ROAD RESERVE ONLY.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

Client:
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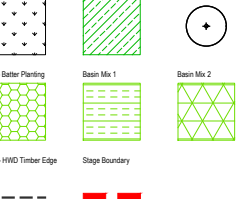
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 - Driveways: 3.0m
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 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
8. Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND



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Drawing Title:

LANDSCAPE FINISHES

No.	Date	Description	By	App'd
1	24 July 2020	Final Design	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 205 Rev. No: A

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

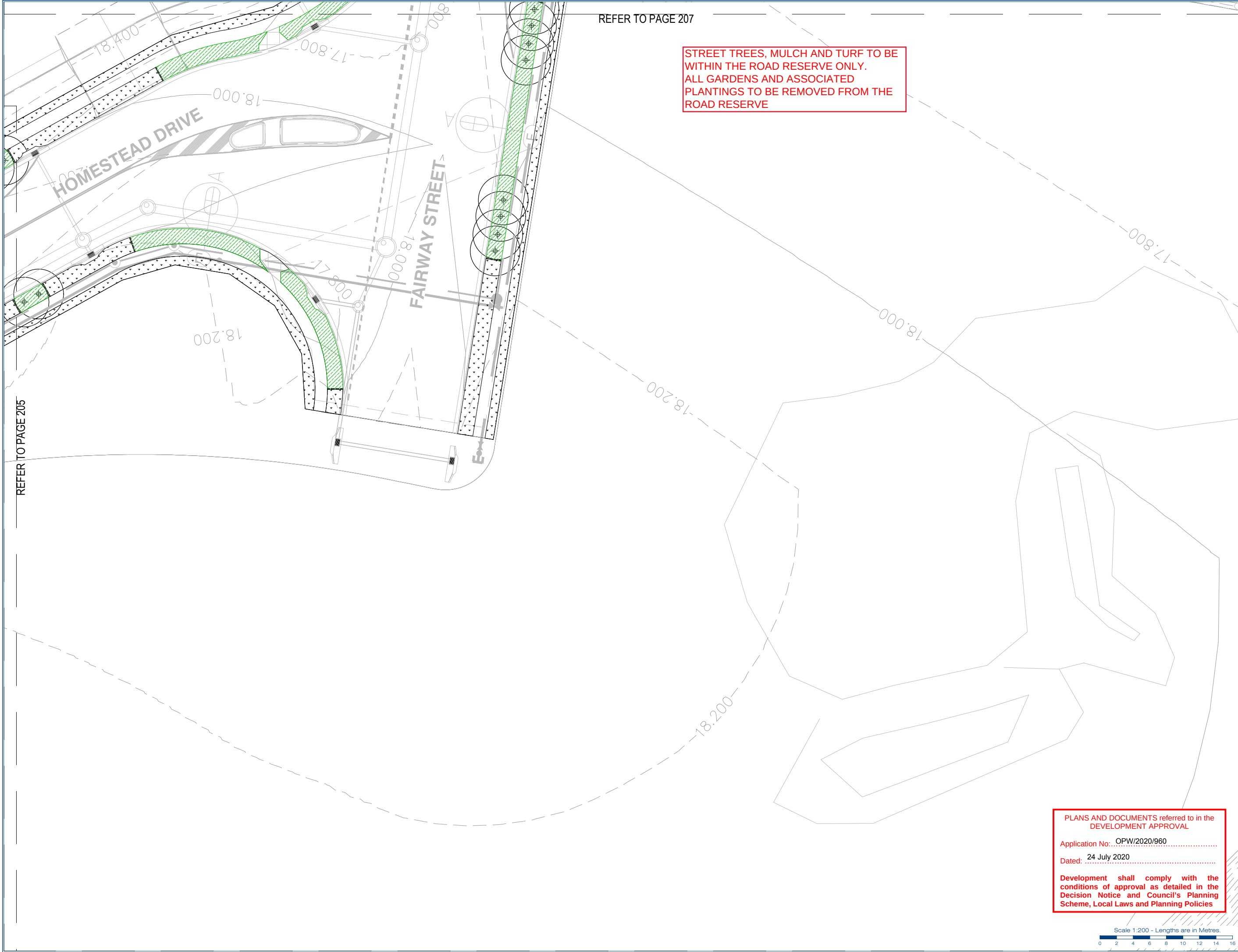
Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres.





REFER TO PAGE 207

STREET TREES, MULCH AND TURF TO BE WITHIN THE ROAD RESERVE ONLY.
ALL GARDENS AND ASSOCIATED PLANTINGS TO BE REMOVED FROM THE ROAD RESERVE

REFER TO PAGE 205

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

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Client:

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Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

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82 CHRISTENSEN ROAD, STAPYLTON AND 31 YELLOWWOOD ROAD, STAPYLTON

Notes:

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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:

LANDSCAPE FINISHES

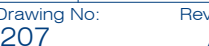
No.	Description	Date
1	Issue	23-06-20

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 206

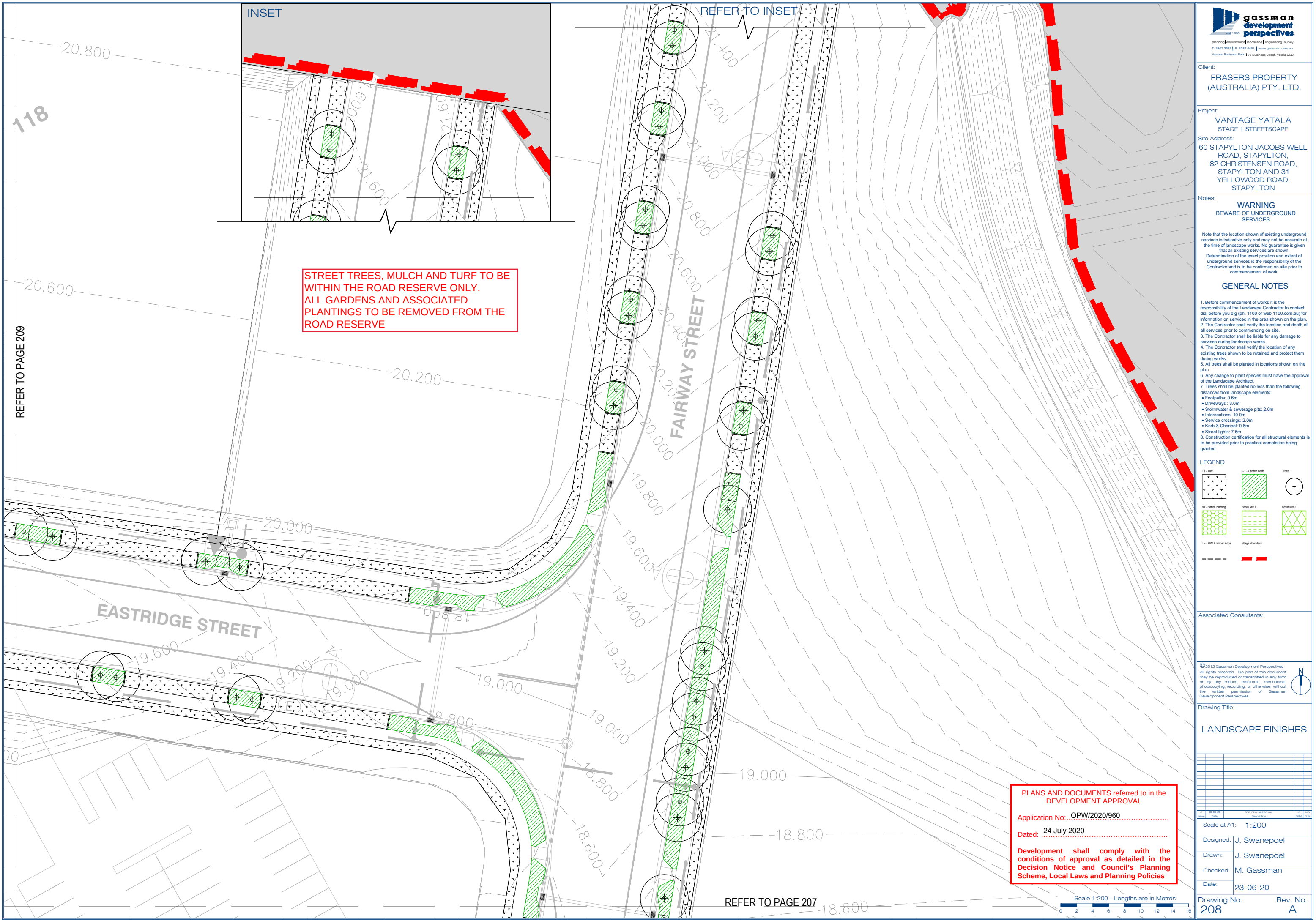
Rev. No: A



Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metre





INSET

REFER TO INSET

STREET TREES, MULCH AND TURF TO BE WITHIN THE ROAD RESERVE ONLY. ALL GARDENS AND ASSOCIATED PLANTINGS TO BE REMOVED FROM THE ROAD RESERVE

REFER TO PAGE 209

REFER TO PAGE 207

Client:
FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:
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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HMD Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:
LANDSCAPE FINISHES

Author	Designer	Checker	Drawn	Date	Scale
J. Swanepoel	J. Swanepoel	M. Gassman	J. Swanepoel	23-06-20	1:200

Scale at A1: 1:200

Designed: J. Swanepoel
Drawn: J. Swanepoel
Checked: M. Gassman
Date: 23-06-20

Drawing No: 208
Rev. No: A

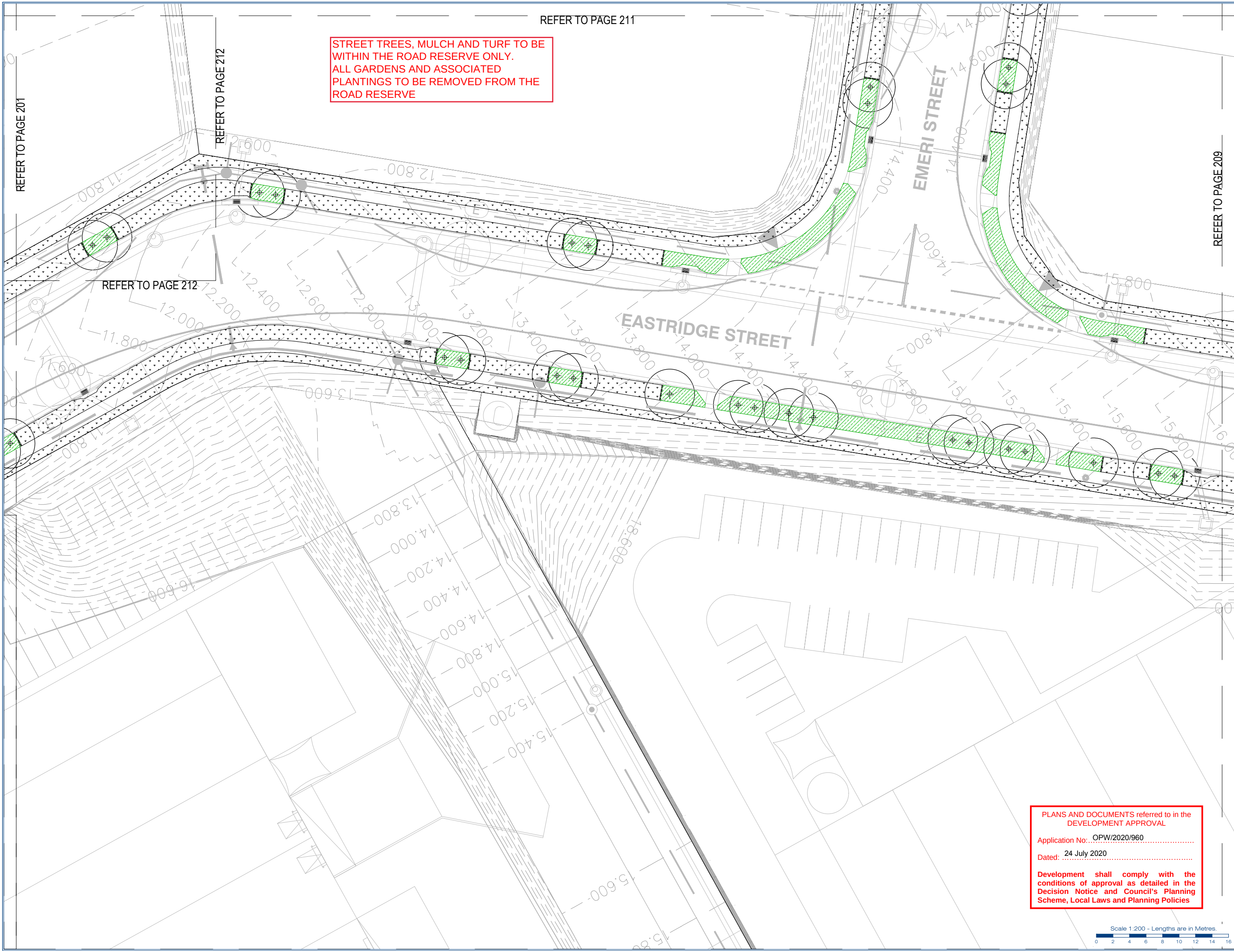
PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No.: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres.



STREET TREES, MULCH AND TURF TO BE WITHIN THE ROAD RESERVE ONLY.
ALL GARDENS AND ASSOCIATED PLANTINGS TO BE REMOVED FROM THE ROAD RESERVE

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

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Client:

FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:

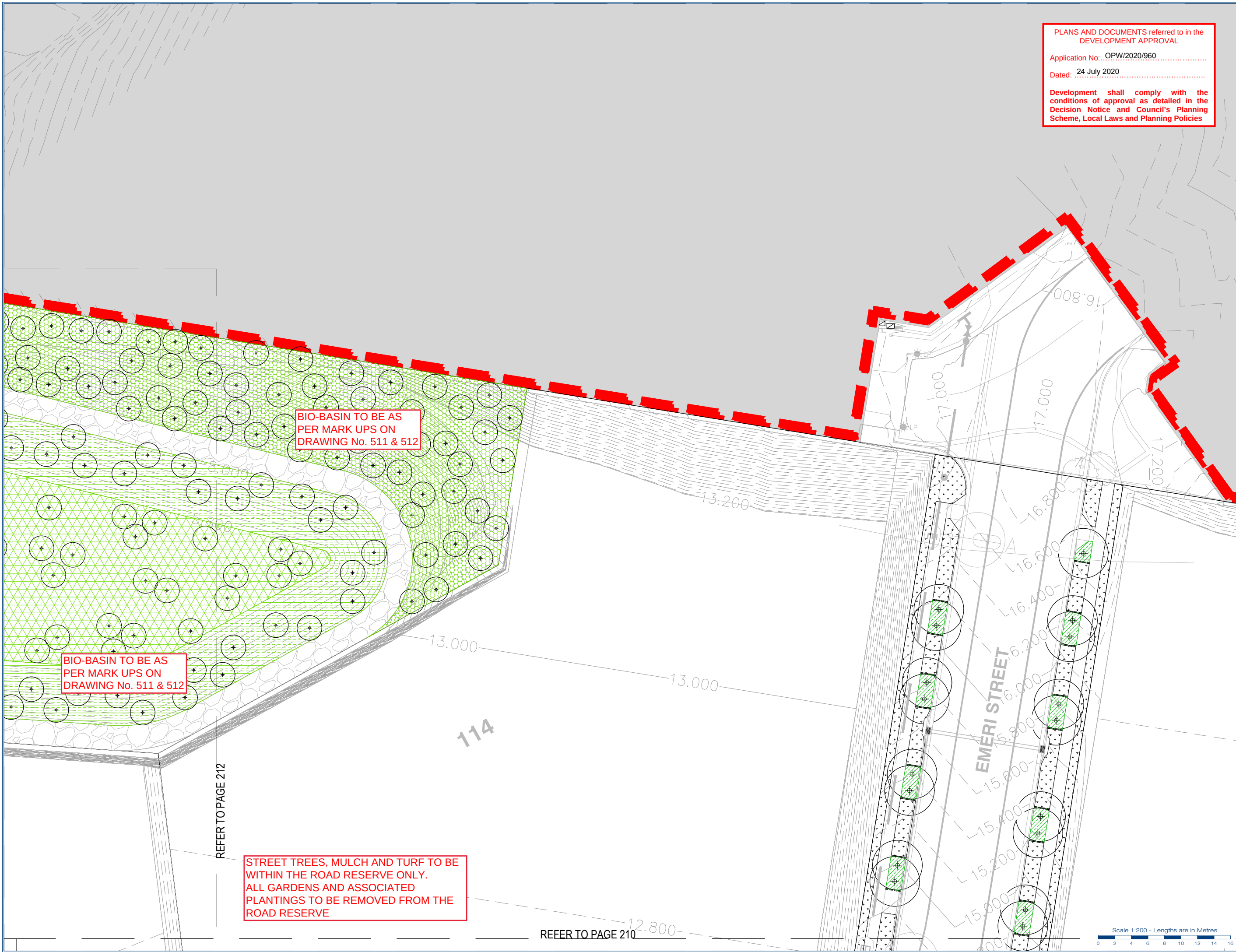
LANDSCAPE FINISHES

No.	Description	Date
1	Issue	24 July 2020

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 210
Rev. No: A



PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the
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Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

Associated Consultants:

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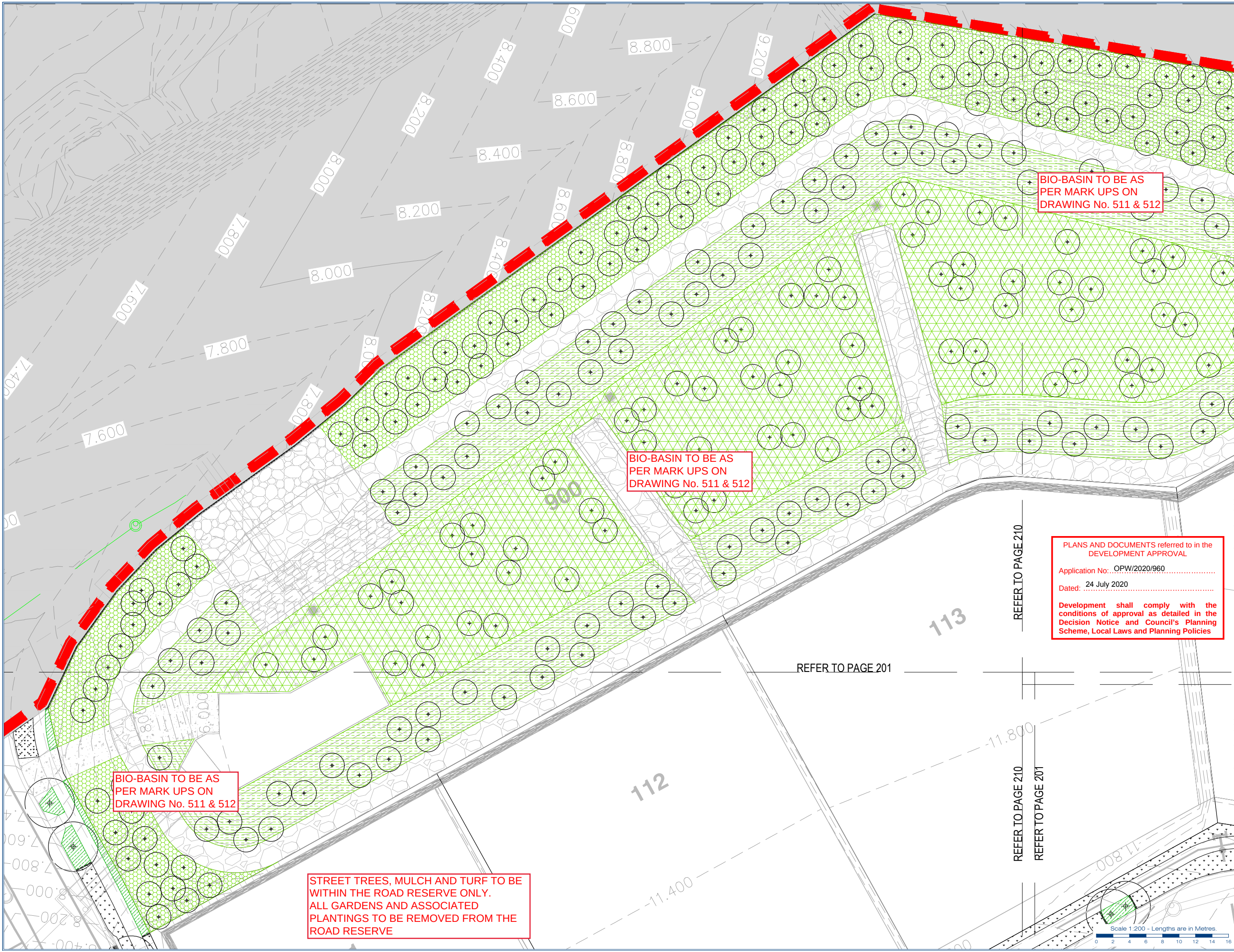
Drawing Title:
LANDSCAPE FINISHES

No.	Date	Description	By	Check
1	23-06-20	FOR COUNCIL APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 211 Rev. No: A



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Client:
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Project:
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STAGE 1 STREETScape**

Site Address:
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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

--- ---

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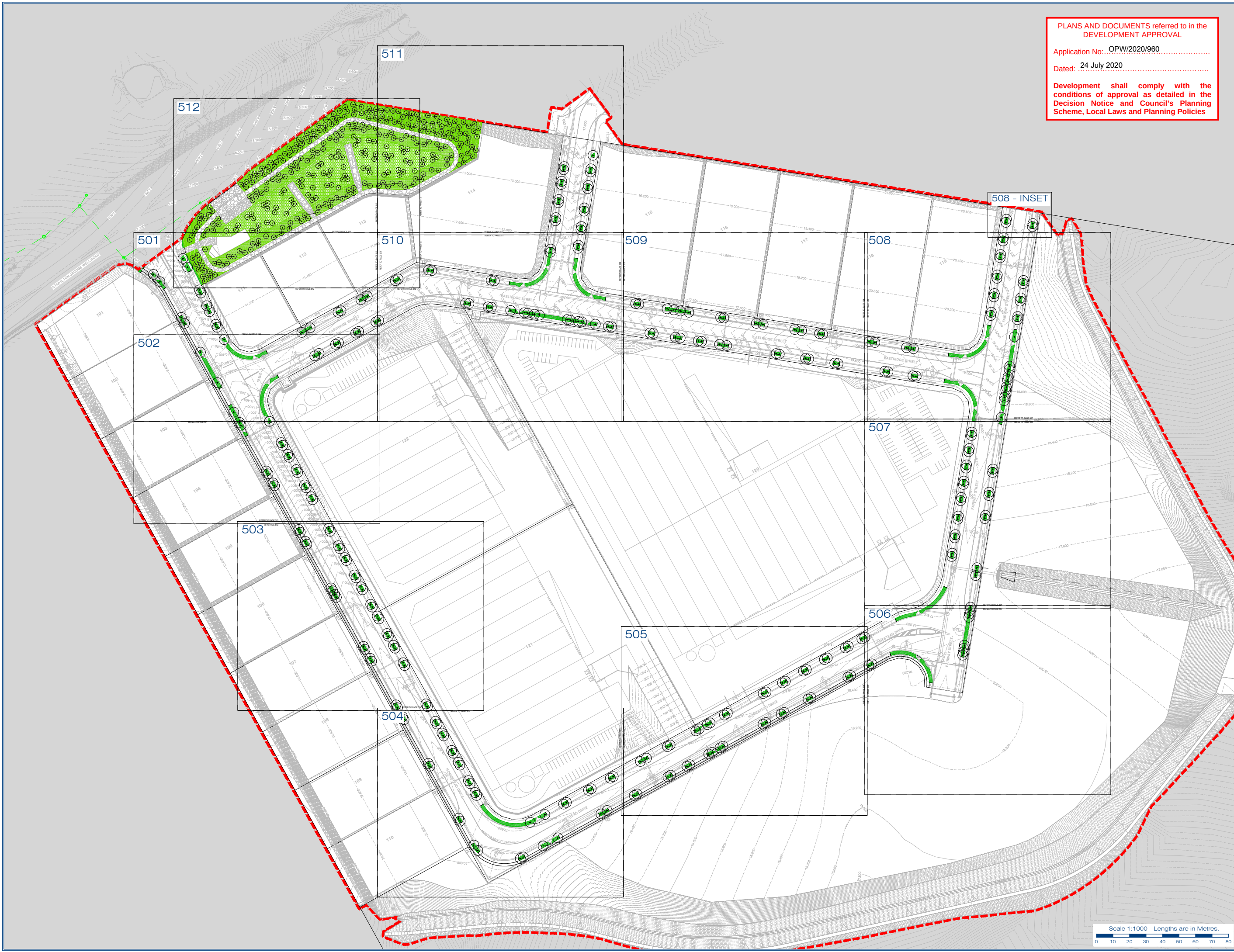
Drawing Title:
LANDSCAPE FINISHES

No.	Description	Date	By	Check
1	LANDSCAPE FINISHES	24 July 2020	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed: J. Swanepoel
Drawn: J. Swanepoel
Checked: M. Gassman
Date: 23-06-20

Drawing No: 212
Rev. No: A



PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No.: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the
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Access Business Park | 70 Business Street, Yatala QLD

Client:

FRASERS PROPERTY
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Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL
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Associated Consultants:

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Drawing Title:

LANDSCAPE TREE PLANTING
PLAN
GENERAL ARRANGEMENT PLAN

No.	Rev.	Date	Description	By	Appr.
1	1	23-06-20	FOR COUNCIL APPROVAL	J. SWANepoel	M. GASSMAN

Scale at A1: 1:1000

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 500

Rev. No: A



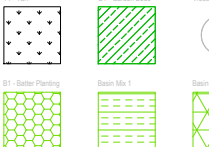
Site Address:
60 STAPYLTON JACOBS V
ROAD, STAPYLTON,
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7. All services shall be buried no less than the following distances from landscape elements:
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 - Driveways : 3.0m
 - Stormwater & sewerage pipes: 2.0m
 - Intersections: 19.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 7.5m
 - Street lights: 7.5m
8. Construction certification for all structural work to be provided prior to practical completion of the project.

LEGEND



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Drawing Title:

PLANTING PLAN
TREES

A	20-06-26	FOR OPW APPROVAL
Date	Page:	Description.

Scale at A1: 1:200

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked:	M. Gassman
----------	------------

Date: 23-06-20

Drawing No: 501

N

ONLY STREET TREES, MULCH AND TURF
TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

**BIO-BASIN TO BE AS
PER MARK UPS ON
DRAWING No. 511 & 512**

REFER TO PAGE 512

TREES NOT TO BE
PLANTED OVER OR
DIRECTLY ADJACENT TO
STORMWATER
INFRASTRUCTURE.
STREET TREE PLANTING
TO BE IN ACCORDANCE
WITH CITY PLAN SC.6.11
STANDARD DRAWING -
STREET TREE PLANTING
SETOUT GUIDELINES

REFER TO PAGE 502

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres



A horizontal number line with tick marks at intervals of 2, labeled 0, 2, 4, 6, 8, 10, 12, 14, and 16.

ONLY STREET TREES, MULCH AND TURF
TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

TREES NOT TO BE
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STORMWATER
INFRASTRUCTURE.
STREET TREE PLANTING
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WITH CITY PLAN SC.6.11
STANDARD DRAWING -
STREET TREE PLANTING
SETOUT GUIDELINES

TREES NOT TO BE
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PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies



**PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL**

Application No: OPW/2020/960.....

Dated: 24 July 2020.....

**Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies**



ONLY STREET TREES, MULCH AND TURF
TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

Client:
**FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.**

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**
Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:
**WARNING
BEWARE OF UNDERGROUND
SERVICES**

Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.
Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

- Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
- The Contractor shall verify the location and depth of all services prior to commencing on site.
- The Contractor shall be liable for any damage to services during landscape works.
- The Contractor shall verify the location of any existing trees shown to be retained and protect them during works.
- All trees shall be planted in locations shown on the plan.
- Any change to plant species must have the approval of the Landscape Architect.
- Trees shall be planted no less than the following distances from landscape elements:
 - Footpaths: 0.6m
 - Driveways: 3.0m
 - Stormwater & sewerage pits: 2.0m
 - Intersections: 10.0m
 - Service crossings: 2.0m
 - Kerb & Channel: 0.6m
 - Street lights: 7.5m
- Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND

T1 - Turf	OT - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HIND Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:
**PLANTING PLAN
TREES**

Author		FOR OWNER APPROVAL		DATE	
Name		Description		Date	

Scale at A1: 1:200

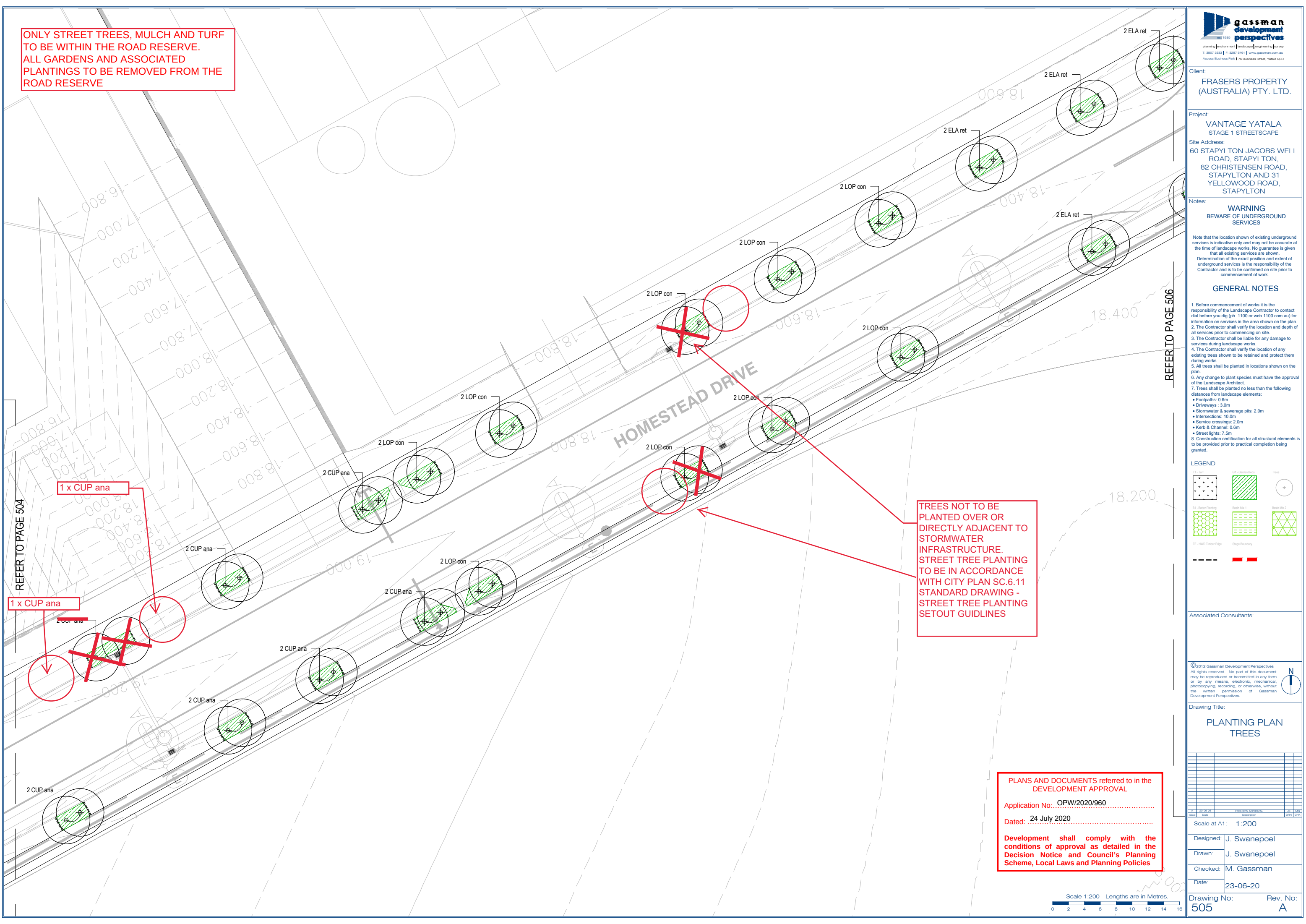
Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

Drawing No: 505
Rev. No: A



REFER TO PAGE 504

REFER TO PAGE 506

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL
Application No.: OPW/2020/960
Dated: 24 July 2020
Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres.
0 2 4 6 8 10 12 14 16



Scale 1:200 - Lengths are in Metres.

ONLY STREET TREES, MULCH AND TURF
TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

REFER TO PAGE 508

REFER TO PAGE 506

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies



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Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project: VANTAGE YATALA
STAGE 1 STREETSCAPE

Site Address: 60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

Notes:

WARNING
BEWARE OF UNDERGROUND
SERVICES

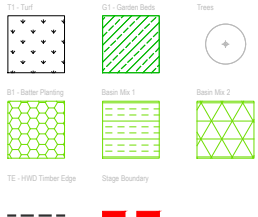
Note that the location shown of existing underground services is indicative only and may not be accurate at the time of landscape works. No guarantee is given that all existing services are shown.

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GENERAL NOTES

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2. The Contractor shall verify the location and depth of all services prior to commencing on site.
3. The Contractor shall be liable for any damage to services during landscape works.
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LEGEND



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Drawing Title:

PLANTING PLAN TREES

A	20-06-28		FOR OPW APPENDIX	25	M
ous	... Date		Discussions	Page	G

Scale at A1: 1:200

Designed: J. Swanepoel

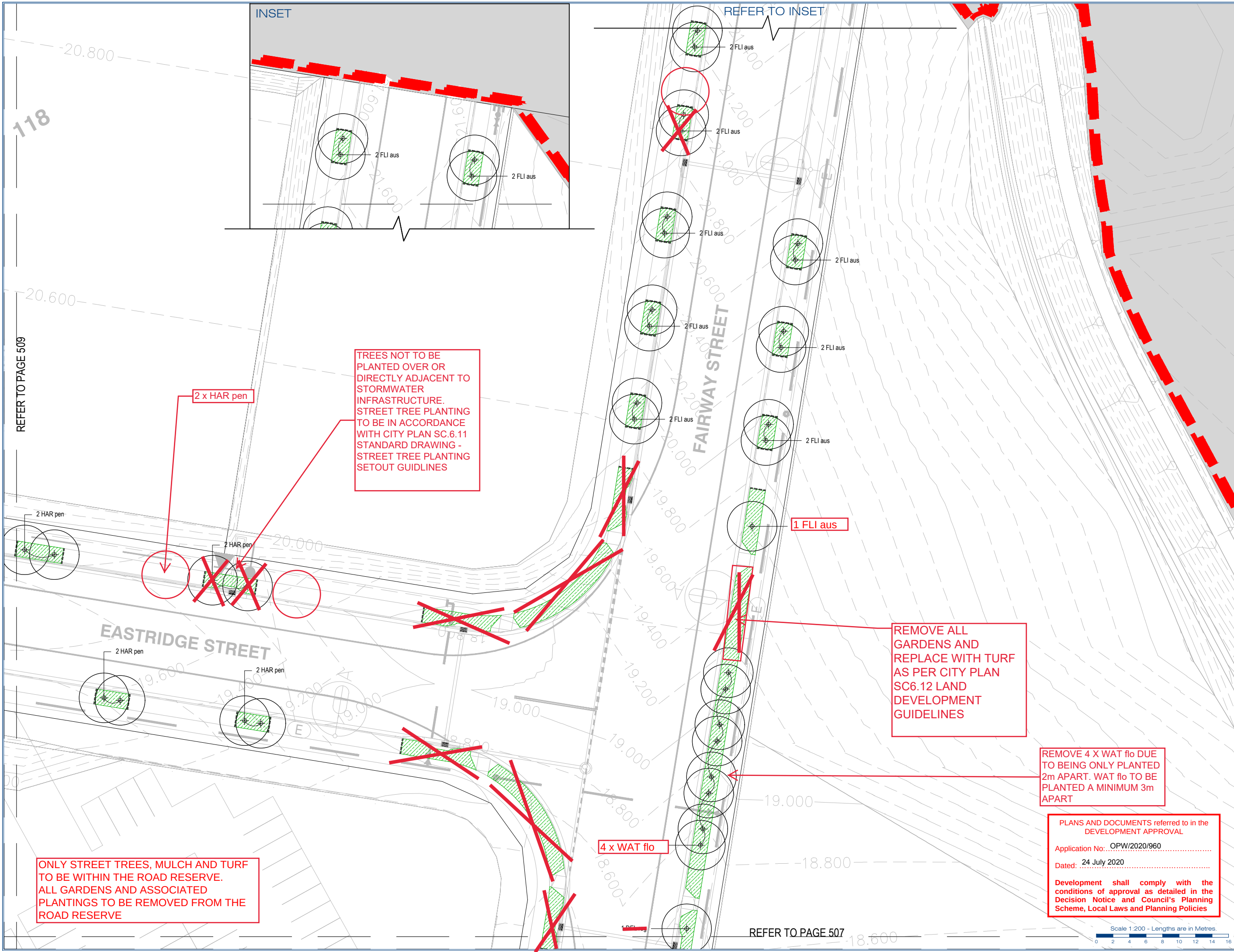
Drawn: J. Swanepoel

Checked:	M. Gassman
----------	------------

Date: 23-06-20

Drawing No: 507 Rev. No: A

Scale 1:200 - Lengths are in Metres.



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Client:
**FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.**

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:

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LEGEND

T1: Turf	OT: Garden Beds	Trees
B1: Better Planting	Basin Mix 1	Basin Mix 2
TE: HWD Timber Edge	Stage Boundary	

Associated Consultants:

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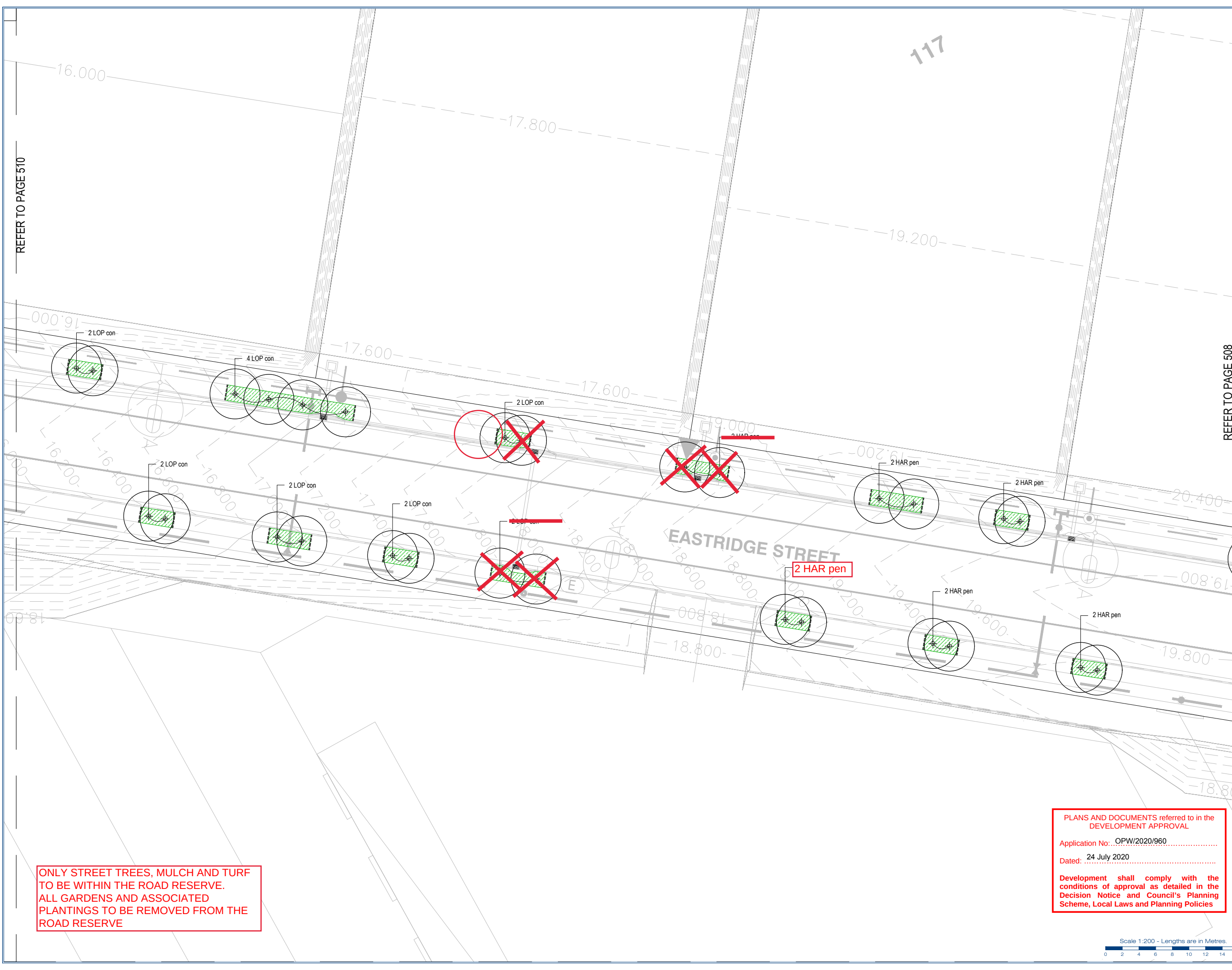
Drawing Title:
**PLANTING PLAN
TREES**

No.	Date	Description	By	Check
1	24 July 2020	Issue for Approval	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 508
Rev. No: A



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Client:
FRASERS PROPERTY (AUSTRALIA) PTY. LTD.

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**

Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
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Notes:
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LEGEND

T1: Turf	OT: Garden Beds	Trees
B1: Better Planting	Basin Mix 1	Basin Mix 2
TE: HMO Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:
**PLANTING PLAN
TREES**

No.	Date	Description	By	Scale
1	23-06-20	FOR COUNCIL APPROVAL	J. Swanepoel	1:200

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20
Drawing No:	509
Rev. No:	A

**ONLY STREET TREES, MULCH AND TURF TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED PLANTINGS TO BE REMOVED FROM THE ROAD RESERVE**

PLANS AND DOCUMENTS referred to in the DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

Scale 1:200 - Lengths are in Metres.

REFER TO PAGE 509

**PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL**

Application No: OPW/2020/960

Dated: 24 July 2020

**Development shall comply with the
conditions of approval as detailed in the
Decision Notice and Council's Planning
Scheme, Local Laws and Planning Policies**



Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

FENCE TO BE INSTALLED
ON BOUNDARY BETWEEN
PUBLIC AND PRIVATE
LAND. FENCE TO BE AS
PER CONDITION 14.

REFER TO PAGE 512

ONLY STREET TREES, MULCH AND TURF
TO BE WITHIN THE ROAD RESERVE.
ALL GARDENS AND ASSOCIATED
PLANTINGS TO BE REMOVED FROM THE
ROAD RESERVE

REFER TO PAGE 510

Scale 1:200 - Lengths are in Metres.



Client:
**FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.**

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**
Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
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Notes:
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 - Street lights: 7.5m
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Associated Consultants:

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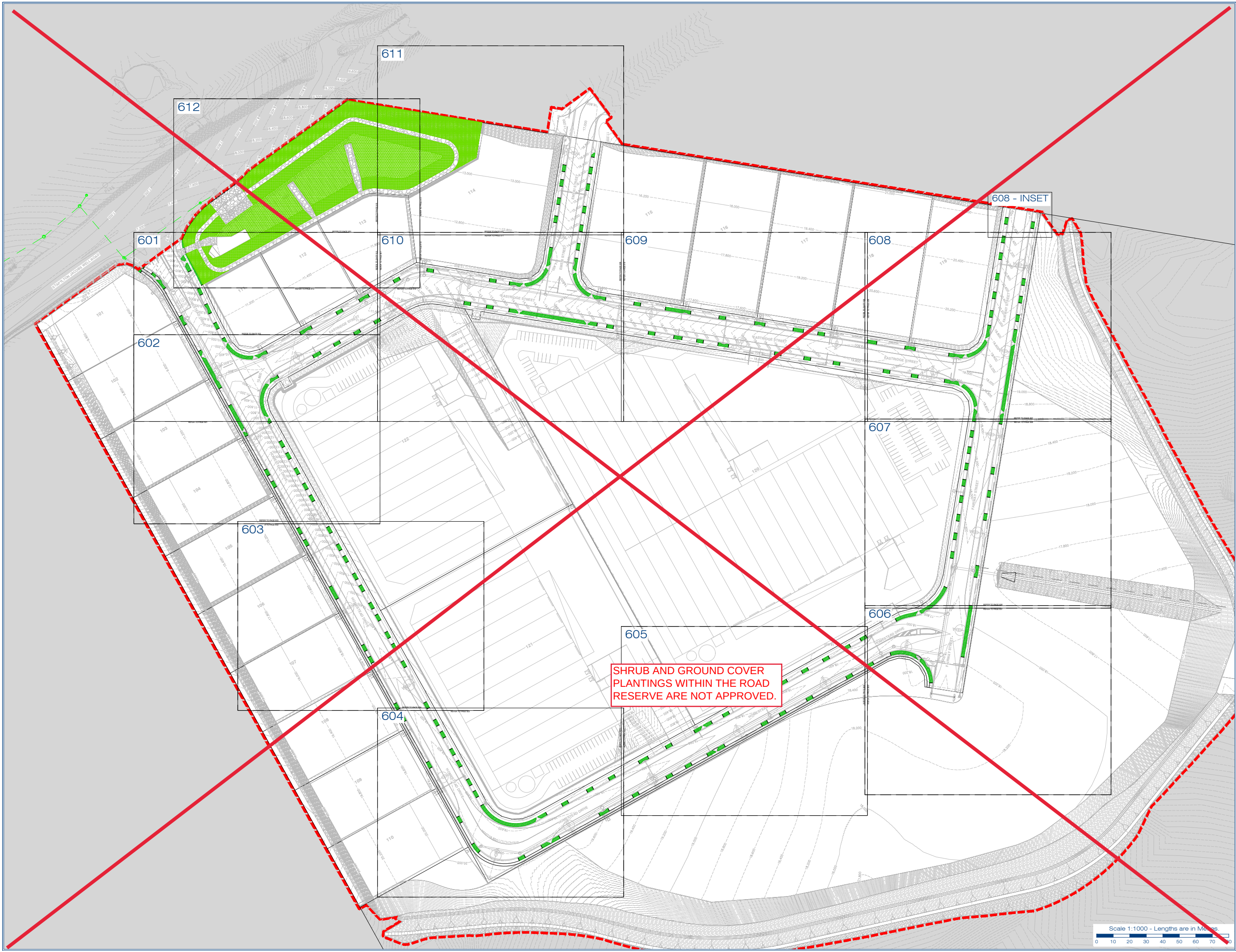
Drawing Title:
**LANDSCAPE SHRUBS &
GROUND COVERS PLANTING
PLAN
GENERAL ARRANGEMENT PLAN**

Rev	Date	Description	By	Check
1	23-06-20	FOR CDR APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: **1:1000**

Designed: **J. Swanepoel**
Drawn: **J. Swanepoel**
Checked: **M. Gassman**
Date: **23-06-20**

Drawing No: **600** Rev. No: **A**



**SHRUB AND GROUND COVER
PLANTINGS WITHIN THE ROAD
RESERVE ARE NOT APPROVED.**

Scale 1:1000 - Lengths are in Metres.
0 10 20 30 40 50 60 70 80



REFER TO PAGE 610



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FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:
60 STAPYLTON JACOBS WEL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

WARNING
BEWARE OF UNDERGROUND
SERVICES

GENERAL NOTES

LEGEND

Associated Consultants:

Drawing Title:

A	20-05-28		FOR OPW APPROVAL	JF
	Date:			Firm

Scale at A1: 1:200

Designed:	J. Swanepoel
-----------	--------------

Drawn:	J. Swanepoel
--------	--------------

Checked:	M. Gassman
----------	------------

Date:	23-06-20
-------	----------

Drawing No: Rev. No

603 A

Scale 1:200 - Lengths are in Metres.

Scale 1:200 - Lengths are in Metres



Site Address:
60 STAPYLTON JACOBS V
ROAD, STAPYLTON,
82 CHRISTENSEN ROA
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

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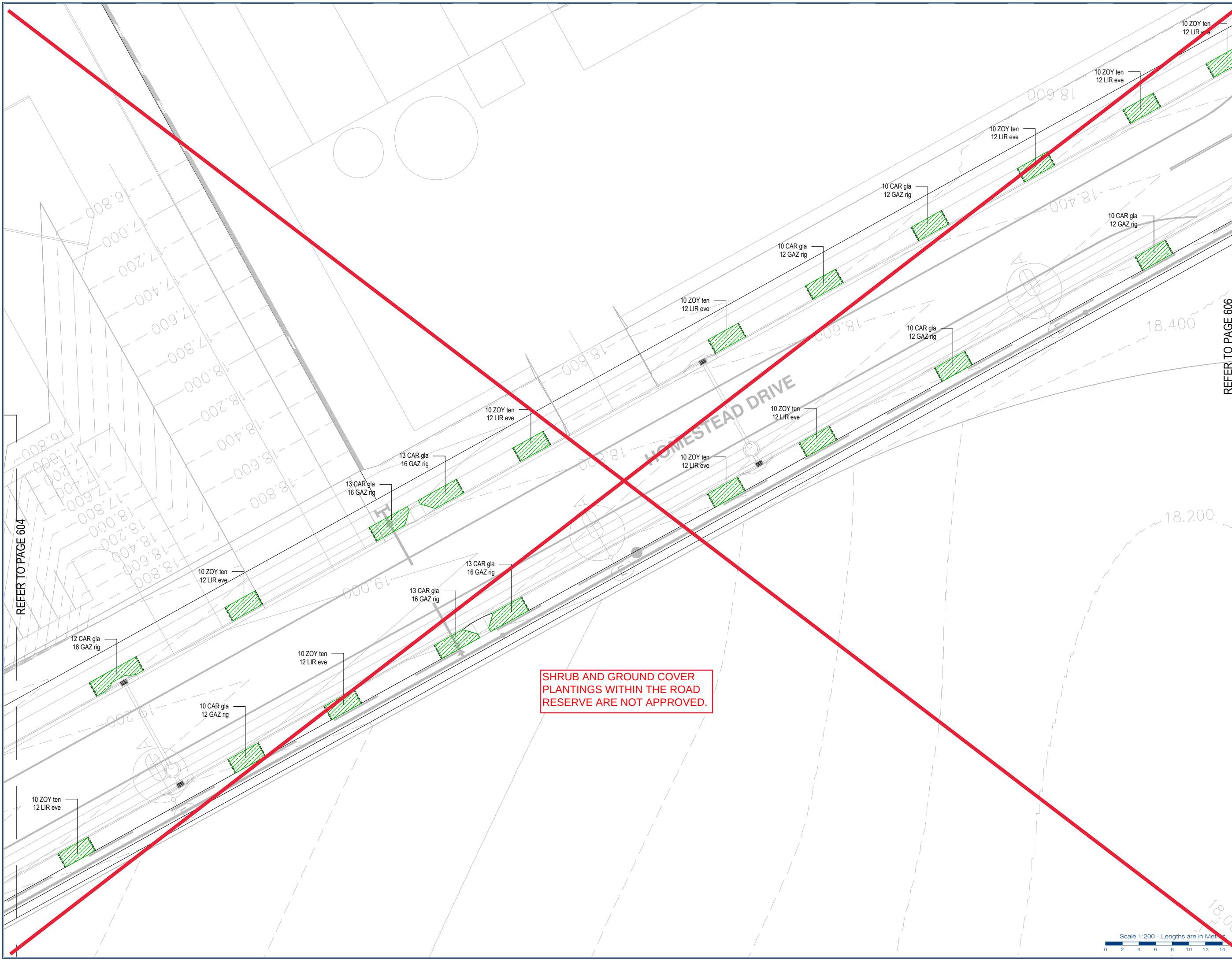
1. Before commencement of works it is the responsibility of the Landscape Contractor to inform before you dig (ph. 1100 or web 1100.co.nz) information on services in the area shown on the plan.
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 - Street lights: 7.5m
8. Construction certification for all structural work to be provided prior to practical completion of the project.

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A	20-06-26	FOR OPW APPROVAL
Issue	Patch	Description

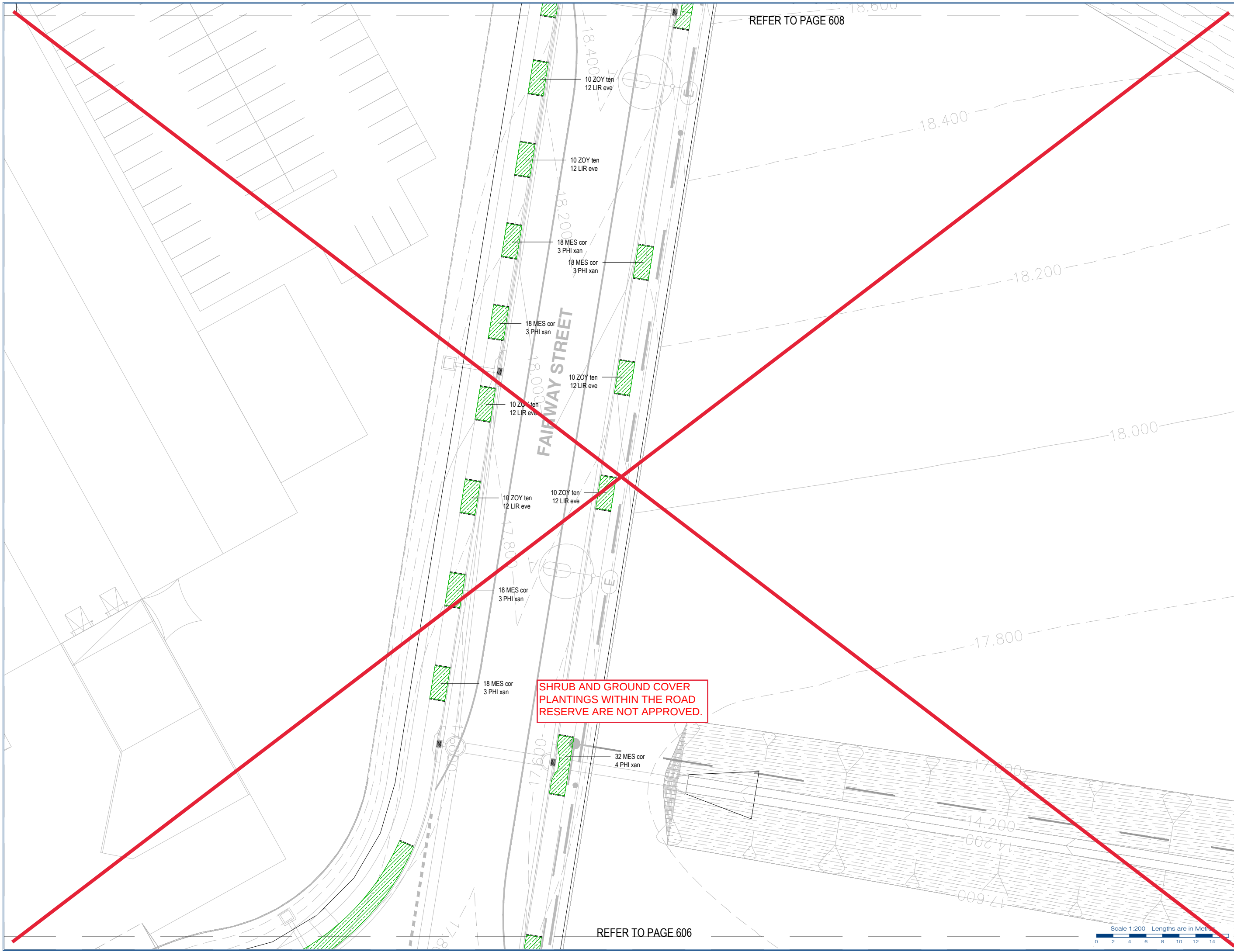
Date: 23-06-20

Drawing No: 605





A horizontal number line with tick marks at intervals of 2, labeled 0, 2, 4, 6, 8, 10, 12, 14, and 16. A red arrow points to the tick mark for 15, which is halfway between 14 and 16.



REFER TO PAGE 608

REFER TO PAGE 606

Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

Notes:

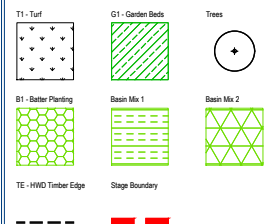
WARNING
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LEGEND



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Drawing Title:

PLANTING PLAN
SHRUBS & GROUND
COVERS

Rev	Date	Description	By	Check
1	23-06-20	FOR OWNER APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed: J. Swanepoel

Drawn: J. Swanepoel

Checked: M. Gassman

Date: 23-06-20

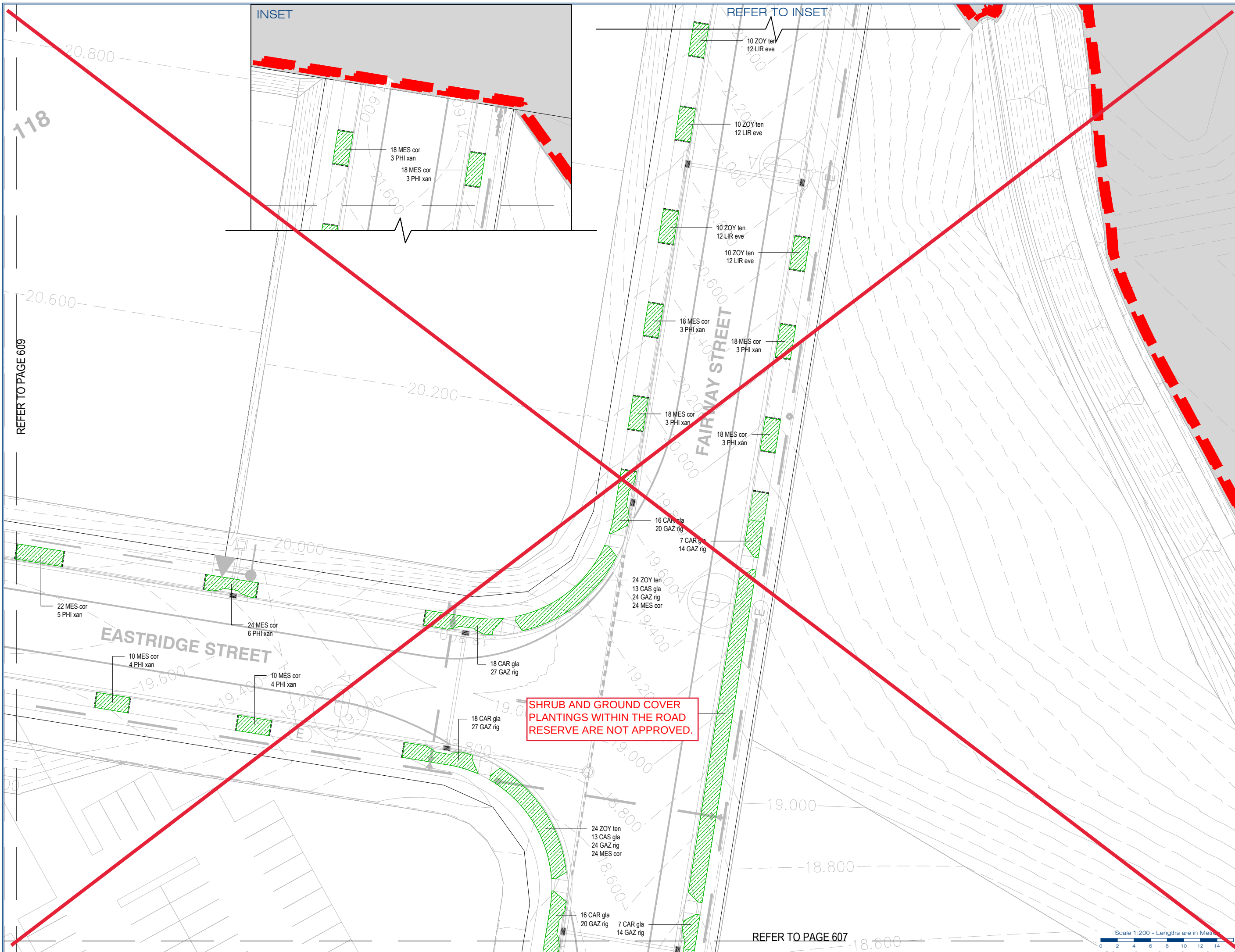
Drawing No:

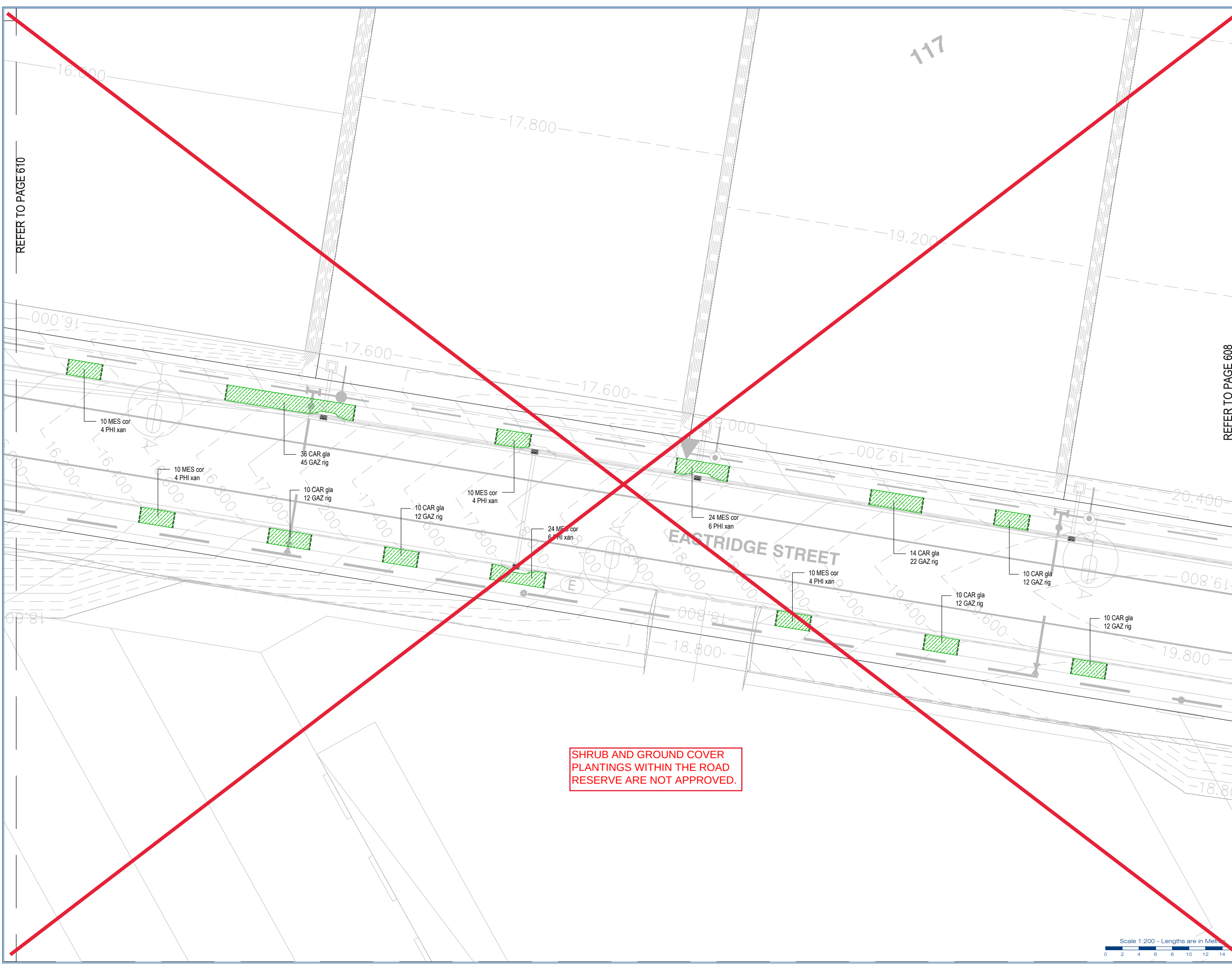
607

Rev. No:

A

Scale 1:200 - Lengths are in Metres
0 2 4 6 8 10 12 14





REFER TO PAGE 610

REFER TO PAGE 608

SHRUB AND GROUND COVER
PLANTINGS WITHIN THE ROAD
RESERVE ARE NOT APPROVED.

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Access Business Park | 70 Business Street, Yatala QLD

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Project:
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SERVICES**

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Determination of the exact position and extent of underground services is the responsibility of the Contractor and is to be confirmed on site prior to commencement of work.

GENERAL NOTES

1. Before commencement of works it is the responsibility of the Landscape Contractor to contact dial before you dig (ph. 1100 or web 1100.com.au) for information on services in the area shown on the plan.
2. The Contractor shall verify the location and depth of all services prior to commencing on site.
3. The Contractor shall be liable for any damage to services during landscape works.
4. The Contractor shall verify the location of any existing trees shown to be retained and protect them during works.
5. All trees shall be planted in locations shown on the plan.
6. Any change to plant species must have the approval of the Landscape Architect.
7. Trees shall be planted no less than the following distances from landscape elements:
• Footpaths: 0.6m
• Driveways: 3.0m
• Stormwater & sewerage pits: 2.0m
• Intersections: 10.0m
• Service crossings: 2.0m
• Kurb & Channel: 0.6m
• Street lights: 7.5m
8. Construction certification for all structural elements is to be provided prior to practical completion being granted.

LEGEND

T1 - Turf
G1 - Garden Beds
Trees
B1 - Better Planting
Basin Mix 1
Basin Mix 2
TE - HMD Timber Edge
Stage Boundary

Associated Consultants:

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Drawing Title:
**PLANTING PLAN
SHRUBS & GROUND
COVERS**

Rev	Date	Description	By	Appr
1	23-06-20	FOR CLIENT APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: 1:200

Designed: J. Swanepoel
Drawn: J. Swanepoel
Checked: M. Gassman
Date: 23-06-20

Drawing No: 609
Rev. No: A

Scale 1:200 - Lengths are in Metres

0 2 4 6 8 10 12 14

REFER TO PAGE 611

REFER TO PAGE 612

REFER TO PAGE 609

SHRUB AND GROUND COVER
PLANTINGS WITHIN THE ROAD
RESERVE ARE NOT APPROVED.

Scale 1:200 - Lengths are in Metres





gassman
development
perspectives

planning | environment | landscape | engineering | survey

T: 3807 3323 | F: 3267 5461 | www.gassman.com.au

Access Business Park | 70 Business Street, Yatala QLD

Client:

FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.

Project:

VANTAGE YATALA
STAGE 1 STREETScape

Site Address:

60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON

Notes:

WARNING
BEWARE OF UNDERGROUND
SERVICES

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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Better Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

Associated Consultants:

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Drawing Title:
PLANTING PLAN
SHRUBS & GROUND
COVERS

No.	Date	Description	By	Scale
1	23-06-20	FOR CLIENT APPROVAL	J. Swanepoel	1:200

Scale at A1: 1:200

Designed:	J. Swanepoel
Drawn:	J. Swanepoel
Checked:	M. Gassman
Date:	23-06-20

Drawing No: 611 Rev. No: A

Client:
**FRASERS PROPERTY
(AUSTRALIA) PTY. LTD.**

Project:
**VANTAGE YATALA
STAGE 1 STREETScape**
Site Address:
**60 STAPYLTON JACOBS WELL
ROAD, STAPYLTON,
82 CHRISTENSEN ROAD,
STAPYLTON AND 31
YELLOWWOOD ROAD,
STAPYLTON**

Notes:
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SERVICES**

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LEGEND

T1 - Turf	G1 - Garden Beds	Trees
B1 - Batter Planting	Basin Mix 1	Basin Mix 2
TE - HWD Timber Edge	Stage Boundary	

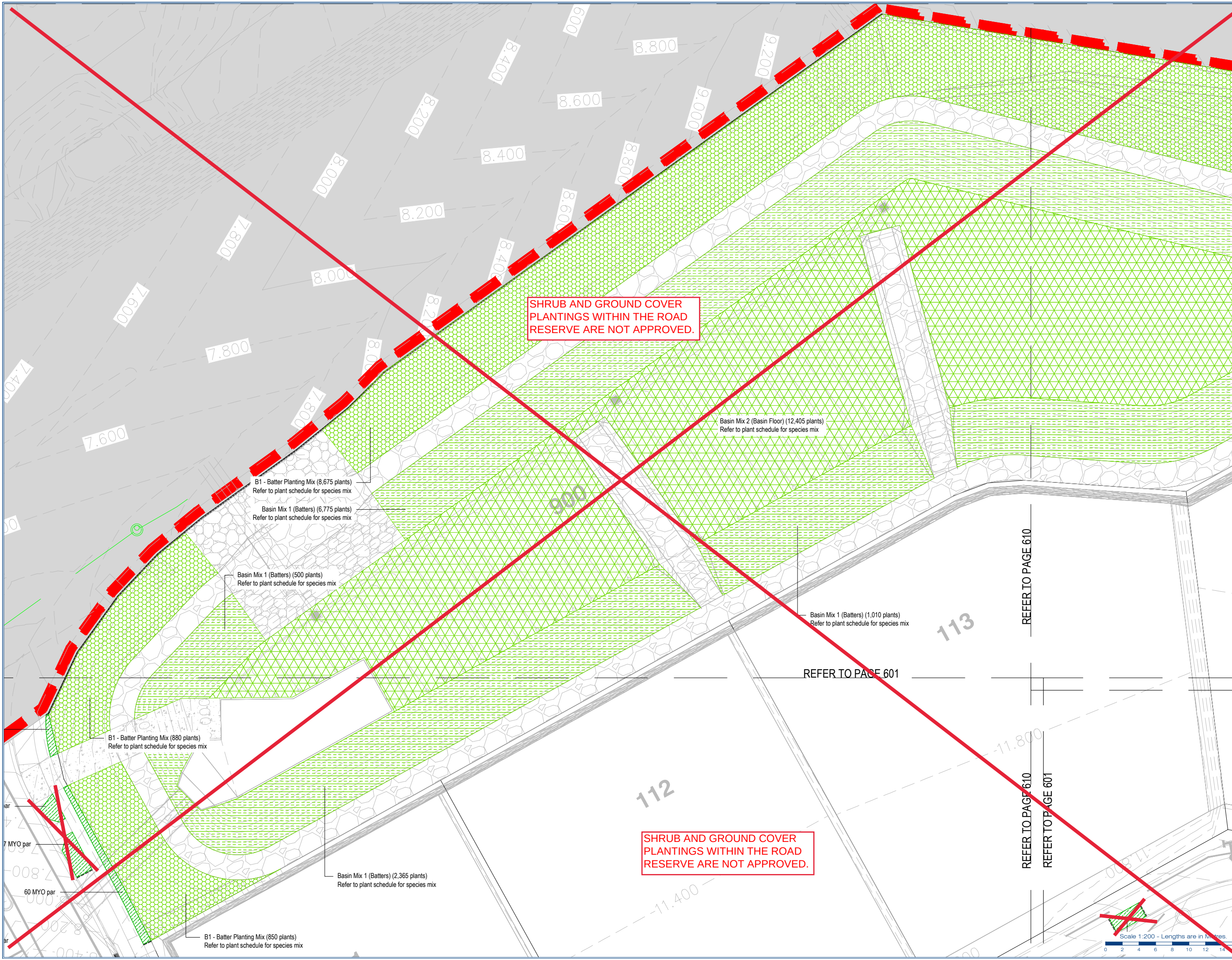
Associated Consultants:

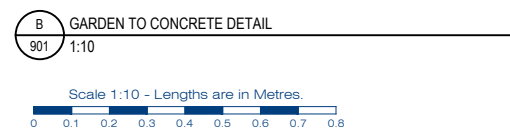
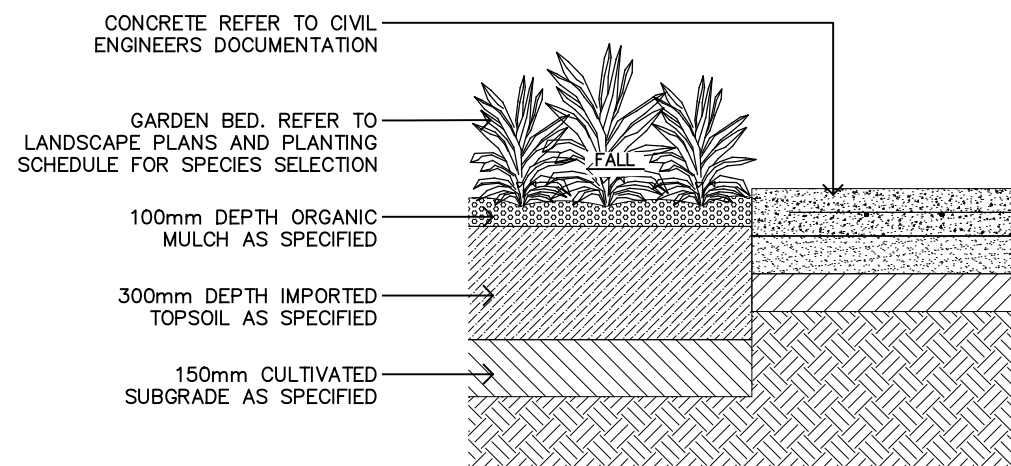
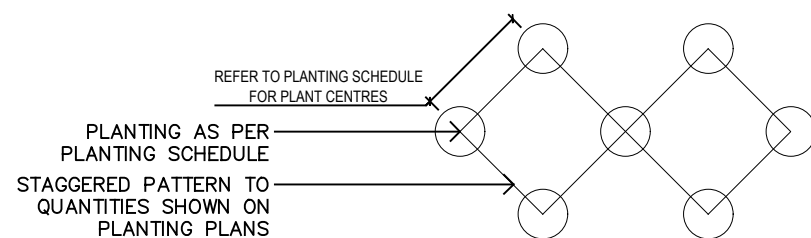
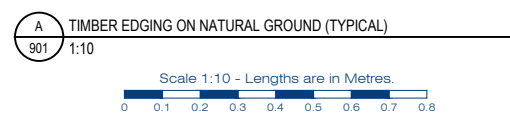
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Drawing Title:
**PLANTING PLAN
SHRUBS & GROUND
COVERS**

Rev	Date	Description	By	Check
1	23-06-20	FOR OWNER APPROVAL	J. Swanepoel	M. Gassman

Scale at A1: 1:200
Designed: J. Swanepoel
Drawn: J. Swanepoel
Checked: M. Gassman
Date: 23-06-20
Drawing No: 612
Rev. No: A

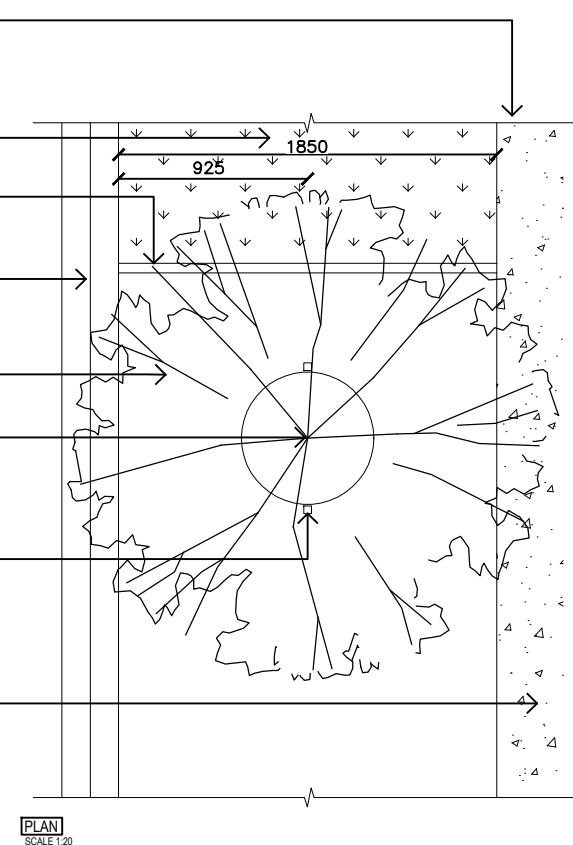




SPADE EDGE ONLY WITHIN PUBLIC
OPEN SPACE ROAD RESERVE

2xNo. 2400x50x50mm
TREATED HARDWOOD STAKES
AS SPECIFIED

ADJACENT CONCRETE FOOTPATH
BY OTHERS



PLAN
SCALE 1:20

PLANS AND DOCUMENTS referred to in the
DEVELOPMENT APPROVAL

Application No: OPW/2020/960

Dated: 24 July 2020

Development shall comply with the conditions of approval as detailed in the Decision Notice and Council's Planning Scheme, Local Laws and Planning Policies

CONTAINER TREE, REFER TO
PLANTING PLAN AND SCHEDULE

2400x50x50mm TREATED
HARDWOOD STAKE – DO NOT
PENETRATE ROOTBALL WITH STAKE.
STAKE TO PENETRATE 600mm
INTO SOIL PROFILE

NYLON/HESSIAN TIES
STAPLED TO STAKE

MAINTAIN MINIMUM 50mm
SEPARATION BETWEEN ORGANIC
MULCH AND TRUNK/STEM OF

ROAD WAY AND KERB CHANNEL-
REFER TO CIVIL ENGINEERS DETAILS

ORGANIC MULCH AS SPECIFIED.

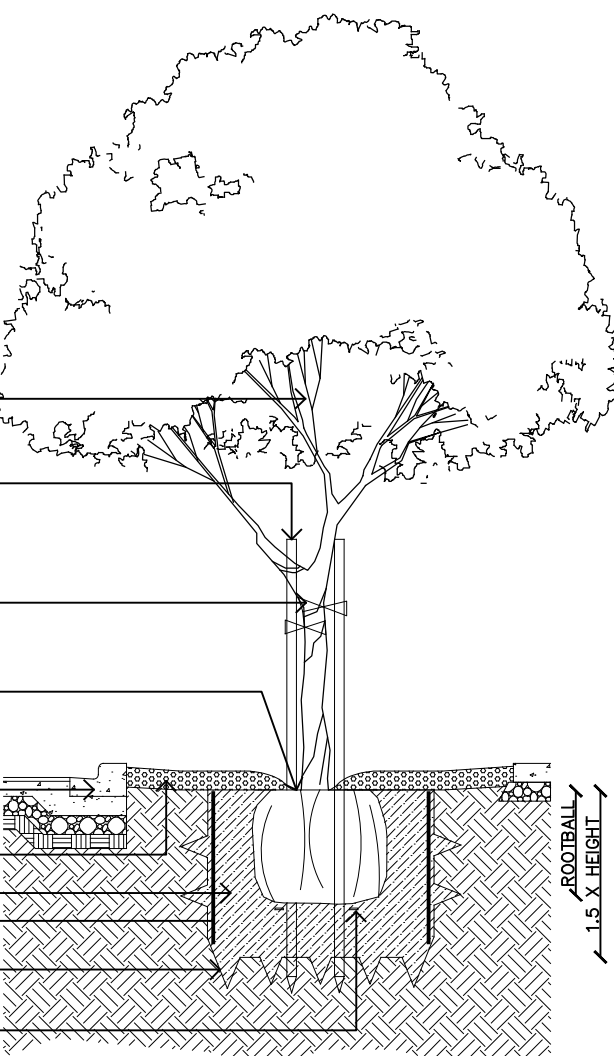
TOPSOIL AS SPECIFIED:

ROOT CONTROL BARRIER-
AS SPECIFIED

CULTIVATED SUBGRADE:

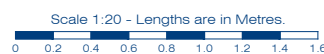
AS SPECIFIED

FERTILISER AS SPECIFIED:



SECTION
SCALE 1:20

C TYPICAL STREET TREE DETAIL



Associated Consultants:

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Drawing Title:

LANDSCAPE DETAILS

[illegible]

Issue	Date	Description
Scale at A1: AS SHOWN		

Designed:	J. Swanepoel
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Drawn:	J. Swanepoel
--------	--------------

Checked:	M. Gassman
----------	------------

Date: 23-06-20

Drawing No:	Rev. No:
901	A



Appendix D – Bioretention Basin Maintenance Checklist

BIORETENTION BASIN CONSTRUCTION INSPECTION CHECKLIST											
Asset I.D.					Inspected By:						
Site:					Date:						
					Time:						
Constructed By:					Weather:						
					Contact During Visit:						
Items inspected		Checked		Satisfactory		Items inspected		Checked		Satisfactory	
		Y	N	Y	N			Y	N	Y	N
DURING CONSTRUCTION & ESTABLISHMENT											
A. FUNCTIONAL INSTALLATION						Structural components					
Preliminary Works						15. Location and configuration of inflow systems as designed					
1. Erosion and sediment control plan adopted						16. Location and levels of overflow pits as designed					
2. Temporary traffic/safety control measures						17. Under-drainage connected to overflow pits as designed					
3. Location same as plans						18. Concrete and reinforcement as designed					
4. Site protection from existing flows						19. Set down to correct level for flush kerbs (streetscape applications only)					
Earthworks and Filter Media						20. Kerb opening width as designed					
5. Bed of basin correct shape and slope											
6. Batter slopes as plans						B. SEDIMENT & EROSION CONTROL (IF REQUIRED)					
7. Dimensions of bioretention area as plans						21. Stabilisation immediately following earthworks and planting of terrestrial landscape around basin					
8. Confirm surrounding soil type with design						22. Silt fences and traffic control in place					
9. Confirm filter media specification in accordance with Step 4						23. Temporary protection layers in place					
9. Provision of liner (if required)											
10. Under-drainage installed as designed						C. OPERATIONAL ESTABLISHMENT					
11. Drainage layer media as designed						24. Temporary protection layers and associated silt removed					
12. Transition layer media as designed (if required)						Vegetation					
14. Extended detention depth as designed						25. Planting as designed (species and densities)					
						26. Weed removal and watering as required					
FINAL INSPECTION											
1. Confirm levels of inlets and outlets						6. Check for uneven settling of banks					
2. Confirm structural element sizes						7. Under-drainage working					
3. Check batter slopes						8. Inflow systems working					
4. Vegetation as designed						9. Maintenance access provided					
5. Bioretention filter media surface flat and free of clogging											
COMMENTS ON INSPECTION											
ACTIONS REQUIRED											
Inspection officer signature:											

BIORETENTION BASIN MAINTENANCE CHECKLIST				
Inspection Frequency:	1 to 6 monthly	Date of Visit:		
Location:				
Description:				
Asset I.D.				
Site Visit by:				
INSPECTION ITEMS:	Y	N	Action Required (details)	
Sediment accumulation at inflow points?				
Litter within basin?				
Erosion at inlet or other key structures?				
Traffic damage present?				
Evidence of dumping (e.g. building waste)?				
Vegetation condition satisfactory (density, weeds etc)?				
Watering of vegetation required?				
Replanting required?				
Mowing/slashing required?				
Clogging of drainage points (sediment or debris)?				
Evidence of ponding?				
Damage/vandalism to structures present?				
Surface clogging visible?				
Drainage system inspected?				
Resetting of system required?				
COMMENTS				

BIORETENTION BASIN ASSET TRANSFER CHECKLIST			
Asset I.D.			
Asset Location:			
Construction by:			
'On-maintenance' Period:			
TREATMENT	Y	N	
System appears to be working as designed visually?			
No obvious signs of under-performance?			
MAINTENANCE	Y	N	
Maintenance plans and indicative maintenance costs provided for each asset?			
Vegetation establishment period completed (2 years)?			
Inspection and maintenance undertaken as per maintenance plan?			
Inspection and maintenance forms provided?			
ASSET INSPECTED FOR DEFECTS AND/OR MAINTENANCE ISSUES AT TIME OF ASSET TRANSFER	Y	N	
Sediment accumulation at inflow points?			
Litter within basin?			
Erosion at inlet or other key structures?			
Traffic damage present?			
Evidence of dumping (e.g. building waste)?			
Vegetation condition satisfactory (density, weeds etc)?			
Watering of vegetation required?			
Replanting required?			
Mowing/slashing required?			
Clogging of drainage points (sediment or debris)?			
Evidence of ponding?			
Damage/vandalism to structures present?			
Surface clogging visible?			
Drainage system inspected?			
COMMENTS/ACTIONS REQUIRED FOR ASSET TRANSFER			
ASSET INFORMATION	Y	N	
Design Assessment Checklist provided?			
As constructed plans provided?			
Copies of all required permits (both construction and operational) submitted?			
Proprietary information provided (if applicable)?			
Digital files (e.g. drawings, survey, models) provided?			
Asset listed on asset register or database?			