

Style Guide: Engineering Subdivision

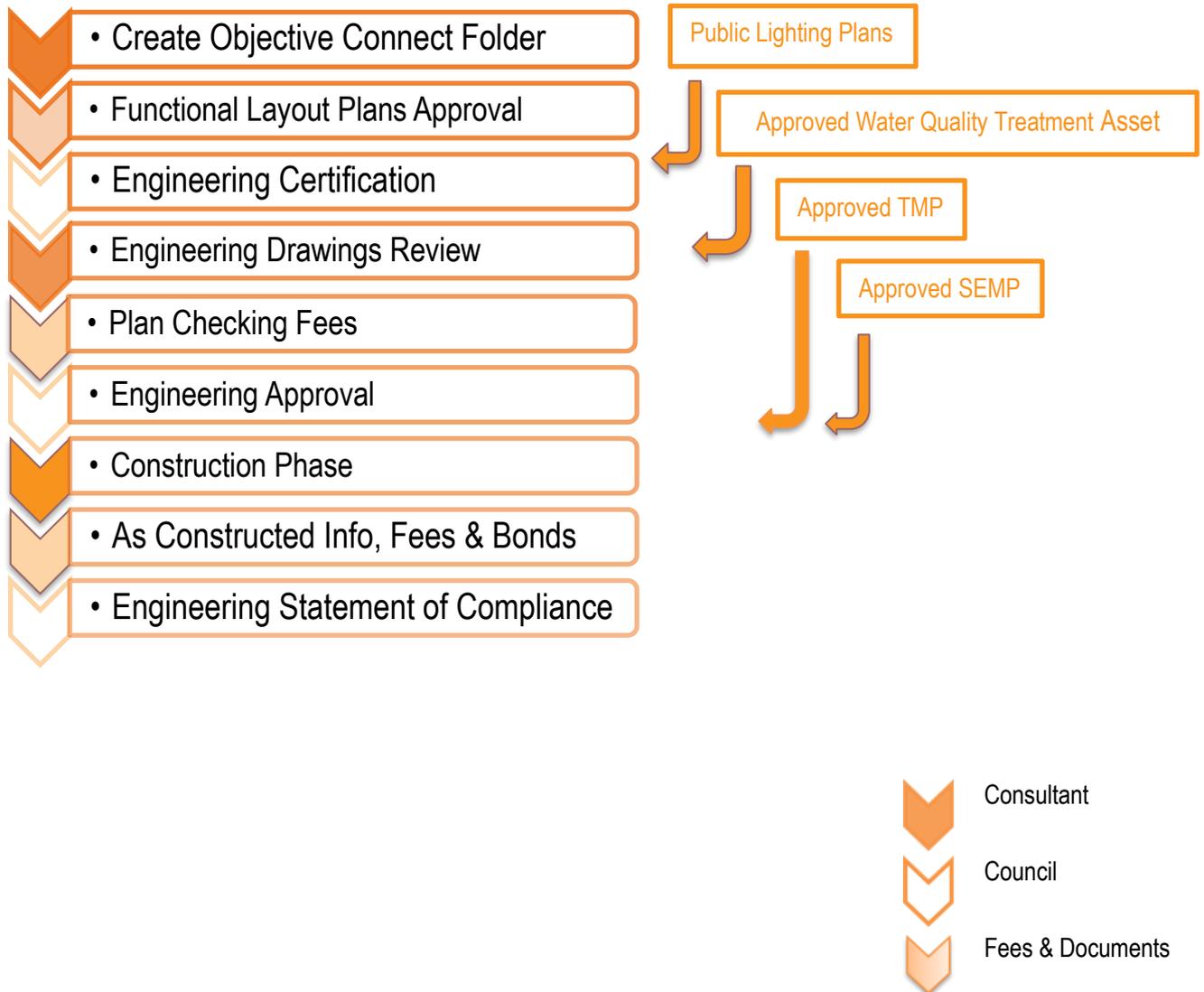
Check Sheets & Processes



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ENGINEERING SUBDIVISION PROCESS IN A SNAPSHOT



Details of Engineering Subdivision processes are in the following pages.

Engineering Submissions Format

Create Objective Connect Share Folder

- Email subdiveng@wyndham.vic.gov.au with the following information
 - Permit number: WYPXXXXX/YY, Estate Name & Stage number
 - Developer Details
 - Consultant Details

Functional Layout Plans

- Lodge plan of subdivision for certification in SPEAR
- Upload in Objective Connect Share folder: maximum two stages per submission, follow the **naming convention** as below
 - Estate name Stage XXX - Completed [submission form](#)
 - Estate name Stage XXX - Functional layout plans, bound to a **coloured single** PDF document
 - Estate name Stage XXX - Approved Storm Water Management Strategy
 - Estate name Stage XXX - Traffic Report
 - Estate name Stage XXX - Copy of **latest endorsed subdivision permit plan**
 - Estate name Stage XXX - Copy of **latest endorsed staging plan**
 - Estate name Stage XXX - Copy of Landscape plans if the subdivision stage contains any laneway and/or lot frontage less than 7.5m

Detailed Engineering Drawings

- Upload (separately) in Objective Connect Share folder; follow the **naming convention** as below @ only one stage per submission
 - Estate name Stage XXX - Completed [submission form](#)
 - Estate name Stage XXX - Combined road and drainage drawings (**coloured single document**)
 - Estate name Stage XXX - Water main reticulation plans (single document)
 - Estate name Stage XXX - Sewer main reticulation plans (single document)
 - Estate name Stage XXX - Drainage computations and catchment plans (single document)
 - Estate name Stage XXX - Approved Functional Layout Plans
 - Estate name Stage XXX - Geotechnical Report and Pavement Design
 - Estate name Stage XXX - Copy of **latest endorsed permit plan**
 - Estate name Stage XXX - Copy of **latest endorsed staging plan**
 - Estate name Stage XXX - Approved Storm Water Management Strategy
- Plan of Subdivision **must be approved** prior to approval of Engineering Drawings

Resubmissions & Amendments to Approved Drawings

- Quote SDW/FLP number on resubmissions/amendments (refer acknowledgement letter)
- Cover letter/email with description of amendments
- **Revision clouds: EDCM 6.8.1**
- Updated title block with description of revision and version of the drawing
- Upload in Objective Connect

Public Lighting Plans

- Submit to subdiveng@wyndham.vic.gov.au
- Naming Convention: Estate name Stage XXX

Water Quality Treatment Asset Plans

Submit Water quality treatment assets, Waterways, Melbourne Water Drainage Service Scheme Designs to subdiveng@wyndham.vic.gov.au

Alternatively, upload in Objective Connect folder.

Note:

Please send all communication related to submissions to subdiveng@wyndham.vic.gov.au only.

Check Sheet for Functional Layout Plan Review

Functional Layout Plans must comply with:

1. Endorsed Subdivision Layout
 - Road layout
 - Stage boundaries & lot orientation
 - Road reserve widths & cross sections if any
 - Shared paths, bike lanes, off road bike paths
 - All notations
2. Planning Permit Conditions
 - Responsible Authority conditions
 - Department of Transport (DoT) conditions & approvals
 - Melbourne Water conditions
 - PTV conditions
 - Specific Planning Permit Conditions to be satisfied prior to issue of Statement of Compliance of specific stages
3. Storm Water Management Strategy (SWMS)
 - Melbourne Water approval
 - Council approval
 - Melbourne Water Scheme Drains
 - Water Quality Treatment Assets
4. Precinct Structure Plan (PSP)
 - Road cross sections including retaining walls, dry stone walls or fences if any
 - Relevant requirements, conditions & guidelines
 - Trunk services for utilities
 - Any specific offsets: grassland, conservation area, rail interface, quarry zone
5. Engineering Design & Construction Manual (EDCM)
 - Service offsets
 - Guidelines for off road bicycle paths at intersections
6. Development Contributions Plan (DCP)
 - Ultimate footprint of road reserves, intersections, bridges, culverts
 - Cross section elements
7. Intersections
 - DoT approval required for:
 - Functional Layout Plans for signalised intersections: interim and ultimate as applicable. Footprint to achieve ultimate layout
 - Functional Layout Plans for all intersections with arterial roads/major roads
 - Functional Layout Plans as nominated elsewhere in the permit
 - Minimum kerb return radii 8.0m
 - Pram crossings & footpaths
 - At all road intersections, provide footpath connectivity via pram crossings to assist pedestrians crossing in all directions
 - Pram crossings must be aligned along the direction of the footpath, must comply with EDCM403 and at maximum grade 1:14 for DDA compliance.
 - Tactile Ground Surface Indicators (TGSi) at all pram crossings. Refer AS1428, [Council specifications on website](#) and Refer [Appendix I](#)

- Pram crossings must remain dry in storm events
 - Efficient connections to parks, active open space, schools, town centre, community facilities, drainage reserves, shared path networks
 - Footpath link to bus stops from both sides of the road including 2.4m x 1.5m (minimum) pedestrian refuge in splitter islands
 - Footpath on both sides of all roads including those abutting reserves, creeks/waterways unless specified otherwise
 - Turning template (in colour), according to *Austrroads Design Vehicles and Turning Templates Guide* for
 - 8.8m Service trucks at all intersections (complying with Table 4.1.4 *Austrroads Design Vehicles and Turning Templates Guide*)
 - 19.5m Semi-trailers in connector road and above
 - Service truck at roundabouts without mounting the apron
 - Ultra-low floor buses on bus capable roads
 - Access and egress from parking bays in extended driveways
 - Deflection curve/Speed curve radii at roundabouts to achieve minimum speed reduction of 15kmph
8. Road layout with street names, lot dimensions, lot areas, lot numbers & road reserve width
- Local Area Traffic Management (LATM) devices
 - At every 200m of straight stretch of all local roads
 - Between 200 - 400m spacing in connector streets
 - 6m flat top speed humps on bus capable roads
 - Raised pavements in roads abutting school sites to cater for future school crossings with kerb outstands 18m long at approach and 9m at departure
 - Reverse priority treatment not acceptable
 - Court bowls
 - Minimum 10.5m radii is the only acceptable treatment from Section 10.16 of EDCM
 - Intended parking bays @ back of kerb
 - 'No parking on bin collection days' signage
 - Temporary turning bowl of 10.5m diameter at the end of temporary road ends within the same estate. Turning bowls if proposed in adjacent property, must be covered with carriage way easement in favour of Council.
 - Written consent from adjacent property owner to construct temporary turning area or discharge storm water/overland flow where required
 - Works external to the subdivision including both interim and ultimate access arrangements
 - Provision of notional on street parking for all lots at the rate of one car space per dwelling
 - Preliminary location of reserves for electrical kiosks
9. Bike lanes/off road bike paths: PSP, EDCM, Endorsed subdivision permit plan
- Refer [Cycling Aspects of Austrroads Guides](#) and
 - Refer [Vicroads Bicycle Infrastructure Design](#) for bike path alignment, signage and details
10. Topography and existing features, including contours for the subject land
11. Typical cross section road with location of services
- Local roads: EDCM standard kerbs (B2, SM2, M2) to be 600mm wide
 - Minimum carriage way width:
 - Service road/one-way road: 5.5m face to face
 - Loop road: 6.5m face to face
 - At bends: 7.3m face to face

- Lane ways
 - One side loaded: minimum 7m road reserve width with 5.5m pavement width
 - Both sides loaded: minimum 8.5m road reserve width with 5.5m pavement width
 - Laneway cross sections
 - Must comply with Council Standard Drawings Refer [Appendix I](#)
 - Utility services and connections from road/paper road frontage preferred
 - House drain connections, if required, must be provided with Fitzroy boxes within concrete driveway/laneway for inspection. Refer [Appendix I](#)
 - Paper roads
 - Minimum width 4m, all utility services within the road reserve. Refer [Appendix I](#)
 - Public lighting to Australian standards, poles located within the road reserve of paper road
 - Other elements according to relevant PSP and EDCM
 - Retaining walls in waterways/conservation reserves/drainage reserves must be part of engineering drawings and included in abutting road cross sections
12. Location of existing infrastructure, utility mains, power poles
13. Lots
- Crossover
 - One per lot
 - Double crossover when one lot frontage is <10.5m to achieve 7m between crossovers
 - One on street parking per lot within 20m of lot frontage
 - Minimum of at least one street tree every 10m must be provided along both sides of the street to provide continuous canopies and shaded sidewalks, nominated by 3m diameter 'tree ring' clear off any service connections/conduits
 - Refer [Council's Tree and Urban Forest Policy 2021](#)
 - Refer [Wyndham Canopy Cover and Landscape Report - Greenspace Consultant | Wyndham City](#)
 - House drain connection, into the drainage system (easement drains must be avoided as far as practical)
 - Minimum clearances as in EDCM 501/502
 - Concrete pads: 2m x 1m per lot for lots accessed from extended driveways, for placing garbage bins
 - Retaining walls if required, provide within the lot, not in road reserve
 - Landscaping preliminary design submission if smaller lots of less than 7.5m road frontage (permit condition)
14. Reserves
- Drainage connection & all utility services: refer planning permit conditions
 - Open space reserves: service provisions of appropriate size at Council nominated locations. Refer to Council's Active Open Space/ Sport & Recreation Teams
 - No substations in open space unless accepted by Council's Landscape Urban Design Subdivisions Teams.
 - No service easements in reserves and open spaces unless accepted by Council's Open Space Unit
 - Fencing for lots abutting reserves, Regional Rail interface, open spaces and tree reserves
 - Preliminary landscape plans with alignment of footpaths, shared paths and bike paths (as applicable), cutting/filling features and public lighting pole locations. Refer Council's [Landscape Development Levels of Service](#)
 - All footpath/shared path/bike path and any other civil infrastructure items in Passive Open Spaces and Drainage Reserves

15. Drainage

- Proposed minor drainage network
- Proposed major drainage system including outfall drains, wetlands and/or waterways
- Overland flow paths (100 year ARI) to indicate how excess runoff will be safely conveyed to its destination
- Free flowing outlet for each stage
- Treatment facility as in approved SWMS
- External catchments contributing to the flows
- Drainage crossing across arterial roads to convey flows up to and including 100 year storm events
- If stormwater discharge from drainage or overland flow is directed to adjacent lots, formal agreement to the effect with the adjacent property owner
- Legal point of discharge for all allotments, including reserves, at the lowest point. Refer EDCM701
- Drainage in rear easements not desirable. Ideally, provide drainage in road reserve.
- At intersections, provide pits at both ends of tangent points

Check sheet for Engineering Drawings: General

1. General items
 - Locality plan
 - PSM
 - Drawing legend
 - General notes and construction details to conform with [updated Council specifications](#)
 - Fill over 200mm depth: Level 1 supervision reports according to AS:3798
 - Existing trees must be retained unless agreed by relevant unit in Council
2. Layout
 - Road layout, lot boundaries, lot dimensions, lot numbers, splays, easement location and widths conforming with [approved FLP](#)
 - Chainages including intersection points and tangent points
 - Road cross section match with the approved FLP
 - Footpaths/shared path as in approved FLP
 - Retaining walls
 - Temporary turning bowls at the end of roads. Refer [Appendix I](#)
 - Landscaping treatments: consult Council Landscape Subdivisions Unit for
 - Nature strips less than 1m width: extended driveways, intended parking bays, court bowls
 - Street network around Town Centres
 - Pram crossings with tactile pavers
 - Q100 water levels of developed flows in creeks/waterways/water quality assets
 - Existing: dams, depressions, trees, utility services, power poles
 - Conduits to all allotments
 - Typical cross section road with location of services
 - Concrete laneway/extended driveway: provide separate details for concrete jointing details (EDCM401 & 402) and SD2-5A with expansion joints at 12m maximum spacing
3. House drains
 - One per lot
 - Not under crossovers or parking bays
 - 0.75m offset from crossover
 - Pits not in crossovers, parking bays, pram crossings or other trafficable areas
 - No house drain connection to kerb & channel
4. Large lots: super lots, reserves, schools, future commercial lots
 - Drainage connection of sufficient size
 - All utility service connections
 - Open space reserves: service provision and location according to Council's Active Open Space Concept Layout Plans. Contact Open Space team
5. Cross over
 - No drainage pits/manholes/service pits
 - Achieve clearances with other services/infrastructure as in EDCM 501/502
 - Driveways/laneways trafficked by service trucks to be industrial standard
6. Signage & line marking: provide as separate sheet.
 - Shared path signage to comply with AS1742
 - Raised green bike path crossing signage and line marking to comply with Austroads and DoT specifications
 - Green **paint** on bike paths at locations of conflict with pedestrian crossings/accesses

- TGSIs according to AS1428. Refer [Appendix I](#)
- 7. Temporary end of road works treatment. Refer [Appendix I](#)
- 8. -Deleted-
- 9. Reserves
 - Industrial standard crossover with removable bollards, for all reserves: Refer Wyndham City Council Standard Drawings
 - Fence to abutting lots complying with SD11-5A
 - No services through reserves and no easements unless accepted by Council's Open Space Unit
 - Drainage & all utility service connections to all reserves: refer planning permit conditions. Refer Landscape and Urban Design Team
 - Passive Open Spaces & Drainage Reserves: All footpath, shared path, bike path and other civil infrastructure should be part of civil construction drawings and delivery
- 10. Water reticulation plans
 - Hydrant spacing $\leq 200\text{m}$
 - Serviceability of rear of lots within 120m from nearest hydrant
 - Minimum class 3 backfill
- 11. Sewer reticulation plans
 - Minimum class 3 achieving 98% M_{DD} backfill within road reserves
 - Comply with SD6-10 in joint easement trenches
- 12. Public lighting
 - Submission in **PDF version**, CAD optional only
 - Standard poles and lanterns
 - Design to category of lighting according to AS1158
 - **Lux plots** to demonstrate compliance to the design category of lighting. Refer AS1158 for latest lux requirements
 - LEDs only
 - VLED at LATMs
 - Public Lighting poles at the departure side of roundabouts
 - Public Lighting poles offsets from crossovers & parking bays(1m), property boundaries (5.7m)
 - Spacing to suit the road reserve width and mounting height
 - Lights along the same side of any road through multiple stages
 - One light within an intersection
 - Public Lighting for paper roads (4m roads), laneways
 - Power Conduits must achieve minimum **200mm cover below subgrade**
 - Marker tape must achieve **50mm minimum** cover below subgrade and can be within the construction layer. Refer EDCM202a. Provided sections must clearly indicate the cover achieved by marker tape and cables with the subgrade
 - **All cross sections** as shown on public lighting plans must achieve cover requirements for conduits and marker tape as nominated above
 - Demonstrate the width of electrical trench maintain minimum clearances and offsets with other utility services
 - Location of service connections to lots to be clear off the 3m dia tree rings as on approved FLP

Engineering Drawings: Roads, Pavement & Drainage

1. Longitudinal section
 - Standards, required information and presentation in accordance with EDCM
2. Cross section
 - PSP, approved FLP
 - Standards, required information and presentation in accordance with EDCM
 - Maximum permissible change of grade at crossover 13%
 - Retaining walls, dry stone walls
 - Shared paths in creeks/water ways/drainage reserve/conservation area abutting roads
 - Q100 water level plot for roads abutting creeks/water ways/ water quality assets
3. Roundabouts & Intersections
 - Signage & line marking
 - Off road bike path crossings
 - Contours and kerb profiles facilitate drainage
 - Raised pavements: provide
 - Cross sections in both direction
 - Full depth asphalt
 - Piano key line marking
 - **Green paint** provision and signage at bike path crossing according to Austroads and DoT specifications. Refer [Appendix I](#)
4. Pavement Composition
 - Geotechnical report, California Bearing Ratio (CBR), subgrade improvement
 - **Must** match with Typical Design Traffic Data for the road type as in EDCM Pavement Design Charts and meet the minimum total pavement thickness plotted in the Pavement Design Chart
 - Pavement composition must include two layers of asphalt in all green fields' development in Wyndham City
 - Provide construction layer in accordance with EDCM2019, SD202A
 - Comply with DCP drawings
 - Full depth asphalt in all connector roads, heavily trafficked areas & industrial areas
 - 3% Cement Treated Crushed Rock layer below full depth asphalt layers
 - Concrete parking lanes when separated by M2 kerb
 - Major intersections & roundabouts: minimum type V wearing course
5. Drainage
 - Double grated entry pits at low point
 - Side entry pits at tangent points
 - Pipe cover measured from **subgrade level (SD202A)**; pipe class sufficient for 10T Vibratory Roller (CPAAVR-10T) in Pipe Class software developed by Concrete Pipe Association of Australasia (CPAA). Refer to the Pipe Class Determination Chart below.
 - Only manufactured splay pipes at curves. On drainage longitudinal sections, notate 'MANUFACTURED SPLAY PIPES'
 - Consider Melbourne Water scheme drainage
 - 100 year Flood levels at low points: maximum depth EDCM
 - Lots achieve minimum free board with flood levels for 100 year events
 - Underground drainage at all arterial roads to cater for 100 year events
 - Consider capacity of pits at low points to function at 50% blockage
 - Runoff from all roads must be taken through underground drainage systems within road reserve. Runoff from roads not to be conveyed through easements

6. Hydrology & Hydraulics

- EDCM

7. Certificate of Compliance for Structural Design

- Retaining walls if height $\geq 900\text{mm}$
- Nonstandard pits
- Box culverts
- Handrails
- Impact absorbing guardrails
- Boardwalks
- Structural Fences
- Any other structural member

8. Water Quality Assets, Waterways, Melbourne Water Drainage Development Scheme Drains

- Melbourne Water Approved FLP
- Coast and Water Department approved/accepted FLP
- In principle approval for shared/foot path alignment, level transitions and feature elements from Council Landscape and Urban Design Subdivisions Unit

Pipe Class Determination Chart

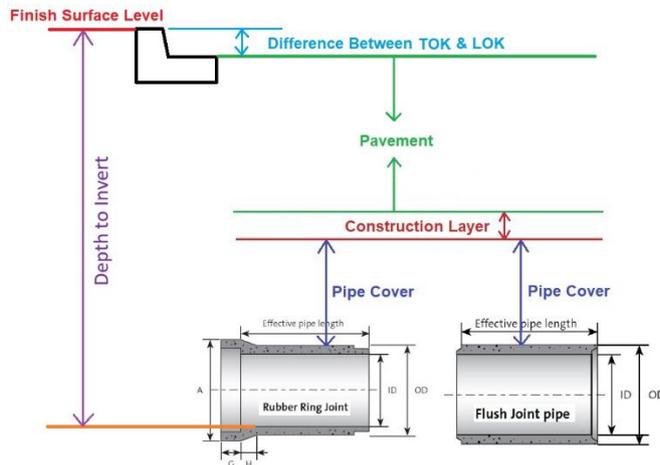
Pipe Diameter (mm)	Cover (mm)	Pipe Class	Average Wall Thickness (mm)	Average Difference Between Top of Kerb and Lip of Kerb (mm)
1050 (FJ)	>400	Class 2	75	100
	<400	Class 3		
900 (FJ)	>400	Class 2	75	
	<400	Class 3		
750 (RRJ) – 825 (FJ)	>600	Class 2	60	
	400 – 600	Class 3		
	400 – 70 (RRJ)	Class 4		
600 – 675 (RRJ)	>650	Class 2	60	
	400 – 650	Class 3		
	400 – 60	Class 4		
525 (RRJ)	>650	Class 2	50	
	450 – 650	Class 3		
	400 – 450	Class 4		
	400 – 50	Class 6		
450 (RRJ)	>700	Class 2	40	
	450 – 700	Class 3		
	400 – 450	Class 4		
	400 – 50	Class 6		
225 – 375 (RRJ)	>600	Class 2	30	
	400 – 600	Class 3		
	300 – 400	Class 4		
	200 – 300	Class 6		
	200 – 50	Class 10		

Abbreviations

RRJ	Rubber Ring Joint	TOK	Top of Kerb
FJ	Flush Joint	LOK	Lip of Kerb

Formula for pipe cover

$$\text{Pipe Cover} = \text{Depth to Invert} - \text{Pipe Diameter} - \text{Average Wall Thickness} - \text{Total Pavement Depth} - \text{Average Difference Between (TOK) and (LOK)}$$



Pipe Cover: to be measured from the top of the pipe to the bottom of construction layer. Any cover less than the lower limit means pipe socket is exposed and should not be allowed.

Depth to Invert: to be measured from the invert of the pipe to the finish surface of the pit, i.e., Finished surface level can be considered as top of kerb for information provided on pipe long section.

Pipe diameter: to be used as pipe nominal size.

Average Wall Thickness: the wall thickness varies for each individual pipe depending on type and nominal size of a pipe. Hume pipes greater than 450mm have larger internal diameters. Therefore, by subtracting nominal pipe size, internal diameter will be smaller.

In Rocla pipes however, nominal pipe size is measured as the internal pipe diameter.

To simplify pipe class selection process, it is recommended to use average wall thickness as ultimately there is a range for all different class of pipes. Due to this variance, changes in wall thickness & internal diameter of pipes will have little to no impact in most cases in determining correct class of pipe.

Total Pavement depth: as approved by Responsible Authority. This includes approved pavement depth plus construction layer and any subgrade improvement layers.

Average Difference Between (TOK) and (LOK): it varies and depends on kerb type, i.e., 110mm for B2, 150mm for B3 & B1, 125mm for SM1, SM2, 85mm for SM2 and 125 for SM3 kerbs. For simplicity it is recommended to use average difference as 100mm because the rest will have little impact on pipe class determination.

Example 1: What is the class for a 300Ø pipe if the depth to invert of the given pipe is 1.425m and the design pavement used for the road is 700mm including construction layer and this has a B2 kerb?

Pipe Cover = 1425mm – 300mm (300Ø) – 30mm – 700mm – 100mm = 295mm (Cover)

Therefore, according to the table the pipe class to be used is **Class 6**

Example 2: What is the class for a 300Ø pipe if the depth to invert of the given pipe is 1.175m and the design pavement used for the road is 700mm including construction layer and this has a B2 kerb?

Pipe Cover = 1175mm – 300mm (300Ø) – 30mm – 700mm – 100mm = 45mm (Cover)

Therefore, according to the table this pipe class is undeterminable as socket would be exposed and not allowed.

Example 3: What is the class for a 525Ø pipe if the depth to invert of the given pipe is 1.825m and the design pavement used for the road is 700mm including construction layer and this has a B2 kerb?

Pipe Cover = 1825mm – 525mm (525Ø) – 50mm – 700mm – 100mm = 450mm (Cover)

Therefore, according to the table the pipe class to be used as **Class 3 or 4** however as we considered average numbers in lot of areas to keep simplicity, it is recommended to use select **Class 4** in this instance.

In the event pipe class calculations are not demonstrated in above table, a pipe class software developed by CPAA can be used to determine the class requirement using appropriate construction load which is as a 10t Vibratory Roller (CPAAVR-10T) as minimum loading.

Processes & Documents for Engineering Drawings Approval

1. Provide Engineer's estimate – separate estimates for each stage - complying with
 - Approved pavement composition
 - Drainage pipes: sizes & classes
 - Pits: sizes & quantity
 - Retaining walls
 - Culverts & handrails
 - Nominate **Payee details** on each individual cost schedule
2. Plan checking fees paid against the invoice **by cheques or EFT**
3. Upload into Objective Connect folder.
 - 'As approved' drawings, drainage computations & catchment plans, all in colour, all bound to one document,
 - Naming convention: Estate Name Stage XXX 'As Approved Drawings'

Processes & Documents for Engineering Statement of Compliance

1. Provide Engineer's estimate – separate estimates for each stage - complying to
 - Constructed pavement composition
 - Drainage pipes: sizes & classes
 - Pits: sizes & quantity
 - Retaining walls
 - Culverts & handrails
 - Nominate **Payee details** on each individual cost schedule
2. Supervision fees paid against the invoice **by cheques or EFT**
3. Maintenance bond/ fees paid against the invoice **by cheques, EFT or bank guarantees**
4. Upload in Objective Connect Share Folder: (refer permit conditions for specifications). Follow the naming convention nominated in the Summary table below:
 - Electronic copy of all
 - 'As constructed' drawings in both Adobe PDF (in colour) and AutoCAD DWG file formats, all sheets bound to one, document each category
 - Electronic copy of
 - Catchment plans and drainage computations for storm events of 5/10 year and 100-year return periods
 - Drainage and related assets in D Spec format: refer permit conditions
 - Roads and related assets in R Spec format: refer permit conditions
 - Permanent Survey Mark (PSM) information (signed by Surveyor)
 - Certificate of Compliance for Construction Supervision as required
 - Compaction test reports

Naming convention for all documents: SDWXXXX/YY - Estate Name Stage XXX - Document Name as in below table

Engineering Milestone Conditions in SPEAR

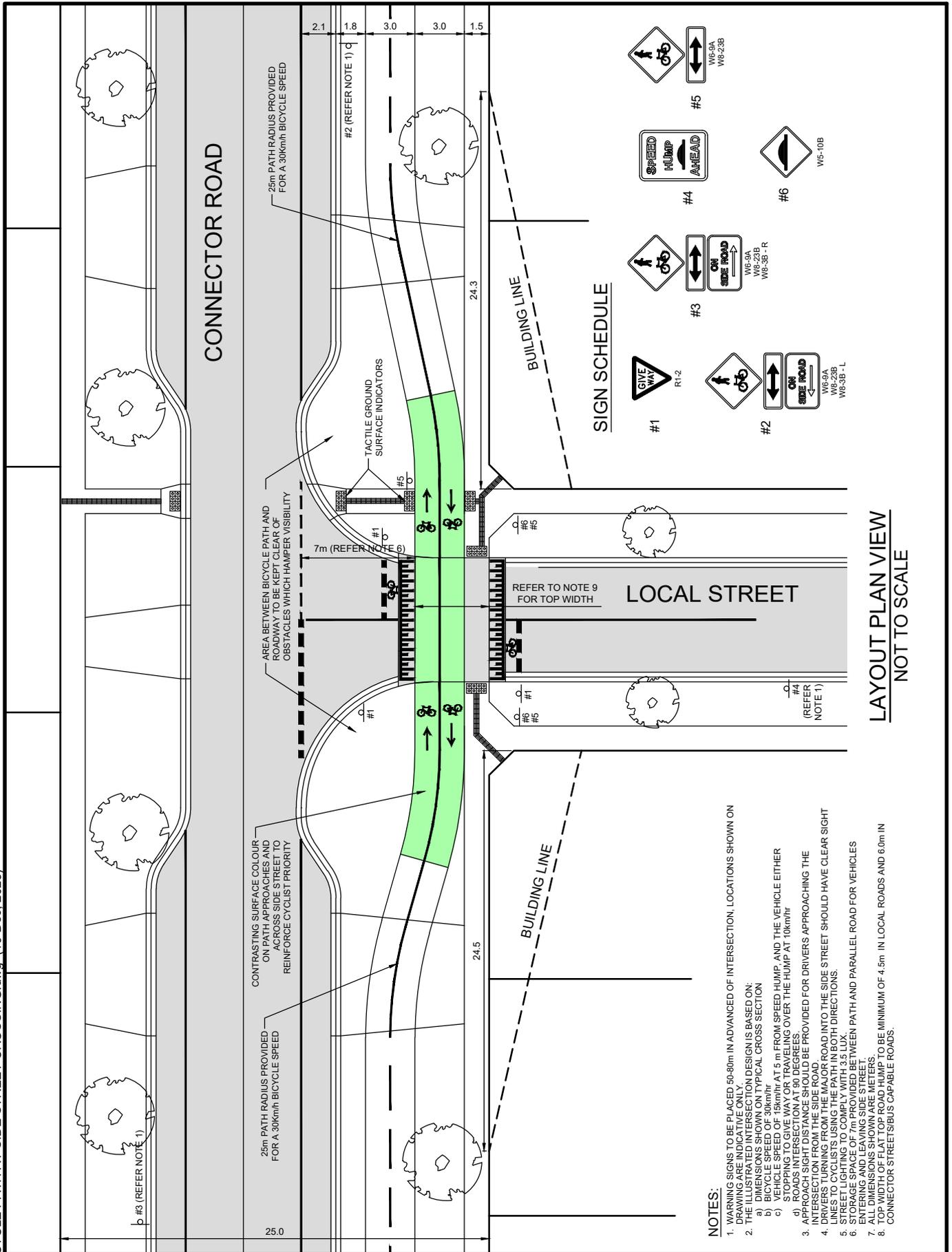
The critical deliverables required throughout the subdivision process are now posted in SPEAR to assist the applicant track the progress of their engineering obligations and determining outstanding actions.

Engineering Milestone Conditions in SPEAR in a nutshell below:

Ref	Summary
ENG01	Supervision Fee Payment
ENG02	Maintenance Bond Payment
ENG03	As Constructed Drawings in PDF Format
ENG04	As Constructed Drawings in Autocad Format
ENG05	As Constructed R-SPEC
ENG06	As Constructed D-SPEC
ENG07	Permanent Survey Mark (PSM)
ENG08	Compliance Inspection & Quality Assurance Documentation

APPENDIX I

Standard Drawings for Green Field Subdivisions		
1	SUBDIVENG 001/23	Separated Two Way Bicycle Path & Road Intersection Connector Street/Local Street
2	SUBDIVENG 002/23	Paper road Abutting Reserve
3	SUBDIVENG 003/23	Single Rear Loaded Laneway
4	SUBDIVENG 004/23	Double Rear Loaded Laneway
5	SUBDIVENG 006/23	Underground Drainage Connection Under Concrete Parking Bays
6	SUBDIVENG 006/23	Tactile Ground Surface Indicators Detail
7	SUBDIVENG 007/23	Temporary Turn Around Area



- NOTES:**
1. WARNING SIGNS TO BE PLACED 50-80m IN ADVANCED OF INTERSECTION, LOCATIONS SHOWN ON DRAWING ARE INDICATIVE ONLY.
 2. THE ILLUSTRATED INTERSECTION DESIGN IS BASED ON:
a) BICYCLISTS SHOWING ON TYPICAL CROSS SECTION
b) VEHICLE SPEED OF 30km/h
c) VEHICLE SPEED OF 15km/h AT 5m FROM SPEED HUMP AND THE VEHICLE EITHER STOPPING TO GIVE WAY OR TRAVELING OVER THE HUMP AT 10km/h
d) ROADS INTERSECTION AT 90 DEGREES.
 3. APPROACH SIGHT DISTANCE SHOULD BE PROVIDED FOR DRIVERS APPROACHING THE INTERSECTION FROM THE SIDE ROAD.
 4. DRIVERS TURNING FROM THE MAJOR ROAD INTO THE SIDE STREET SHOULD HAVE CLEAR SIGHT TO THE SIDE STREET FROM THE MAJOR ROAD IN BOTH DIRECTIONS.
 5. STREET LIGHTING TO COMPLY WITH 3.5 LUX.
 6. STORAGE SPACE OF 7m PROVIDED BETWEEN PATH AND PARALLEL ROAD FOR VEHICLES ENTERING AND LEAVING SIDE STREET.
 7. ALL DIMENSIONS SHOWN ARE METERS.
 8. TOP WIDTH OF FLAT TOP ROAD HUMP TO BE MINIMUM OF 4.5m IN LOCAL ROADS AND 6.0m IN CONNECTOR STREETS/SIBUS CAPABLE ROADS.

CONNECTOR/LOCAL STREET SIDE ROAD CROSSING
SEPARATED 2-WAY BICYCLE PATH & ROAD INTERSECTION LAYOUT

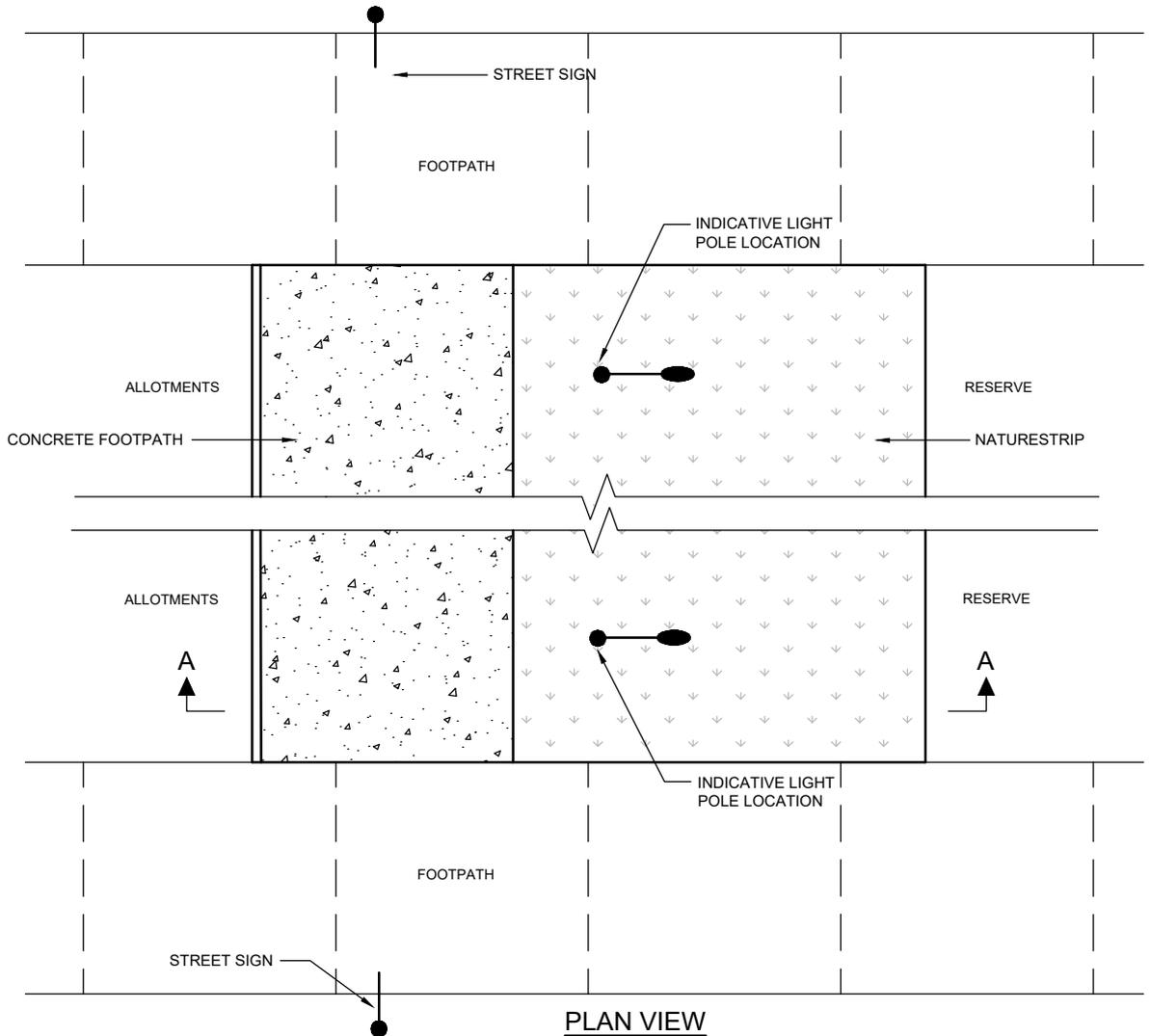
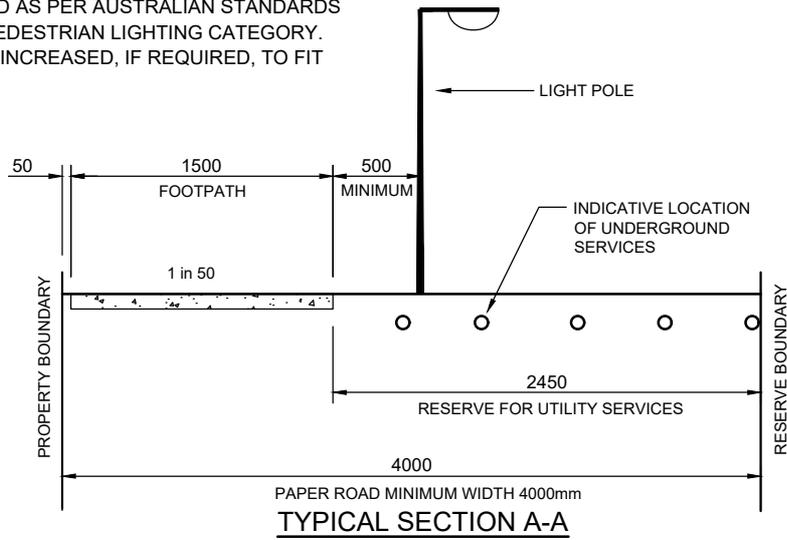
DRAWING NOT TO SCALE
DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 001/23

NOTES :

1. STREET SIGNS TO BE INSTALLED AT BOTH ENDS OF FOOTPATH CONNECTION.
2. CONCRETE PATH TO BE CONSTRUCTED AS PER WCC SD 2-3.
3. ALL CONCRETE CONNECTIONS ARE TO BE AS PER WCC SD 2-4.
4. LIGHT POLES TO BE INSTALLED AS PER AUSTRALIAN STANDARDS IN ACCORDANCE WITH THE PEDESTRIAN LIGHTING CATEGORY.
5. ROAD RESERVE WIDTH TO BE INCREASED, IF REQUIRED, TO FIT ALL UTILITIES.



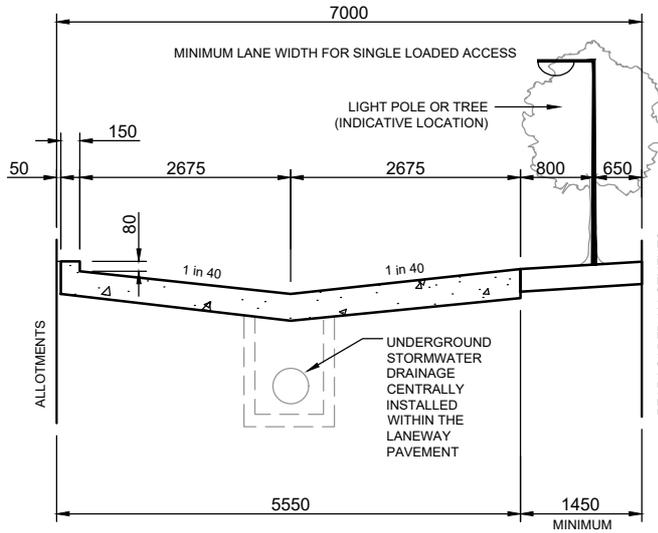
PAPER ROAD ABUTTING RESERVE (MINIMUM WIDTH OF 4m)

DRAWING NOT TO SCALE
DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 002/23

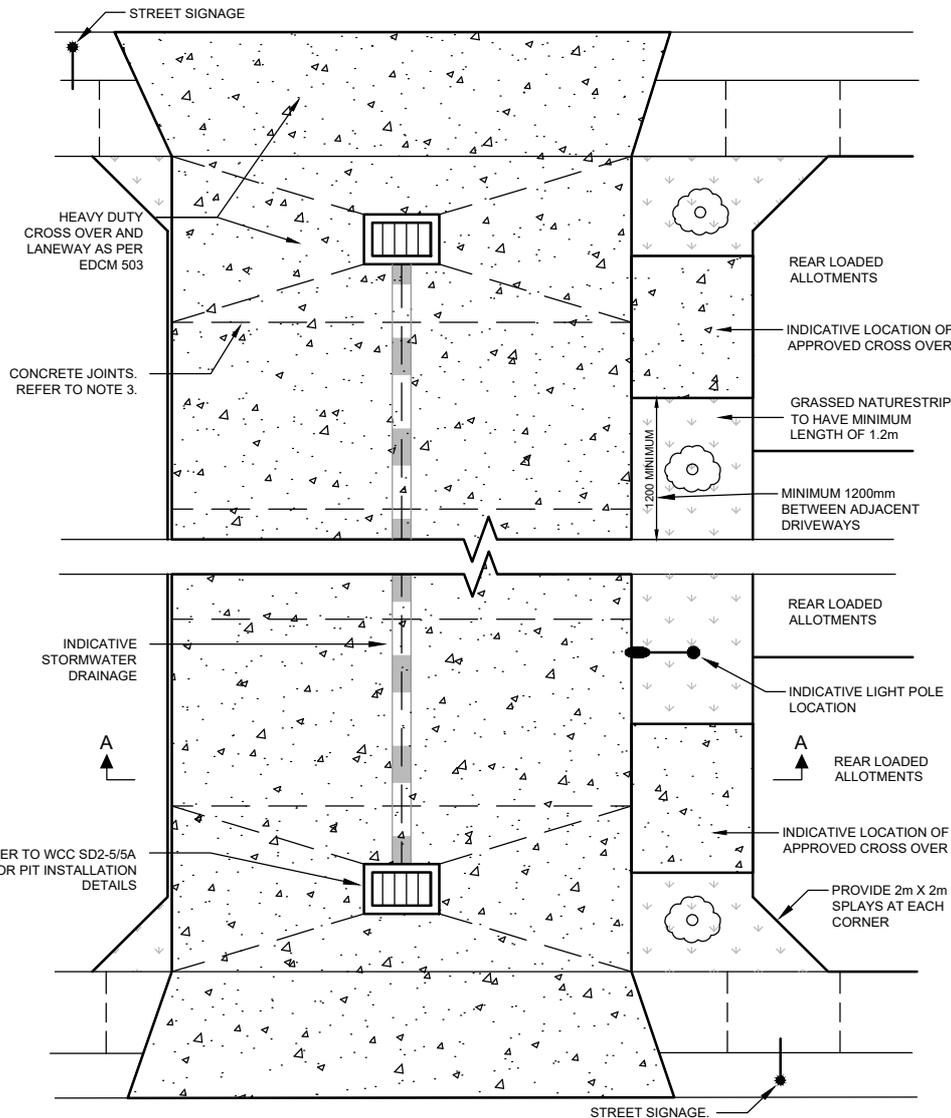
Drawing name: Plan - PAPERROAD 4M.dwg (19 Dec, 2023)



TYPICAL SECTION A-A

NOTES :

1. STREET SIGNS AT BOTH ENDS
2. PROVIDE DOWELS TO ALL DRIVEWAYS ADJACENT TO THE LANEWAY AS PER EDCM501
3. PROVIDE CONCRETE JOINTS IN LANEWAY AS PER EDCM 401 & 402.
4. MINIMUM STRENGTH FOR CONCRETE LANEWAY TO BE 32MPa
5. LIGHT POLES TO BE INSTALLED AS PER AUSTRALIAN STANDARDS IN ACCORDANCE WITH PEDESTRIAN LIGHTING CATEGORY.
6. ALL UTILITY CONNECTIONS TO THE LOTS FROM THE ROAD (R1) ALONG THE LOT FRONTAGE.
7. HOUSE DRAIN CONNECTION TO THE UNDERGROUND DRAIN ACCORDING TO DRAWING 'PROPERTY CONNECTION TO UNDERGROUND DRAIN' DWG No: SUBDIVENG - 005/23.



PLAN VIEW

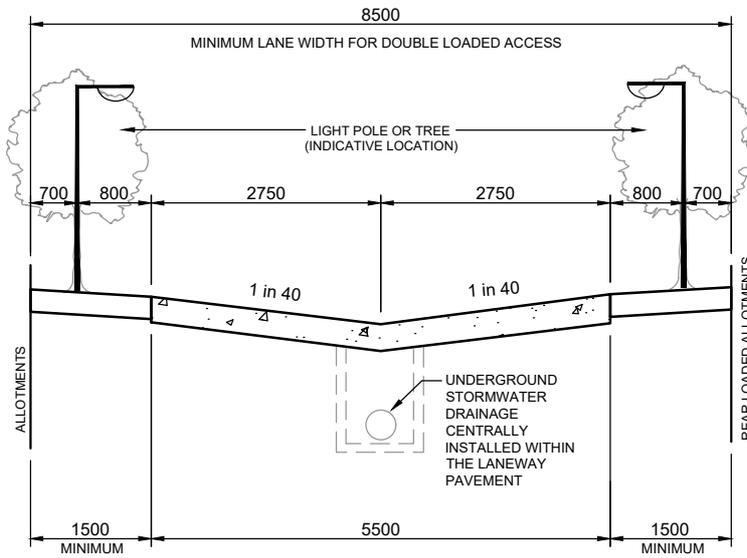
SINGLE REAR LOADED LANEWAY (MINIMUM WIDTH OF 7.0m)

DRAWING NOT TO SCALE
DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 003/23

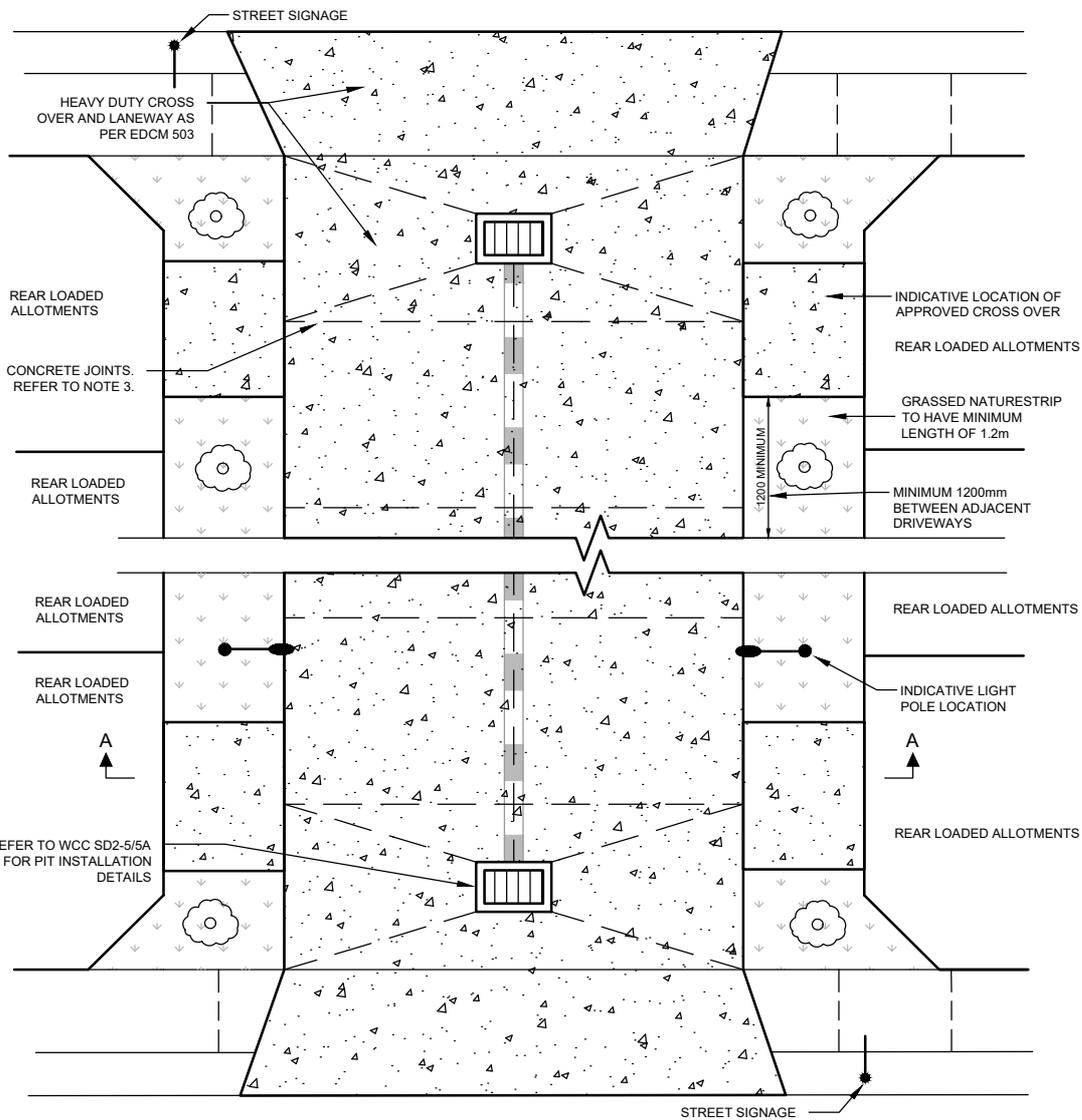
Drawing name: Plan - REAR LOADED LANEWAY SINGLE 7m.dwg (18 Dec, 2023)



TYPICAL SECTION A-A

NOTES :

1. STREET SIGNS AT BOTH ENDS
2. PROVIDE DOWELS TO ALL DRIVEWAYS ADJACENT TO THE LANEWAY AS PER EDCM501
3. PROVIDE CONCRETE JOINTS IN LANEWAY AS PER EDCM 401 & 402.
4. MINIMUM STRENGTH FOR CONCRETE LANEWAY TO BE 32MPa
5. LIGHT POLES TO BE INSTALLED AS PER AUSTRALIAN STANDARDS IN ACCORDANCE WITH PEDESTRIAN LIGHTING CATEGORY.
6. ALL UTILITY CONNECTIONS TO THE LOTS FROM THE ROAD (R1) ALONG THE LOT FRONTAGE.
7. HOUSE DRAIN CONNECTION TO THE UNDERGROUND DRAIN ACCORDING TO DRAWING 'PROPERTY CONNECTION TO UNDERGROUND DRAIN' DWG No: SUBDIVENG 005/23.



PLAN VIEW

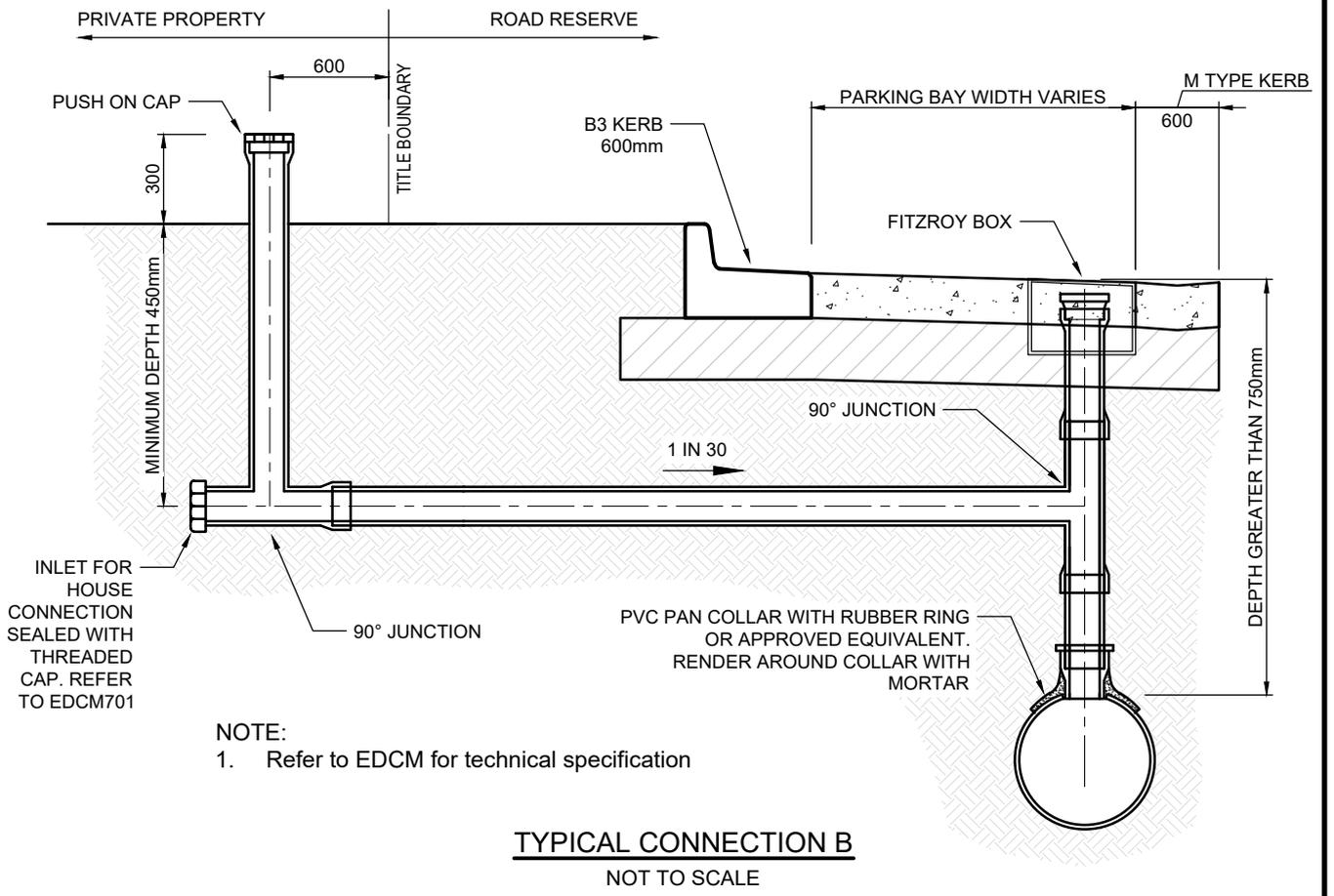
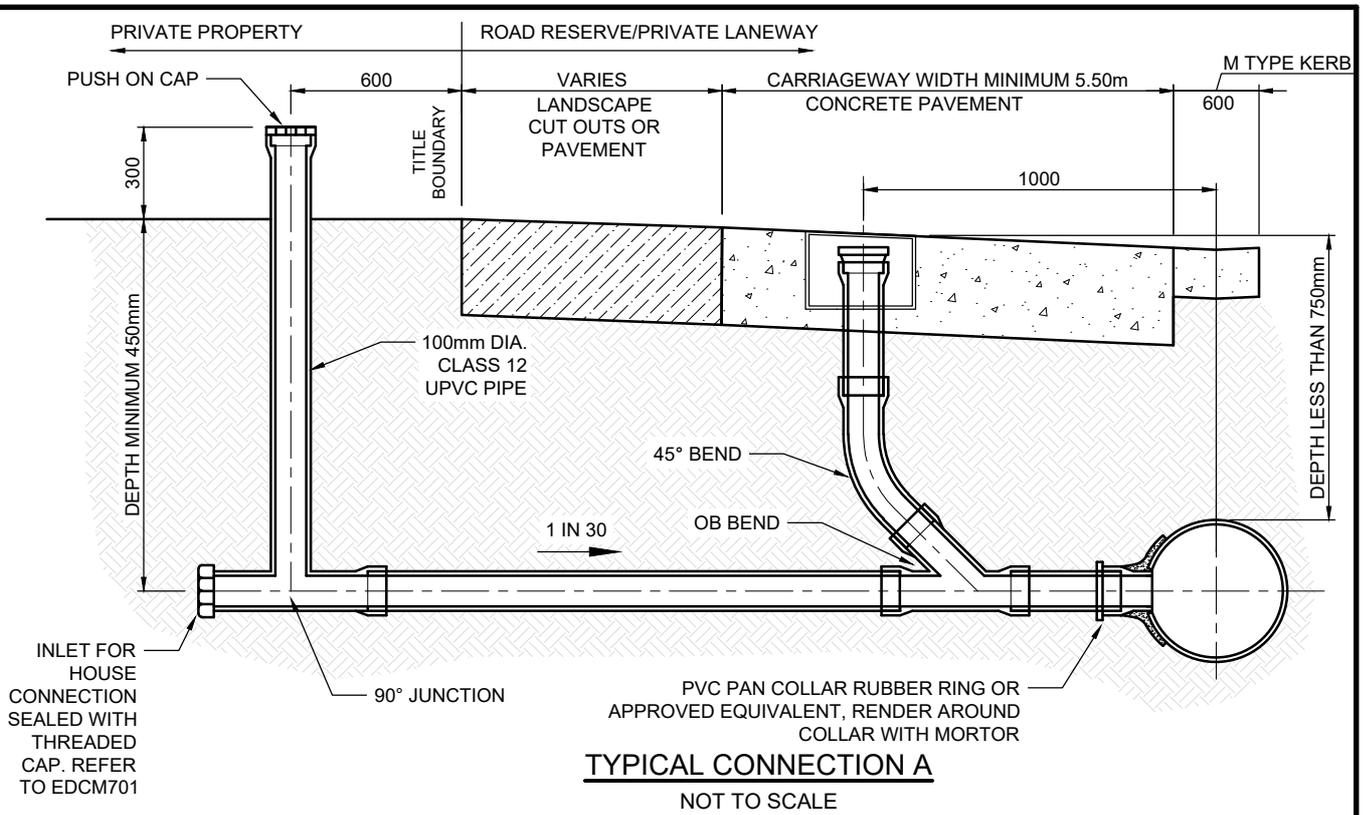
DOUBLE REAR LOADED LANEWAY (MINIMUM WIDTH OF 8.5m)

DRAWING NOT TO SCALE
DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 004/23

Drawing name: Plan - REAR LOADED LANEWAY DOUBLE 8.5m.dwg (18 Dec, 2023)



NOTE:
1. Refer to EDCM for technical specification

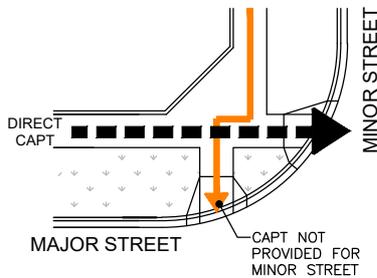
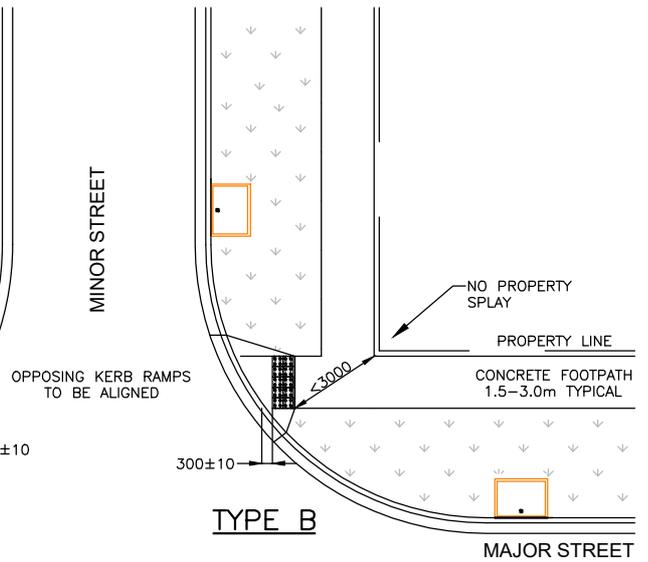
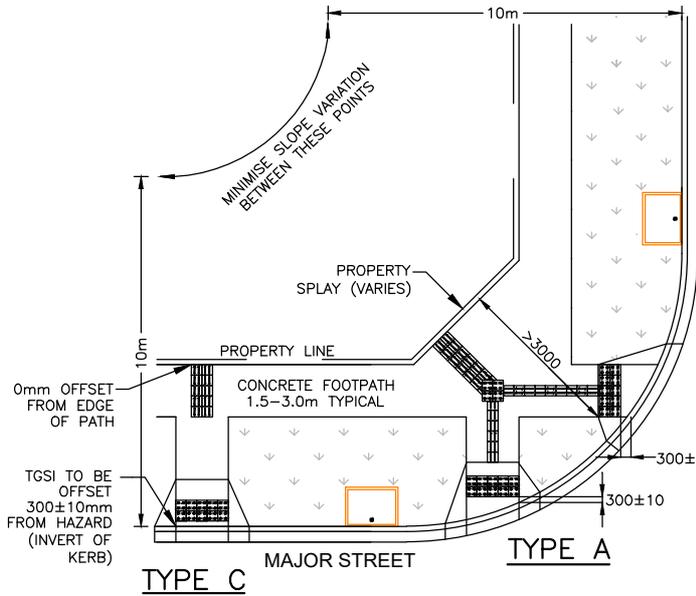
UNDERGROUND DRAINAGE CONNECTION UNDER CONCRETE PAVEMENT

DRAWING NOT TO SCALE
DATE: DECEMBER 2023

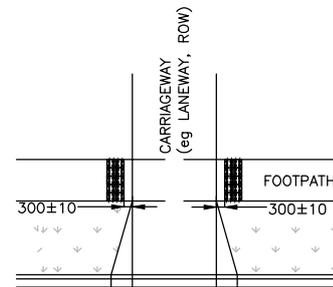
NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 005/23

Drawing name: Plan - Property Connection to Underground Drain.dwg (22 Feb, 2024)



INTERSECTION TYPE	ROAD TAKING PRIORITY
LOCAL-LOCAL	ROAD WITH HIGHER PEDESTRIAN TRAFFIC VOLUME, I.E. CONTINUOUS LOCAL STREET OVER DEAD END/COURT BOWL TYPE.
COLLECTOR-LOCAL	COLLECTOR ROAD
COLLECTOR-COLLECTOR	ROAD WITH HIGHER PEDESTRIAN TRAFFIC VOLUME
ARTERIAL-COLLECTOR	ARTERIAL ROAD
ARTERIAL-ARTERIAL	ROAD WITH HIGHER PEDESTRIAN TRAFFIC VOLUME

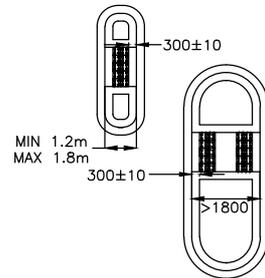


TGSIs TREATMENT WHERE MOTORIST SIGHT DISTANCE IS LIMITED

CONTINUOUS ACCESSIBLE PATH OF TRAVEL

DEFINITIONS

- CONTINUOUS ACCESSIBLE PATH OF TRAVEL (CAPT)**
 - AN UNINTERRUPTED PATH OF TRAVEL TO, INTO OR WITHIN A BUILDING PROVIDING ACCESS TO ALL ACCESSIBLE FACILITIES (AS1428.1)
- DIRECT CAPT**
 - WHERE THE KERB RAMP IS ALIGNED WITH THE BUILDING LINE AND IN DIRECTION OF TRAVEL ACROSS THE CARRIAGEWAY (REFER FIGURE ABOVE)



TRAFFIC ISLAND TGSIs TREATMENT

WHERE WIDTH OF TRAFFIC ISLAND (BETWEEN FACE OF KERB) IS LESS THAN 1.2m, NO TGSIs TO BE INSTALLED

NOTES

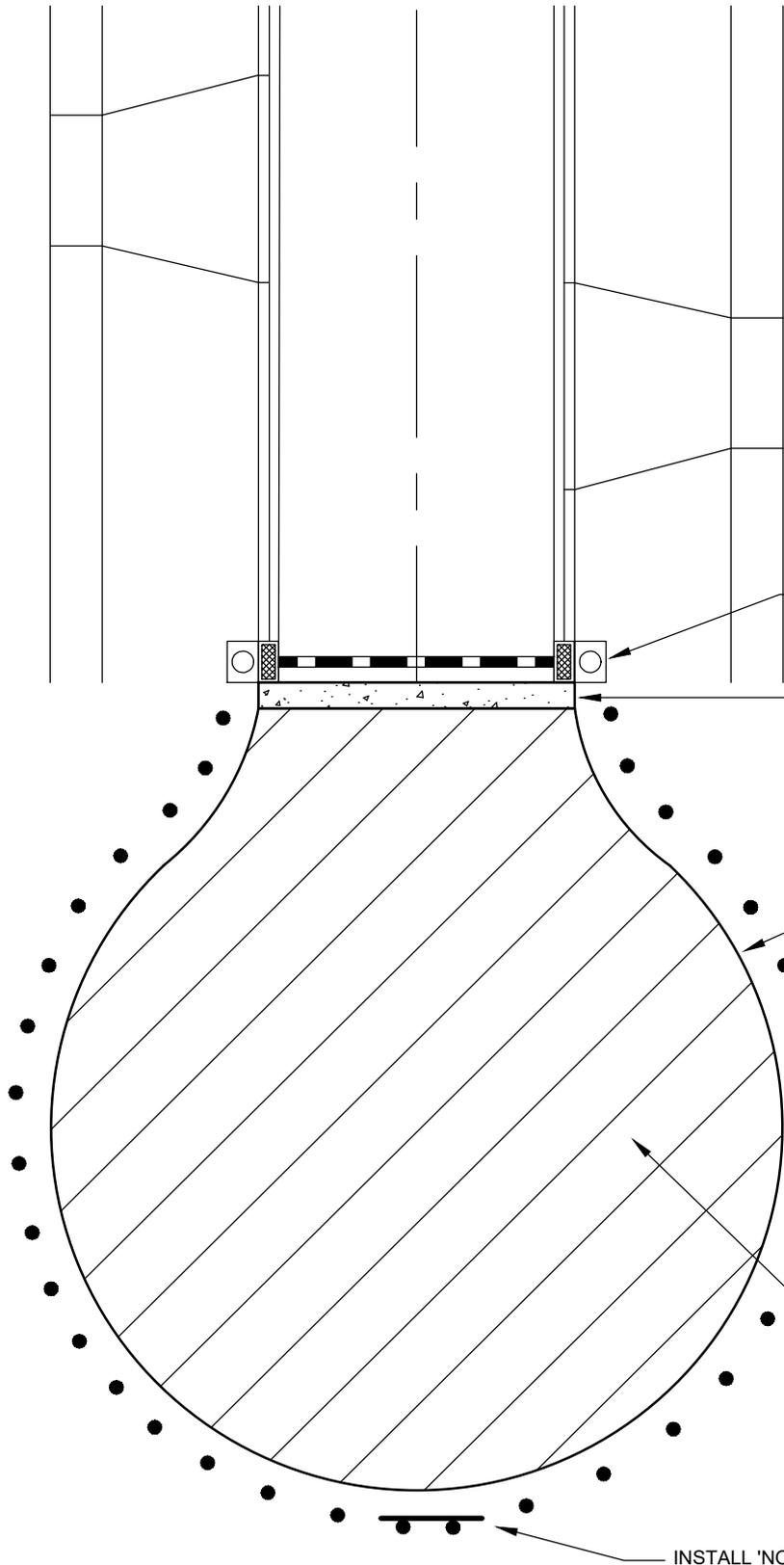
- TGSIs MUST BE INSTALLED AT ALL NEW INTERSECTIONS, AND AS PART OF ANY INTERSECTION OR FOOTPATH UPGRADE WORKS.
- REFER TO EDCM 403, PRAM CROSSING KERB RAMP DETAILS' FOR KERB RAMP CONSTRUCTION DETAILS WITHIN GROWTH AREAS.
- NON-STANDARD TGSIs LAYOUTS TO BE IN ACCORDANCE WITH AS1428.4.1 (DESIGN FOR ACCESS AND MOBILITY - MEANS TO ASSIST THE ORIENTATION OF PEOPLE WITH VISION IMPAIRMENT - TACTILE GROUND SURFACE INDICATORS), AND APPROVED BY COUNCIL'S ENGINEER.
- SUPPLIERS OF TGSIs MUST BE VICROADS AND COUNCIL APPROVED, AS PER 'RDN (ROAD DESIGN NOTE) 06-05A - SUPPLIERS OF VICROADS ACCEPTED DDA TACTILE (TGSIs) PRODUCTS'.
- THE INSTALLATION OF TGSIs MUST BE AS PER THE SUPPLIERS SPECIFICATIONS AND SUPERVISED BY COUNCIL CONSTRUCTION SUPERVISOR OR APPROPRIATE INFRASTRUCTURE MAINTENANCE OFFICER.
- RUBBER (STICK DOWN) TYPE TGSIs WILL NOT BE ACCEPTED BY THE WYNDHAM CITY COUNCIL.
- COUNCIL PREFERENCE IS FOR THE INSTALLATION OF WHITE TGSIs WITH A MINIMUM LRV OF 70, OTHER COLOURS WILL BE CONSIDERED SUBJECT TO THEIR COMPLIANCE WITH THE BELOW LUMINANCE CONTRAST REQUIREMENTS INCLUDING TESTING. TGSIs WITHIN ACTIVITY CENTRES/SHOPPING STRIPS ARE TO BE CONSISTENT WITH THE STREETScape DESIGN.
- TGSIs MUST HAVE A MINIMUM LUMINANCE CONTRAST OF 30% TO THE ADJACENT PATH OF TRAVEL AS PER AS1428.4.1. IT IS REQUIRED THAT ON-SITE LUMINANCE CONTRAST TESTING BE PERFORMED AS PER APPENDIX E OF AS1428.4.1 AT 50% OF SITES WITHIN THE DEVELOPMENT.
- TGSIs INSTALLATIONS SHALL BE INSPECTED IN ACCORDANCE WITH COUNCIL'S INSPECTION REGIME AS ESTABLISHED IN THE ROAD MANAGEMENT PLAN IN ACCORDANCE WITH THE ROAD MANAGEMENT ACT AND MAINTENANCE SHALL BE UNDERTAKEN ACCORDINGLY.
- TGSIs PRODUCTS MUST BE SLIP RESISTANCE TESTED, WITHIN THE LAST THREE (3) YEARS, IN ACCORDANCE WITH AS4586 (SLIP RESISTANCE TO COVER TGSIs DOME AND BASE).
- TGSIs DESIGN (SIZE AND SPACING) MUST BE COMPLIANT WITH AS1428.4.1.

TACTILE GROUND SURFACE INDICATORS DETAIL

DRAWING NOT TO SCALE
 DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 006/23



NOTES:

1. CROSSOVERS NOT TO BE BUILT WITHIN 6m OF THE TURNAROUND AREA.
2. STORMWATER MUST BE CAPTURED IN PITS AND DISCHARGED TO UNDERGROUND SYSTEM. NO DRAINAGE OVERLAND FLOES TO BE DISCHARGE INTO TURN AROUND AREA.
3. IF CONSTRUCTED IN ADJACENT PROPERTY, PROVIDE WRITTEN CONSENT FROM THE PROPERTY OWNER.
4. TEMPORARY TURNAROUND AREA TO BE MAINTAINED BY THE DEVELOPER UNTIL THE ROAD IS FURTHER EXTENDED.

STORMWATER DRAINAGE, SEE NOTE 2.

CONSTRUCT TEMPORARY 200mm WIDE BY 300mm DEEP CONCRETE EDGE STRIP AS PER EDCM301 WITH 100mm Dia. SLOTTED AG DRAIN UNDERNEATH CONNECTING TO EXISTING APPROVED DRAINAGE INFRASTRUCTURE.

10.5m RADIUS FOR RESIDENTIAL SUBDIVISIONS AND 17m RADIUS FOR INDUSTRIAL SUBDIVISIONS

INSTALL BOLLARDS AS PER WCC SD10-2 AT 1.5m CENTRES AT 1m OFFSET FROM THE TURNING BOWL.

TURN AROUND AREA TO BE COMPACTED 200mm DEPTH 40mm NOM. SIZE CLASS 3 FCR COMPACTED TO 98% MDD (SHAPED TO DRAIN FREELY).

INSTALL 'NO ROAD' SIGN

PLAN VIEW

TEMPORARY TURNAROUND AREA

DRAWING NOT TO SCALE
DATE: DECEMBER 2023

NOTE: THIS PLAN DOES NOT FORM PART OF WYNDHAM CITY COUNCIL STANDARD DRAWINGS

DWG No: SUBDIVENG - 007/23

List of amendments:

Version 2.0 Dec 2023

1. Cover sheet
 - 'Style Guide' included in the caption
 - Appendix I added
 - Hyperlinks on the contents table amended
2. Check sheet for Functional Layout Plan Review
 - Item 7:
 - Reference amended to Appendix I and hyperlink added
 - Item 11: laneways
 - Concrete laneway added
 - Reference amended to Appendix I and hyperlink added
 - Item 11: paper roads
 - Reference amended to Appendix I and hyperlink added
3. Check sheet for Engineering Drawings: General
 - Item 2:
 - Reference amended to Appendix I and hyperlink added
 - Maximum permissible slope specifics deleted. Amended maximum permissible change of grade at crossover to 13%
 - Item 6:
 - Reference amended to Appendix I and hyperlink added
 - Item 7
 - Reference amended to Appendix I and hyperlink added
4. Check sheet for engineering Drawings: Roads, Pavement & Drainage
 - Item 3:
 - Reference amended to Appendix I and hyperlink added
5. Appendix I: seven Standard Drawings for Green Field Subdivisions added

Version 1.0 Jul 2022

1. Functional Layout Plans submission format
 - New item: landscape plans requirement
2. Engineering submission format
 - New item: Water quality treatment assets
3. Check sheet for Functional Layout Plan Review
 - Added further details, links/references to external documents
 - Item 8:
 - Specification for road humps added
 - Requirement for temporary turning bowls at end of road added
 - Requirements for school crossing specified
 - Item 11:
 - Double rear loaded laneway specifications amended
 - Laneway cross sections details added
 - Paper roads specifications added
 - Item 13:
 - Tree ring requirement with specifications and references added

- Landscaping preliminary design submission added
- Item 14:
 - Reserves utility services requirement added
 - Paths in reserves requirement added
- 4. Check sheet for Engineering Drawings: General
 - Added further details, links/references to external documents
 - Item 1:
 - General notes and specifications with hyperlink added
 - Item 2:
 - Jointing details in concrete specification added
 - Item 4:
 - Utility services provision added
 - Item 6:
 - Further details and references added to signage
 - Item 8: deleted
 - Item 9:
 - Path delivery through all reserves requirement added
 - Item 12:
 - Submission format specified
 - Lux plot requirement added
 - Cover above conduits specification amended
 - Marker tape location specification added
 - Specification for cross sections added
 - Details for location of service connection added
- 5. Engineering Drawings: Roads, Pavement & Drainage
 - Added further details, links/references to external documents
 - Item 2:
 - Grade at crossover specification added
 - Item 3:
 - Raised pavement specifications added
 - Item 4:
 - Construction layer requirement added
 - Item 5:
 - Road names labelled on longitudinal sections added
 - Item 6:
 - Cement Treated Crush Rock requirement added
 - Item 8: Water Quality Assets details requirement added
- 6. Pipe Class Determination Chart: Added
- 7. Processes & Documents for Engineering Drawings Approval
 - EFT payment option added
- 8. Processes & Documents for Engineering Statement of Compliance
 - EFT payment option added
 - Naming convention nominated
 - Specifications for as constructed information submission added
- 9. Vicroads amended to Department of Transport (DoT)
- 10. List of amendments: Version 1.0 Jul 2022 added