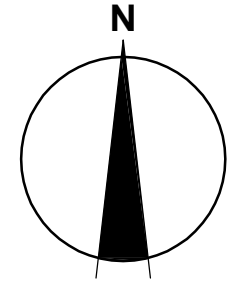


Estuary

Stage 7

City of Greater Geelong

Drawing Index



LOCALITY PLAN
MELWAYS REF: 468 D6



Designed for Living



Principal

Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

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Level 1, 47 Pakington Street,
Geelong West, VIC, 3218
Tel: +61 3 5228 3100
Fax: +61 3 5228 3199

ABN: 99 124 206 819

Standard Construction Notes

- 1. GENERAL**
- 1.1 **Drawings** - The drawings are to be read in conjunction with the contract specification and the responsible Authorities standard drawings and current specifications for Roadworks and Drainage. Any observed discrepancy to be referred to the Superintendent prior to start of work.
- 1.2 **Responsible Authority Documentation Availability** - A set of the respective responsible Authority standard construction documentation including drawings and specification/s are to be provided by the Contractor and made available on-site for the duration of the construction period.
- 1.3 **Conformity with Drawings** - All works are to be finished in conformity with the lines, grades, thicknesses and cross sections shown in the drawings.
- 1.4 **Materials and Workmanship** - Materials and workmanship to comply with responsible Authority specifications and relevant SAA Codes.
- 1.5 **Tolerances** - Works are to be constructed in compliance with tolerances specified by the relevant responsible Authorities.
- 1.6 **Minimum Standards** - The standards of work and materials stated in the drawings and specification are the minimum acceptable irrespective of relevant responsible Authority minimum standards.
- 1.7 **Sewer/Water Supply** - Construction notes specific to sewer and water supply asset construction are incorporated in the drawings approved by the Water Company as attached hereto.
- 2. EXISTING CONDITIONS**
- 2.1 **Discrepancy with Drawings** - Any discrepancy observed/identified between the drawings and existing conditions and site features are to be referred to the Superintendent prior to start of any related work.
- 2.2 **Municipal Assets & Infrastructure** - The condition of existing Council assets potentially affected by the works is to be assessed by a joint site inspection with Council Officers prior to the start of works. Asset conditions are to be recorded and witnessed by Council and the Contractor. The Contractor is to arrange and record site inspections and is liable for all rectification/reinstatement costs for damage to existing assets.
- 2.3 **Utility Services** - The locations of existing utility services, as shown in the drawings, are not guaranteed. Exact service locations are to be proven prior to start of works. Service location works are to comply with the requirements of the relevant responsible Authority. The Contractor is liable for rectification/reinstatement costs for damage to existing utility services.
- 3. NOTIFICATIONS**
- 3.1 **Council** - Minimum notification periods are:
- (a) **two (2) days** written notice of intention to start works
 - (b) **two (2) days** notice to inspect condition of existing Council assets
 - (c) **twenty four (24) hours** notice for weekend work
 - (d) **twenty four (24) hours** notice for:
 - inspection of drainage works
 - inspection of sub-soil drains
 - proof roll of prepared sub-grade or constructed pavement
 - inspection of prepared base for concrete works
 - other works as stated in the drawings or specified
- Or as otherwise agreed with Council Officers.
- 3.2 **Property Owners/Tenants** - Seven (7) days written notice to property owners/tenants affected by the works.
- 4. OCCUPATION OF PUBLIC ROADS**
- All roadworks signage to comply with VicRoads Worksite Traffic Management Code incorporating AS 1742.3.
- 4.1 **Roads under VicRoads jurisdiction** - The Contractor is to arrange VicRoads consent via "Application for Consent - Works within Road Reserves" (refer VicRoads web site).
- 4.2 **Roads under Council control** - The Contractor is to arrange and acquire requisite Road Closure Permits via Council's Traffic Officer.

- 5. SET OUT**
- 5.1 **Survey Stations and Reference Marks** - The locations of survey stations and reference marks are to be verified prior to start of works.
- 5.2 **Road Chainages** - Road chainages as shown in the drawings are to road centreline, unless otherwise stated.
- 5.3 **Kerb & Channel** - Kerb and channel radii and levels relate to edge of channel, unless otherwise stated.
- 5.4 **Drainage Pits** - The locations and orientation of drainage pits are to be accurately set out from co ordinates and/or offsets as stated.
- 5.5 **Pipe Drains** - Drainage lines are to be accurately set out from coordinates and/or offsets as stated. Further to Standard Note 5.4 drainage lines at pits are to be accurately set out to ensure that the outlet pipe is aligned directly opposite the inlet pipe (where deflection angles are 45° or less) or as otherwise stated in the drawings or directed.
- 6. TOPSOIL**
- 6.1 **Stripping Limits** - Clearing and stripping of topsoil to be restricted to areas to be excavated/filled as stated in the drawings or limits as otherwise directed by the Superintendent.
- 6.2 **Surplus Material** - Surplus topsoil must be re-used on-site unless otherwise stated in the drawings or directed by the Superintendent.
- 7. EXISTING VEGETATION**
- All existing trees and significant vegetation within and external to the worksite are to be retained, preserved and protected unless otherwise stated in the drawings or directed by the Superintendent.
- 8. EXCAVATION/TRENCHING**
- 8.1 **Trenching** - Trenching operations exceeding 1.5 metres depth are to comply with the provisions of the Mines (Trenches) Regulations 1982.
- 8.2 **Work close to Trees and Vegetation** - Excavation work within the drip line of trees is not to be performed unless otherwise stated in the drawings or approved by the Superintendent.
- 8.3 **Unstable Sub-Grade** - Unstable sub-grade/"soft spots" to be excavated to a sound proof-rolled base and backfilled with material approved by Council.
- 9. SOIL EROSION**
- The Contractor must install necessary protection works to effectively manage and limit soil erosion within the worksite. Works to include, but are not limited to:
- 9.1 **Silt Fences** - downstream of all exposed areas.
- 9.2 **Silt Barriers** - upstream of all pits
- 10. DRAINAGE WORK**
- 10.1 **Existing Drains** - The location of existing drainage assets to be verified prior to start of works.
- 10.2 **Pipe Class** - Pipes to be, unless otherwise stated in the drawings:
- (a) Roads & Reserves - Class 2 Rubber Ring Jointed RCP
 - (b) Easements - Rubber Ring Jointed RCP/FRP or Sewer Class Solvent Cement UPVC
- 10.3 **Pit Covers** - Pit covers are to be placed to match actual finished surface profiles - level and cross fall - of adjacent structures/surfaces. Finished surface levels stated in the drawings are indicative, for depth range purposes, and are not to be used as the basis for setting final pit cover levels
- 10.4 **Pit Construction** - Precast standard pits are to be installed. Cast in-situ standard pits are only to be constructed where approved by the Superintendent. All sumps in precast concrete pits are to be infilled with concrete flush to the inlet level of the outlet pipe unless otherwise approved by the superintendent.
- 10.5 **Sub-Soil Drains**
- (a) Entry to pits to be trimmed flush with inner wall and effectively mortared in place through the full pit wall thickness.
 - (b) Details of granular filter material including source to be submitted to the Superintendent prior to start of sub-soil drainage works.

- 11. BACKFILL MATERIAL**
- 11.1 **Trenches under all edgings/kerb sections & Nature Strips** - 20mm Class 3 Fine Crushed Rock or other material as approved by Council.
- 11.2 **Trenches under road pavement - Stormwater pipes** are to be backfilled with two percent (2%) cement stabilised sand to extend from the bottom of the pipe to the springline (mid point) of the pipe. Class 3 Fine Crushed Rock is then to be used as the backfill material from the springline up to the road pavement base.
- 11.3 **Allotments/Reserves/** - Selected best quality excavated in-situ material or other material as approved by Council.
- 12. COMPACTION STANDARDS**
- Compaction standards are to be checked and proven in accordance with the requirements of AS 1289. Where unspecified by the responsible Authority, the following minimum standards will apply:
- 12.1 **Structural Fill**
- (a) Fill base - top 150mm 95% standard compaction
 - (b) Fill zone - 95% standard compaction
 - (c) Under road pavement - zone less than 450mm under road pavement surface 98% standard compaction
- 12.2 **Road Pavement**
- (a) Road sub-grade - top 150mm 98% standard compaction
 - (b) Pavement materials - 98% modified compaction
- 12.3 **Trench Backfill**
- (a) Granular under all pavement & edgings/kerb sections - 98% modified compaction
 - (b) Granular behind kerbing - 95% modified compaction
 - (c) Earth around structures - 95% standard compaction
- 13. CONCRETE WORK**
- 13.1 **Minimum Strength** - Concrete for drainage pits to have a minimum compressive strength of 32 MPa at 28 days.
- Concrete for all other applications to have a minimum compressive strength of 25 MPa at 28 days
- 13.2 **Bar Chairs** - All reinforcement in footpaths, vehicle crossings and roads to be supported by appropriately sized bar chairs.
- 13.3 **Slump** - Concrete to have 75mm maximum slump.
- 13.4 **Kerb Cement Content** - Concrete for kerb extrusion machines to have a minimum cement content of 280 kg/m3.
- 13.5 **Services Distribution Mains & Conduits** - Mains and conduits are to be installed prior to kerb section construction works.
- 13.6 **Footpaths** - All footpaths are to be a minimum of 125mm thick with F62 reinforcement, bedded on min of 75mm compacted Class 3 FCR. Bedding to extend 100mm beyond the edges of the footpath. Contraction joints to be constructed at 12.5m intervals. Class 4 FCR is to be used where filling is required under footpath Class 3 FCR bedding material.
- 13.7 **Continuous Kerb** - To allow for a continuous concrete kerb and channel pour the "Gatic" HD concrete surround is to be in place prior to the pour commencing. If the pit surrounds are not in place then the initial kerb and channel pour is to stop one metre either side of pit.
- 14. ROAD PAVEMENT WORK**
- 14.1 **Pavement Composition** - The minimum standard of pavement composition is stated in the drawings for the respective road sections.
- 14.2 **Road surfacing** - Road surfacing must not be performed until all other works have been completed.
- 15. IDENTIFICATION MARKING**
- All identification marking figures are to be a minimum of 50mm high.
- 15.1 **Conduits** - Letter "W", "G" "E" or "T" for water, gas, electricity or telecommunications conduit to be stamped into face of kerb sections at frontage of lot served.

- 15.2 **House Drain Connections** - Letter "H" to be stamped into face of kerb sections opposite street drain connection point.
- 15.3 **Lot Nos.** - Lot Nos. to be stenciled in white paint on face of kerb sections at lot frontages.
- 16. TESTING**
- 16.1 **Specified Testing** - Testing will be conducted in compliance with specified requirements. The Contractor is liable for all costs.
- 16.2 **Proof-Rolling** - Pneumatic tyred plant minimum weight 20 tonne with minimum ground contact pressure 450 kPa per tyre.
- 17. EXPOSED SURFACES RESTORATION**
- 17.1 **Topsoiling** - All exposed residual surface areas at completion of civil works to be topsoiled with 100mm depth of best available material.
- 17.2 **Allotments/Reserves** - Allotments and reserves are to be evenly graded at a minimum gradient of 1 in 100 to their nominated drainage connection points.
- 17.3 **Nature Strips** - Nature strip surfaces are to be trimmed to grade between adjacent surfaces. Top-soiling and compaction operations are to ensure there is no later settlement/subsidence.
- 17.4 **Top-Dressing** - Undisturbed grassed areas are to be top-dressed and evenly graded as directed by the Superintendent.
- 17.5 **Hydroseeding** - At completion of the above works all prepared exposed surfaces are to be well watered and hydroseeded.
- 17.6 **Batter Slopes** - Batter slopes shall be a maximum of 1 in 5 for fill and 1 in 3 for cut unless otherwise shown.

- 18. FINAL WORKS PRESENTATION**
- At Practical Completion the following minimum standards of presentation will apply:
- 18.1 **Roads/Paved Areas** - All roads and paved areas are to be swept/washed down to produce clean surfaces free of all deleterious materials.
- 18.2 **Pipe Systems** - All pipe systems are to be flushed and cleared of all accumulated debris and deleterious materials.

- 18.3 **Site** - The site is to be prepared to a state acceptable for presentation to the public for sale purposes and is to be in a condition satisfactory to the Superintendent with completion of, at least, the following activities:
- (a) all incidental and minor works
 - (b) site clean up operations
 - (c) site cleared of all facilities, temporary structures, plant, litter, surplus materials, etc. that are to be removed off-site.

- 18.4 **Reserve Frontages** - Round topped treated pipe bollards (0.6m high) are to be placed across reserve frontages at 1.5m centres. A demountable section for vehicle access consisting of an appropriate length of 50mm diameter (2.3mm wall thickness) galvanised water pipe, short section of chain (3 links) welded to each end. Two galvanised steel bollards - one each side of the entry, with one end to have a D20 padlock, which locks in to a link, which has been welded onto the bollard. Unless otherwise stated on plans.

- 18.5 **Street Signs** - Street signs are to be located as indicated on the plans and installed in accordance with Vicroads Traffic Engineering Manual Volume 2. Mounting height is to be to the underside of the sign and is to be a minimum of 2.1m and maximum of 3.0m

- 18.6 **No Through Road** - No through road signs are to be installed below the street sign where applicable.

- 19. MAINTENANCE WORKS**
- The Contractor must responsively repair/remediate defective works as directed during the maintenance period.

- 19.1 **Council Assets** - for Maintenance Period of 3 months
- 19.2 **Water Company Assets** - for Defects Liability Period of 12 months and Maintenance Period of 2 years

- 19.3 **Inspection & General Maintenance Activities** - the Contractor must undertake regular site inspections of all completed works. Special attention must be given to the adequacy of the following soil protection works:

- (a) Silt fences
- (b) Silt barriers
- (c) Areas hydroseeded

DRAWING NOTES

1. Do not scale drawings - use only dimensions stated.
2. Dimensions - Dimensions are in metres [m] unless otherwise stated.
3. Australian Height Datum - Reduced levels are to Australian Height (AHD) unless otherwise stated.

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J.Golden
Date
January 2011

Scale @ A1



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Smec Urban
Level 1, 47 Pakington Street, Geelong West, VIC, 3218
p +61 3 5228 3100 | f +61 3 5228 3199 | www.smu.com.au

Adelaide +61 8 8223 6455 Gold Coast +61 7 5578 0222
Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Cairns +61 2 6126 1900 Darwin +61 3 5173 0100

Estuary

Stage 7
City of Greater Geelong
Roadworks and Drainage
General Notes

Drawing No. 0250EHL-07-02 Rev C
Sheet No. 2 of 42

Approved for Construction



LEGEND - LAYOUT PLAN

- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- SERVICE CONDUITS
- TACTILE PAVERS
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING TELSTRA
- EXISTING WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- EXISTING HOUSE DRAIN
- EXISTING SURFACE LEVEL
- FINISHED BUILDING LINE LEVEL
- FINISHED RIDGE LINE LEVEL
- TOP OF RETAINING WALL
- BOTTOM OF RETAINING WALL
- RETAINING WALL
- ZERO LOT LINES
- PAVEMENT TREATMENT
- STRUCTURAL FILL > 200mm DEEP
- EX. STRUCTURAL FILL > 200mm DEEP
- DIRECTION OF FALL
- OVERLAND FLOW
- ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
- CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- PROPOSED DRIVEWAY

SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET	EAST	2.10	EAST	2.70	WEST	1.10	WEST	0.50
TREEFERN STREET E/W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
HEADLAND DRIVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70
EVERGLADE STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
PARKFRONT DRIVE	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
ESTUARY BOULEVARD	SOUTH	2.70	SOUTH	3.20	NORTH	3.40	NORTH	2.80
BARNEY GROVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70

ROAD LAYOUT TABLE

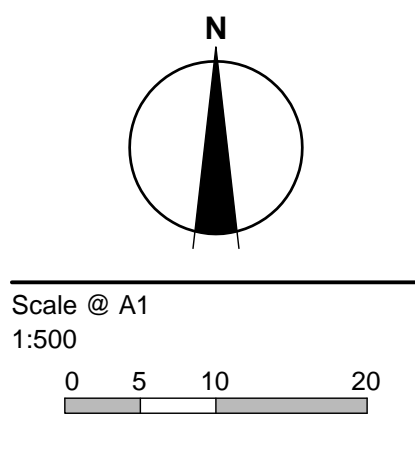
ROAD NAME	RESERVE WIDTH (m)	ROAD WIDTH (m)			KERB TYPE		VERGE WIDTH (m)	
		LIP to LIP	INV to INV	BACK to BACK	NTH/WEST	STH/EAST	NTH/WEST	STH/EAST
TREEFERN STREET	14.00	6.60	7.20	7.50	B2	B2	2.25	4.25
TREEFERN STREET E/W	13.00	6.60	7.20	7.50	B2	B2	5.50	-
HEADLAND DRIVE	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
EVERGLADE STREET	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
PARKFRONT DRIVE	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
TIMBERLAND STREET	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25
ESTUARY BOULEVARD NO PARKING	22.00	6.40	7.00	7.30	B2	B2	7.35	7.35
ESTUARY BOULEVARD PARKING	22.00	11.00	11.60	11.90	B2	B2	5.05	5.05
BARNEY GROVE	16.00	6.60	7.20	7.50	B2	B2	4.25	4.25

WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site.
 No guarantee is given that all existing services are shown. Locate all underground services before commencement of works.
DIAL 1100 BEFORE YOU DIG
www.1100.com.au

REVISION	DATE	DESIGN	APPD
L VEHICLE CROSSING AMENDED LOT 714	07.02.11	CB/CB	JG
J MINOR AMENDMENTS	30.08.11	CB/CB	JG
H VEHICLE CROSSING CHANGE LOT 730	14.07.11	CB/CB	JG
G MINOR AMENDMENTS	09.06.11	CB/CB	JG
F MINOR AMENDMENTS	30.05.11	CB/CB	JG
E MINOR AMENDMENTS	20.05.11	CB/CB	JG
D COUNCIL AMENDMENTS	18.04.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	AP/AP	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG

estuary leopard
 Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C.Birkett
 Authorised
J.Golden
 Date
December 2010



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 consulting group
Smec Urban
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 p +61 3 5228 3100 | f +61 3 5228 3199 | www.smu.com.au
 Adelaide +61 8 8223 6455 Gold Coast +61 7 5578 0222
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Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Layout Plan - 1
Drawing No. 0250EHL-07-03 Rev L
 Sheet No. 3 of 42
Approved for Construction



LEGEND - LAYOUT PLAN

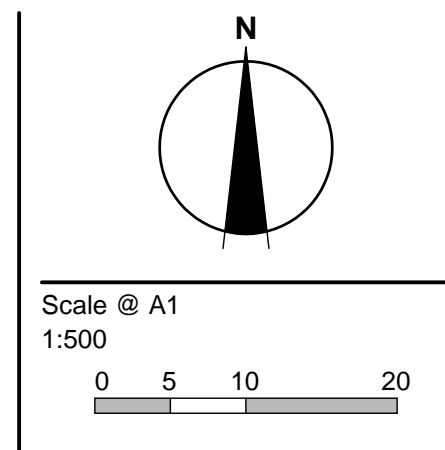
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K	MINOR AMENDMENTS	20.07.11	CB/CB	JG
J	VEHICLE CROSSING CHANGE FOR LOT 730	14.07.11	CB/CB	JG
G	MINOR AMENDMENTS	30.05.11	CB/CB	JG
F	MINOR AMENDMENTS	20.05.11	CB/CB	JG
E	COUNCIL AMENDMENTS	18.05.11	CB/CB	JG
D	COUNCIL AMENDMENTS	04.05.11	CB/CB	JG
C	COUNCIL AMENDMENTS	05.04.11	AP/AP	JG
B	COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
	REVISION	DATE	DES/DT	APPD

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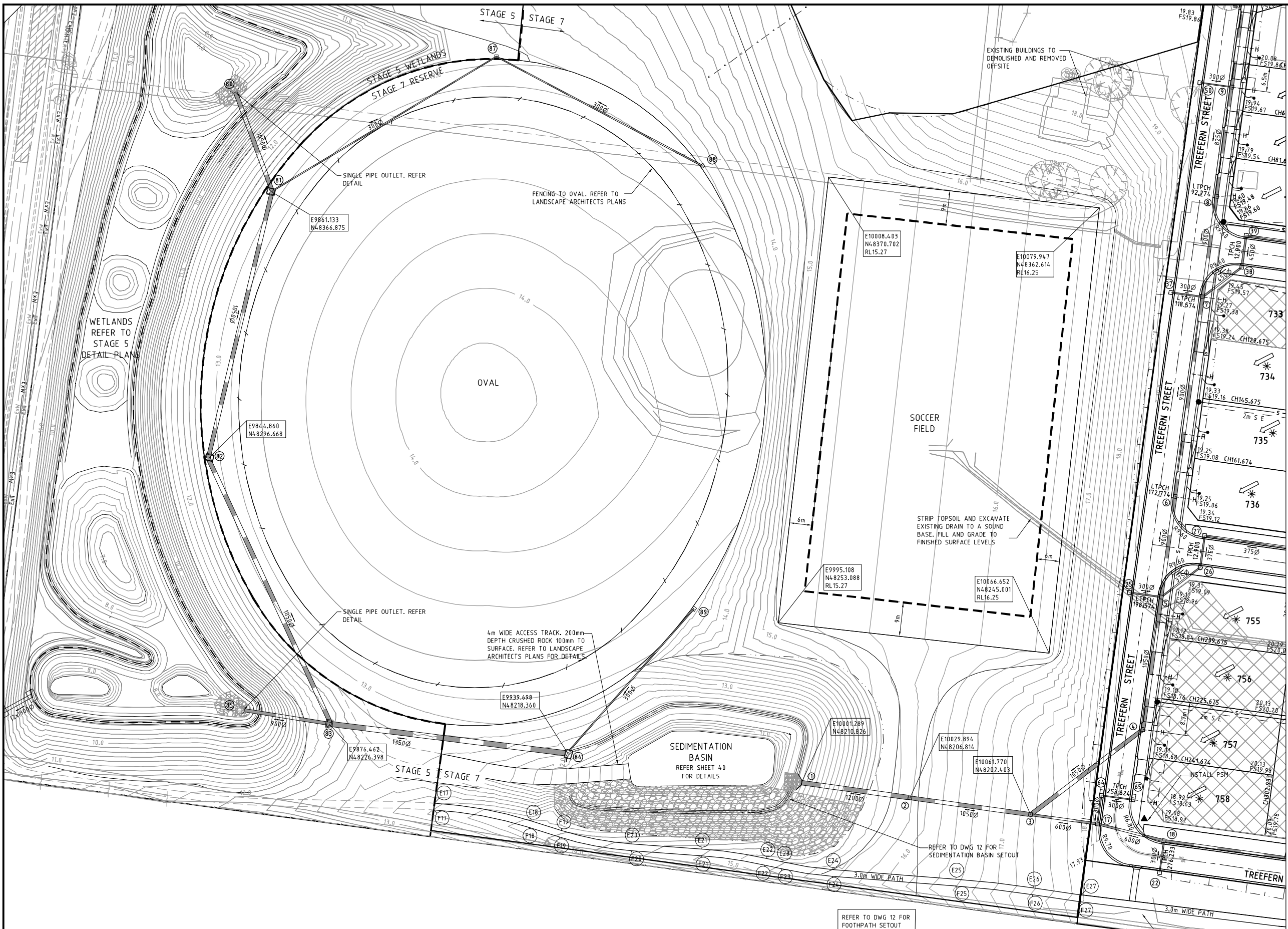
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 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Layout Plan - 2

Drawing No. **0250EHL-07-04** Rev M
 Sheet No. 4 of 42

Approved for Construction



LEGEND - LAYOUT PLAN

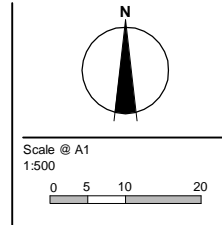
- SWALM DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- SERVICE CONDUITS
- TACTILE PAVERS
- EXISTING ELECTRICITY (UNDERGROUND)
- EXISTING ELECTRICITY (OVERHEAD)
- EXISTING GAS
- EXISTING TELSTRA
- EXISTING WATER
- EXISTING STORMWATER DRAIN
- EXISTING SEWER
- EXISTING HOUSE DRAIN
- EXISTING SWALE DRAIN
- EXISTING SURFACE LEVEL
- FINISHED BUILDING LINE LEVEL
- FINISHED RIDGE LINE LEVEL
- TOP OF RETAINING WALL
- BOTTOM OF RETAINING WALL
- RETAINING WALL
- ZERO LOT LINES
- PAVEMENT TREATMENT
- STRUCTURAL FILL > 200mm DEEP
- EX. STRUCTURAL FILL > 200mm DEEP
- DIRECTION OF FALL
- OVERLAND FLOW
- ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
- CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- LIMIT OF WORKS
- EXISTING TREE TO BE REMOVED
- PERMANENT SURVEY MARK
- TEMPORARY BENCH MARK
- PROPOSED DRIVEWAY

WARNING
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REVISION	DATE	DES/DFT	APPD
F	22.11.11	AH/AH	JG
E	05.07.11	CB/CB	JG
D	18.05.11	CB/CB	JG
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C.Birkett
 Authorised
J.Golden
 Date
December 2010



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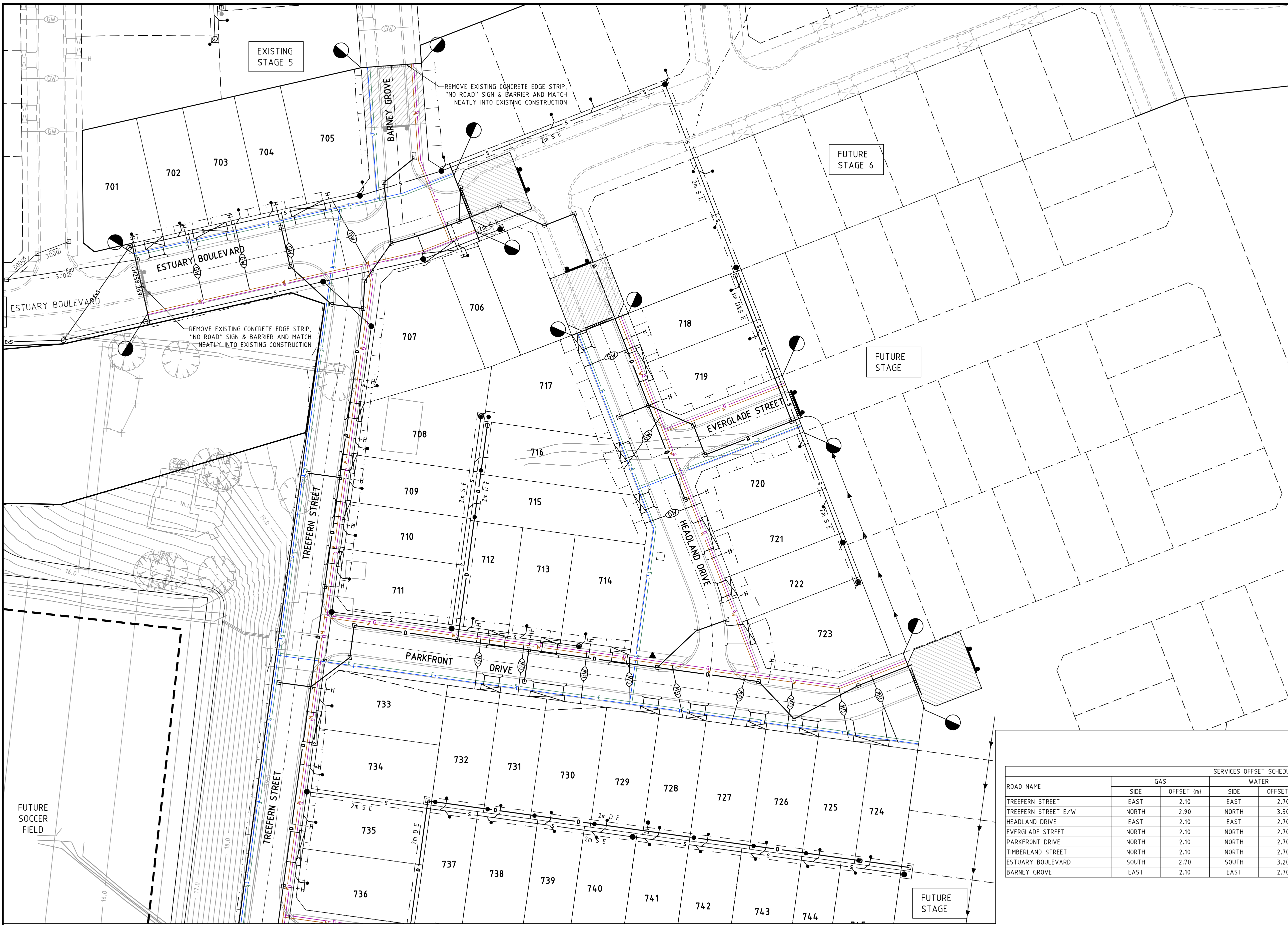
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Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Layout Plan - 3

Drawing No. **0250EHL-07-05** Rev **F**
 Sheet No. 5 of 43

Approved for Construction



LEGEND - FUNCTIONAL LAYOUT PLAN

- E — ELECTRICITY (UNDERGROUND)
- G — GAS
- T — TELSTRA
- W — WATER
- — STORMWATER DRAIN, PIT & PROPERTY INLET
- S — SWALE DRAIN
- — SEWER & MAINTENANCE STRUCTURES
- H — HOUSE DRAIN
- GW — SERVICE CONDUITS
- ▨ — TACTILE PAVERS
- Ex E — EXISTING ELECTRICITY (UNDERGROUND)
- Ex H — EXISTING ELECTRICITY (OVERHEAD)
- Ex G — EXISTING GAS
- Ex T — EXISTING TELSTRA
- Ex W — EXISTING WATER
- Ex D — EXISTING STORMWATER DRAIN
- Ex S — EXISTING SEWER
- Ex H — EXISTING HOUSE DRAIN
- Ex S — EXISTING SWALE DRAIN
- — — — — ZERO LOT LINES
- ▨ — PAVEMENT TREATMENT
- — — — — DIRECTION OF FALL
- — OVERLAND FLOW
- — — — — ALLOTMENT TO BE GRADED EVENLY IN DIRECTION OF FALL TO LEVELS INDICATED
- — — — — CONCRETE EDGE STRIP WITH SUBSOIL DRAIN, "NO ROAD" SIGN & BARRIER
- — — — — LIMIT OF WORKS
- ⊗ — EXISTING TREE TO BE REMOVED

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 www.1100.com.au

SERVICES OFFSET SCHEDULE

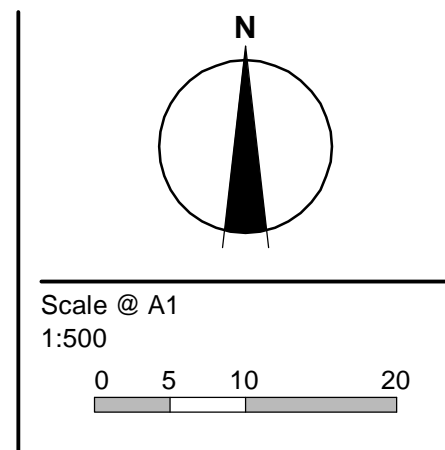
ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET	EAST	2.10	EAST	2.70	WEST	1.10	WEST	0.50
TREEFERN STREET E/W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
HEADLAND DRIVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70
EVERGLADE STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
PARKFRONT DRIVE	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
ESTUARY BOULEVARD	SOUTH	2.70	SOUTH	3.20	NORTH	3.40	NORTH	2.80
BARNEY GROVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70

FOR CONTINUATION REFER 0250EHL-07-04

REVISION	DATE	DES/DFT	APP'D
F ROAD NAMES AMENDED	22.11.11	AH/AH	JG
E MINOR AMENDMENTS	30.08.11	CB/CB	JG
D MINOR AMENDMENTS	09.06.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL		AP/AP	JG

estuary leapold
 Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C.Birkett
 Authorised
J.Golden
 Date
December 2010



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smec urban
 consulting group

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Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Services Layout Plan - 1

Drawing No. 0250EHL-07-06 **Rev F**
 Sheet No. 6 of 42

Approved for Construction



LEGEND - LAYOUT PLAN

- S — S — STORMWATER DRAIN, PIT & PROPERTY INLET
- SW — SWALE DRAIN
- S — SEWER & MAINTENANCE STRUCTURES
- H — HOUSE DRAIN
- GW — SERVICE CONDUITS
- T — TACTILE PAVERS
- Ex E — EXISTING ELECTRICITY (UNDERGROUND)
- O/H E — EXISTING ELECTRICITY (OVERHEAD)
- Ex G — EXISTING GAS
- Ex T — EXISTING TELSTRA
- Ex W — EXISTING WATER
- Ex D — EXISTING STORMWATER DRAIN
- Ex S — EXISTING SEWER
- H — EXISTING HOUSE DRAIN
- SW — EXISTING SWALE DRAIN
- 14.1.34 — EXISTING SURFACE LEVEL
- FR1514.0.35 — FINISHED BUILDING LINE LEVEL
- FR1517.4.0 — FINISHED RIDGE LINE LEVEL
- TW1519.3.0 — TOP OF RETAINING WALL
- BW1519.3.0 — BOTTOM OF RETAINING WALL
- — RETAINING WALL
- — ZERO LOT LINES
- — PAVEMENT TREATMENT
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 www.1100.com.au

REVISION	DATE	DESIGN	APP'D
E ROAD NAMES AMENDED	22.11.11	AH/AH	JG
D MINOR AMENDMENTS	09.06.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL		AP/AP	JG

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C.Birkett
 Authorised
J.Golden
 Date
December 2010

Scale @ A1
 1:500
 0 5 10 20

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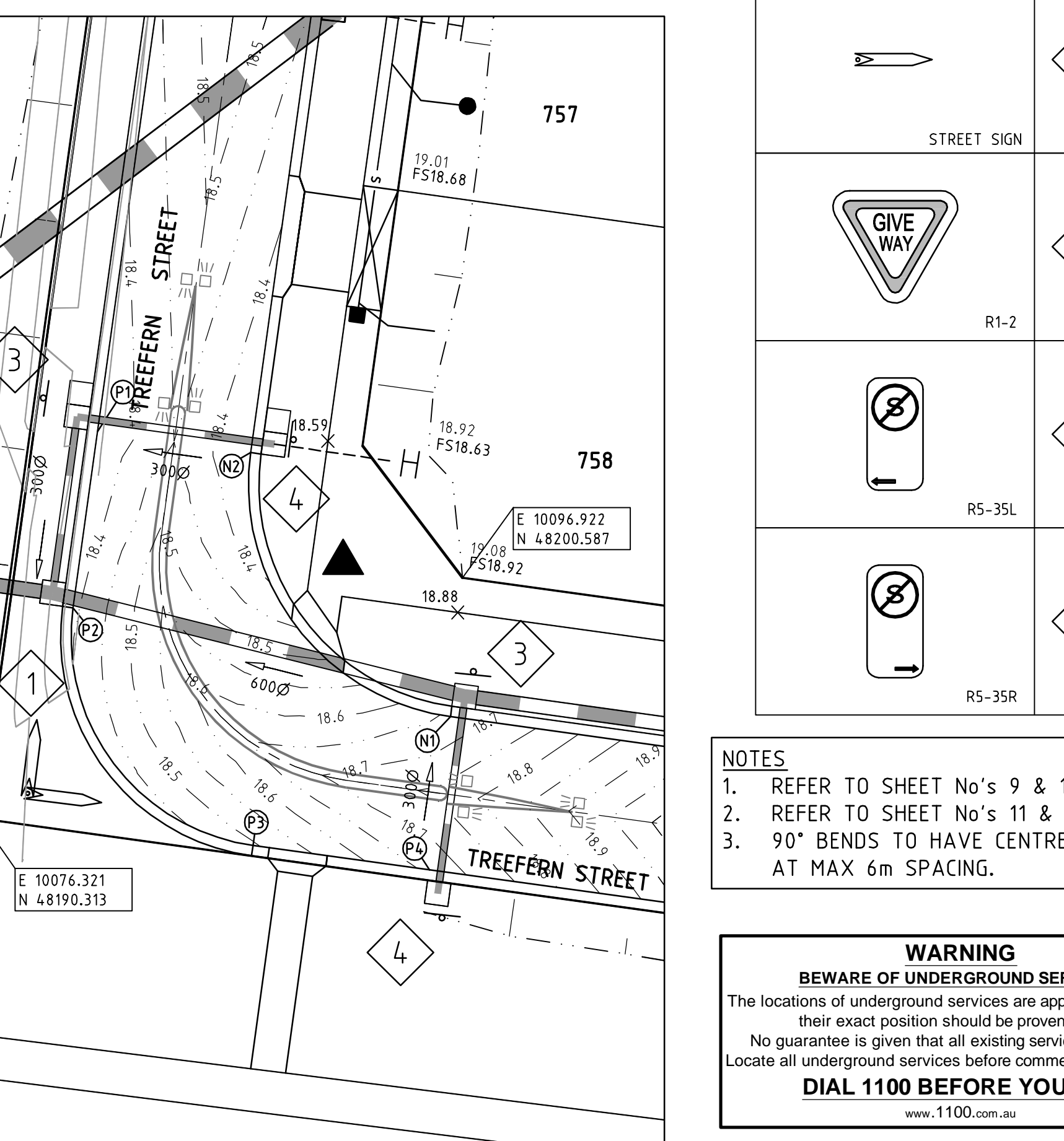
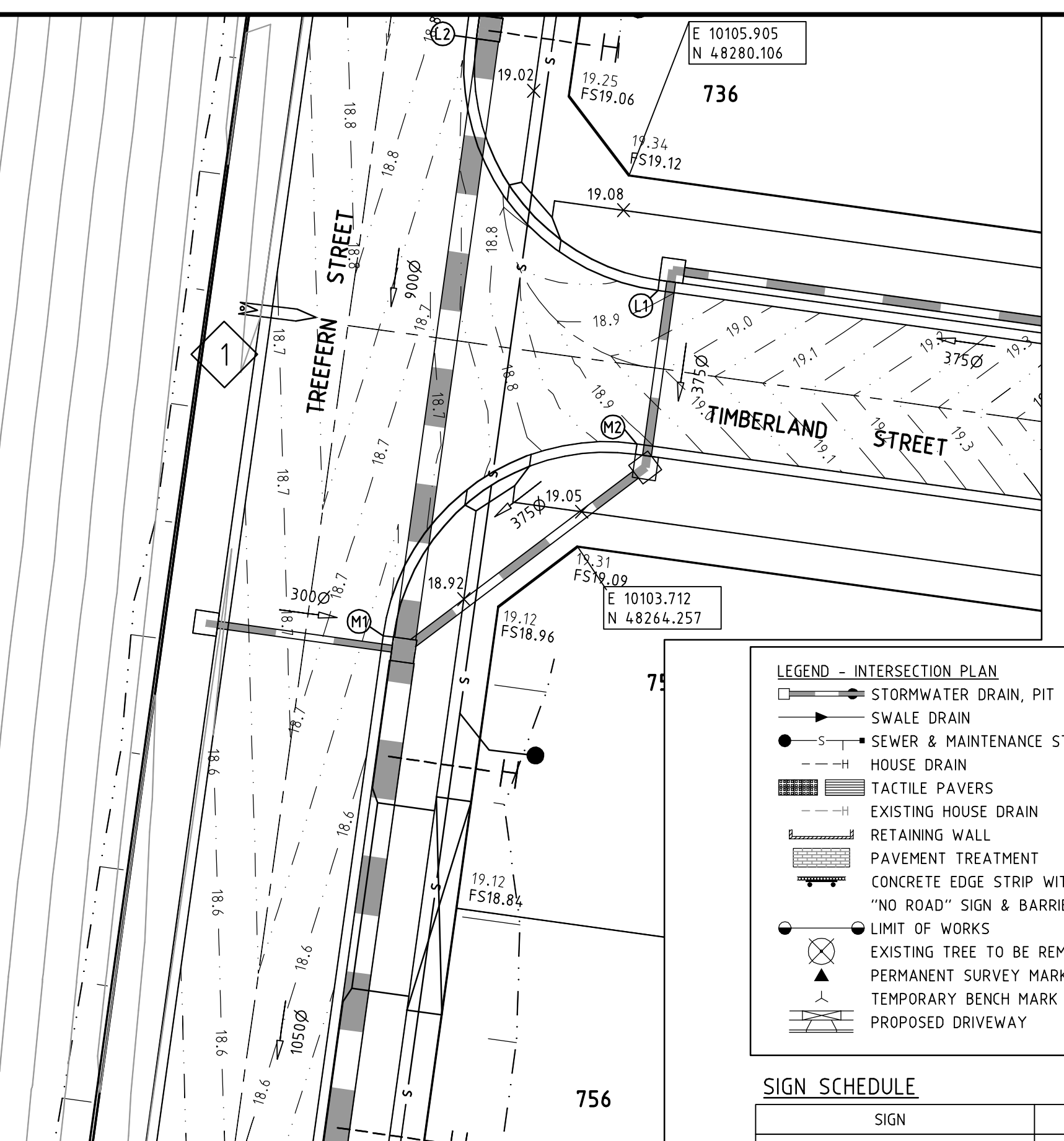
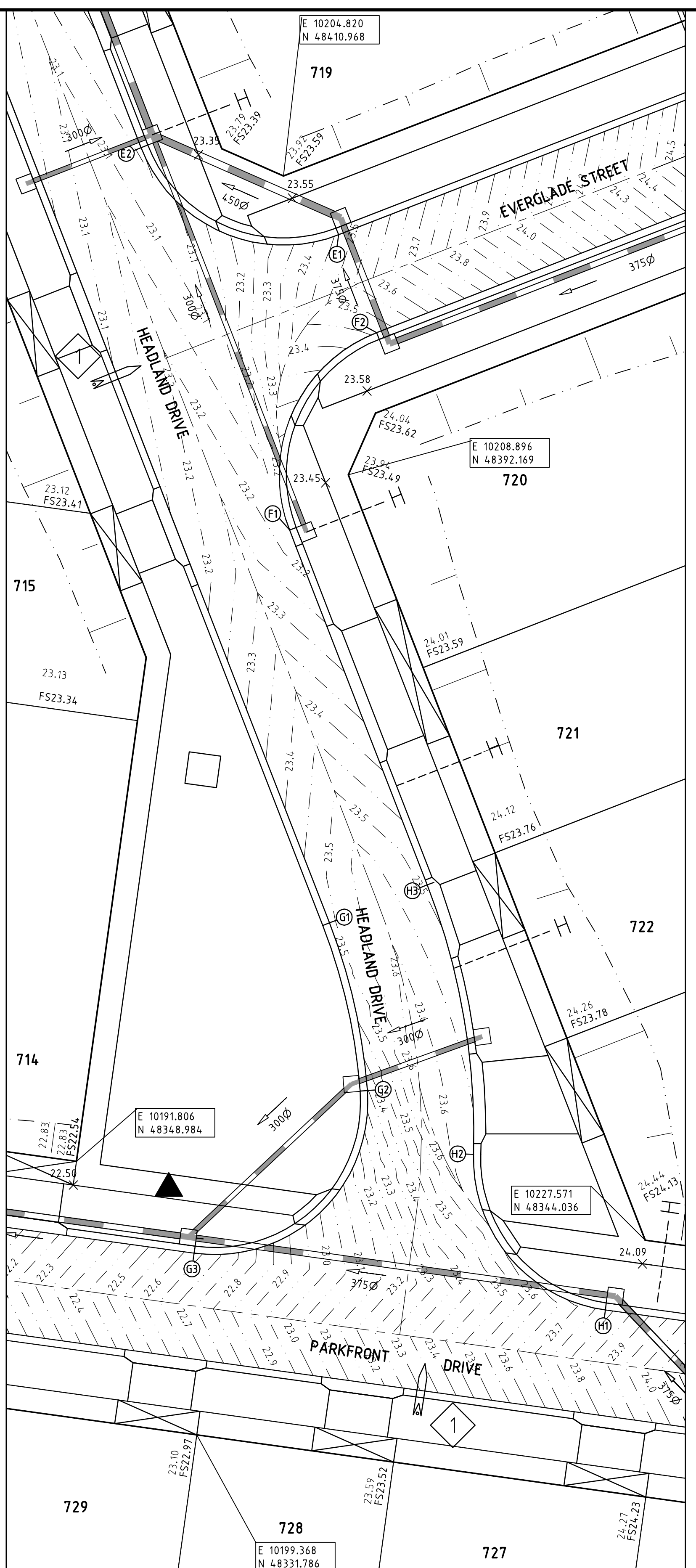
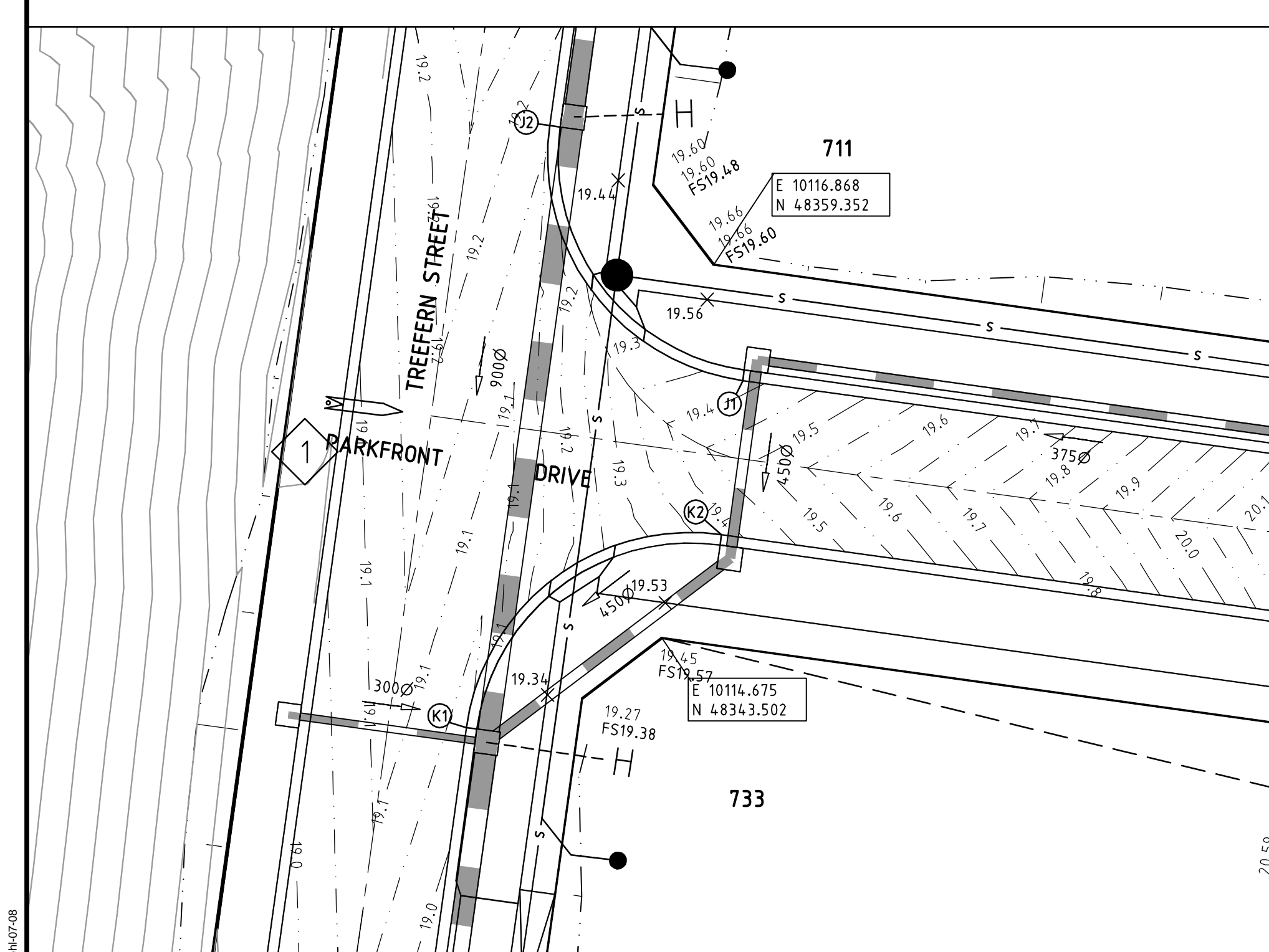
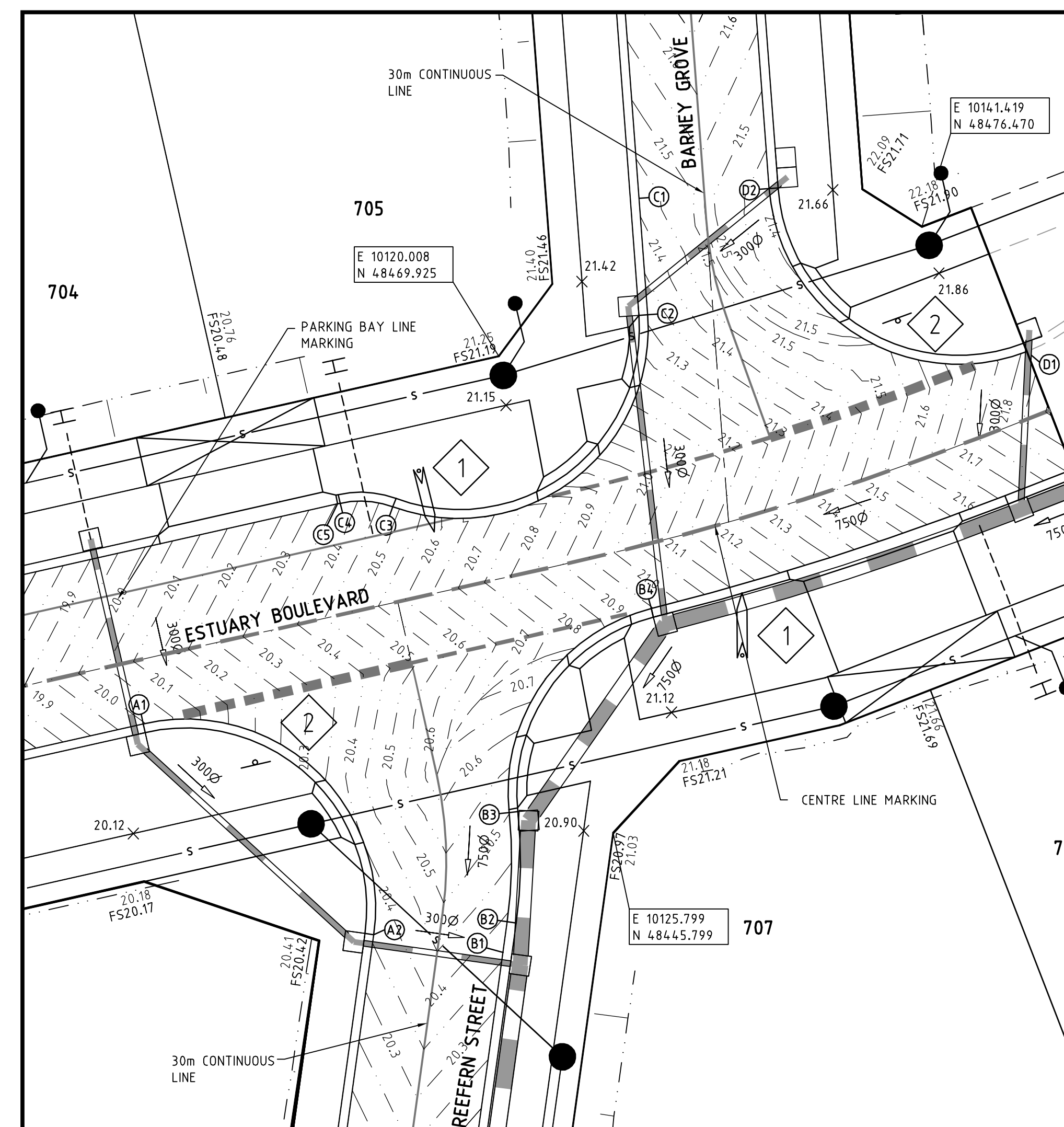
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Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Services Layout Plan - 2

Drawing No. **0250EHL-07-07** Rev **E**
 Sheet No. 7 of 42

Approved for Construction



LEGEND - INTERSECTION PLAN

- STORMWATER DRAIN, PIT & PROPERTY INLET
- SWALE DRAIN
- SEWER & MAINTENANCE STRUCTURES
- HOUSE DRAIN
- TACTILE PAVERS
- EXISTING HOUSE DRAIN
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- PROPOSED DRIVEWAY

SIGN SCHEDULE

SIGN	REF
	1
STREET SIGN	
	2
R1-2	
	3
R5-35L	
	4
R5-35R	

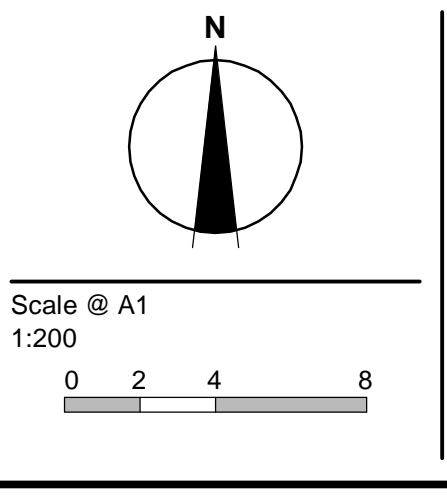
- NOTES**
- REFER TO SHEET No's 9 & 10 FOR LIP PROFILES.
 - REFER TO SHEET No's 11 & 12 FOR SETOUT INFORMATION.
 - 90° BENDS TO HAVE CENTRELINE MARKING WITH RRPM'S AT MAX 6m SPACING.

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REVISION	DATE	DES/DT	APP'D
F ROAD NAMES AMENDED	22.11.11	AH/AH	JG
E MINOR AMENDMENTS	09.06.11	CB/CB	JG
D PARKING BAY LINEMARKING NOTE ADDED	20.05.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
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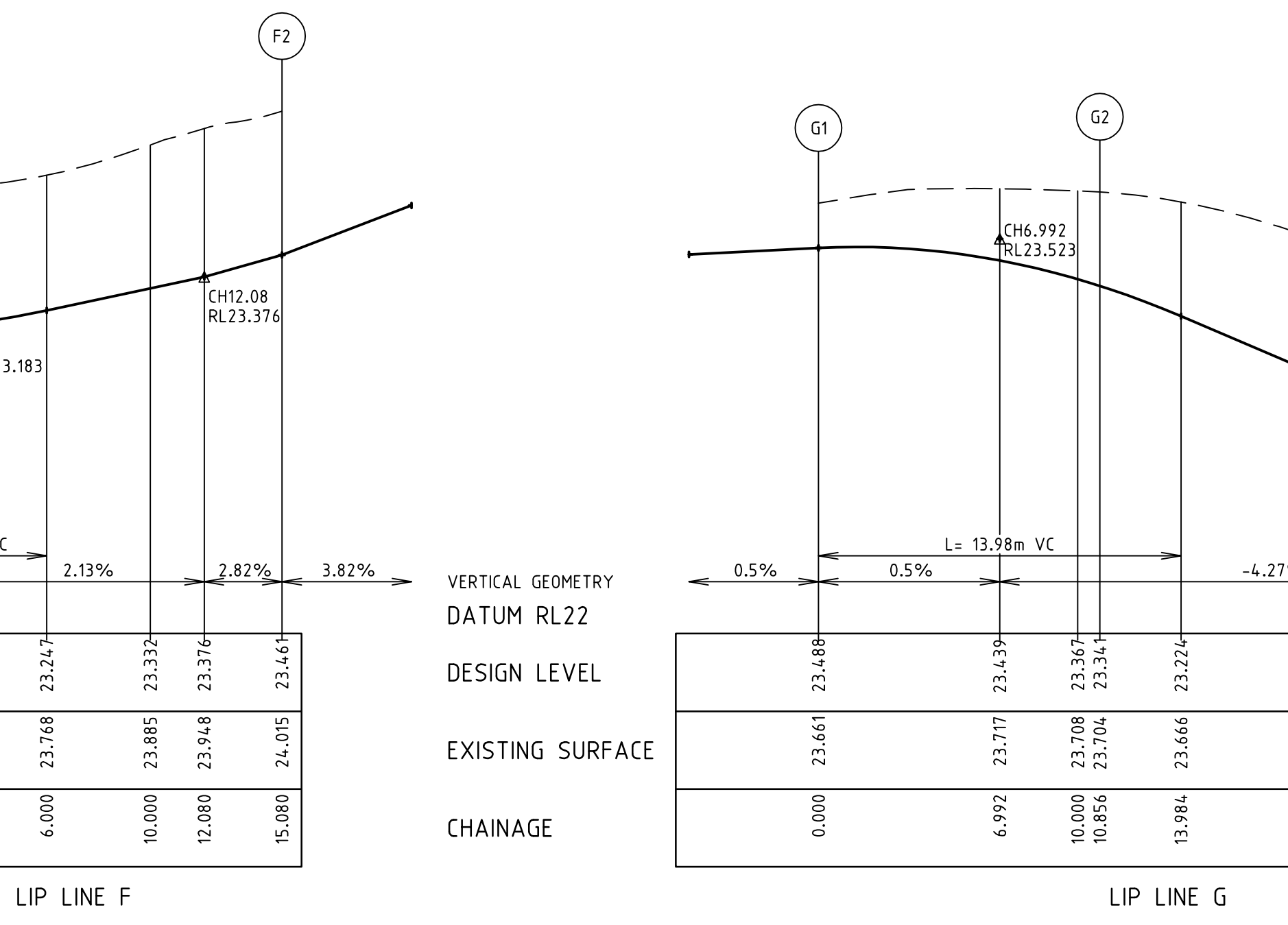
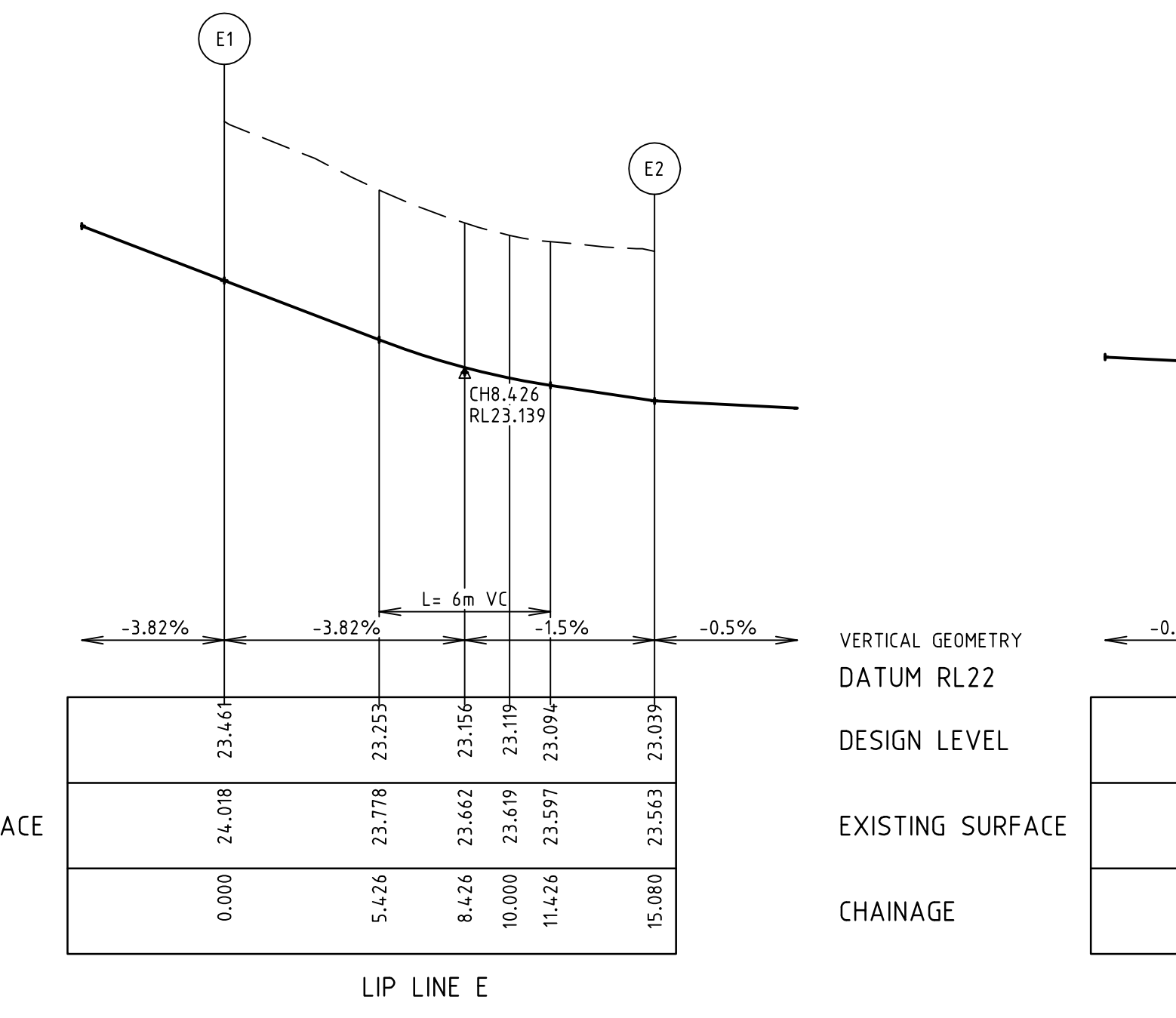
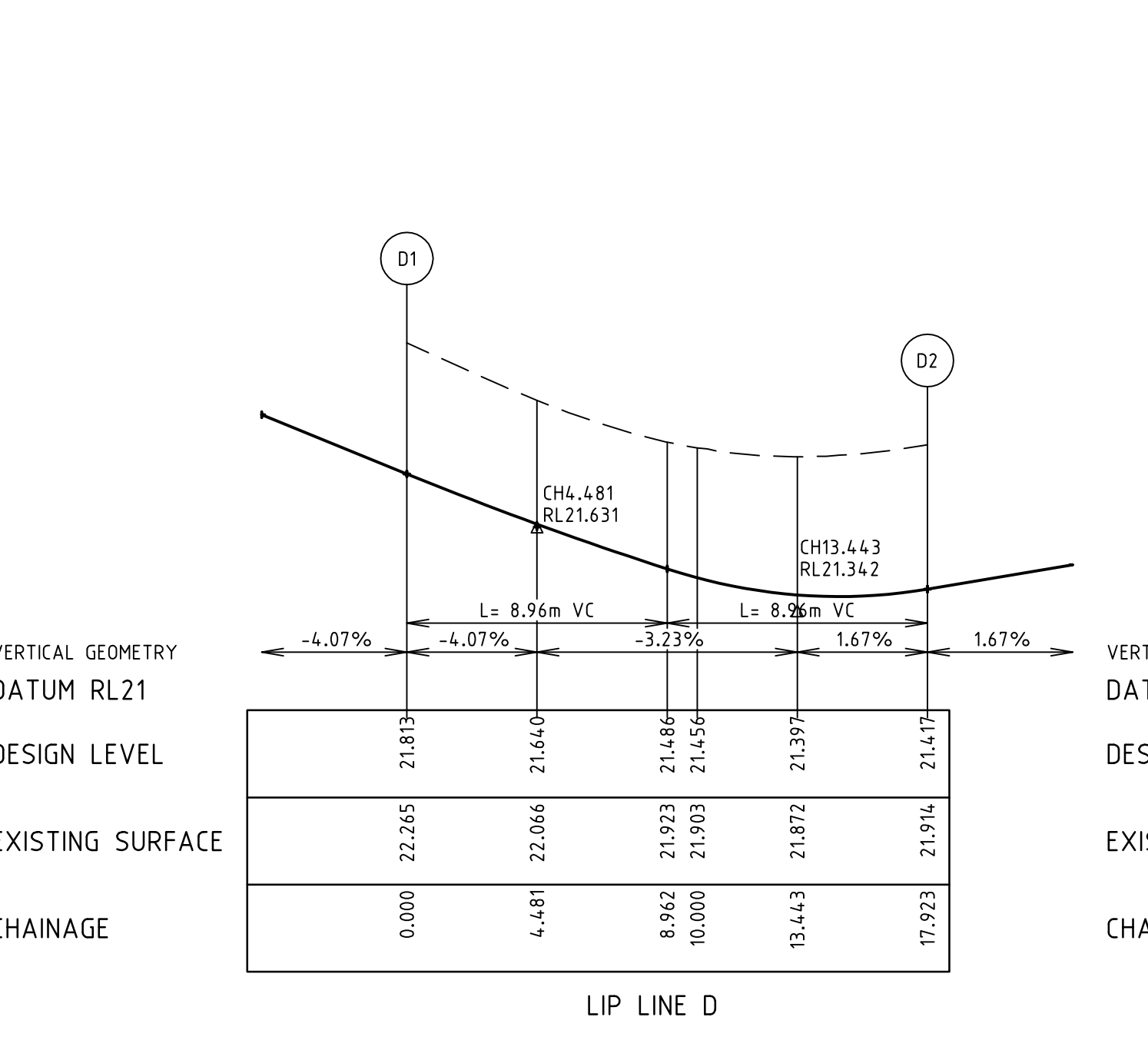
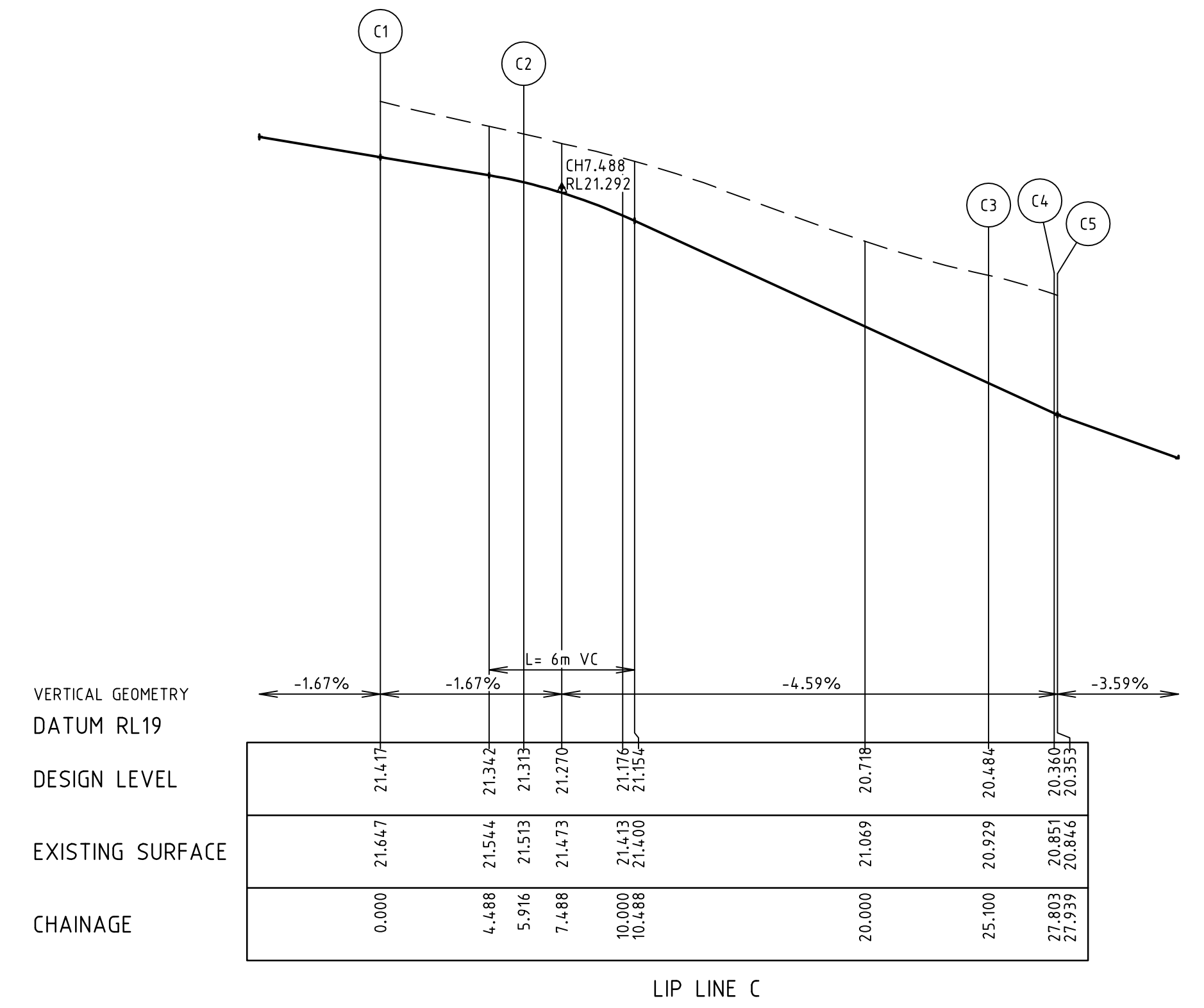
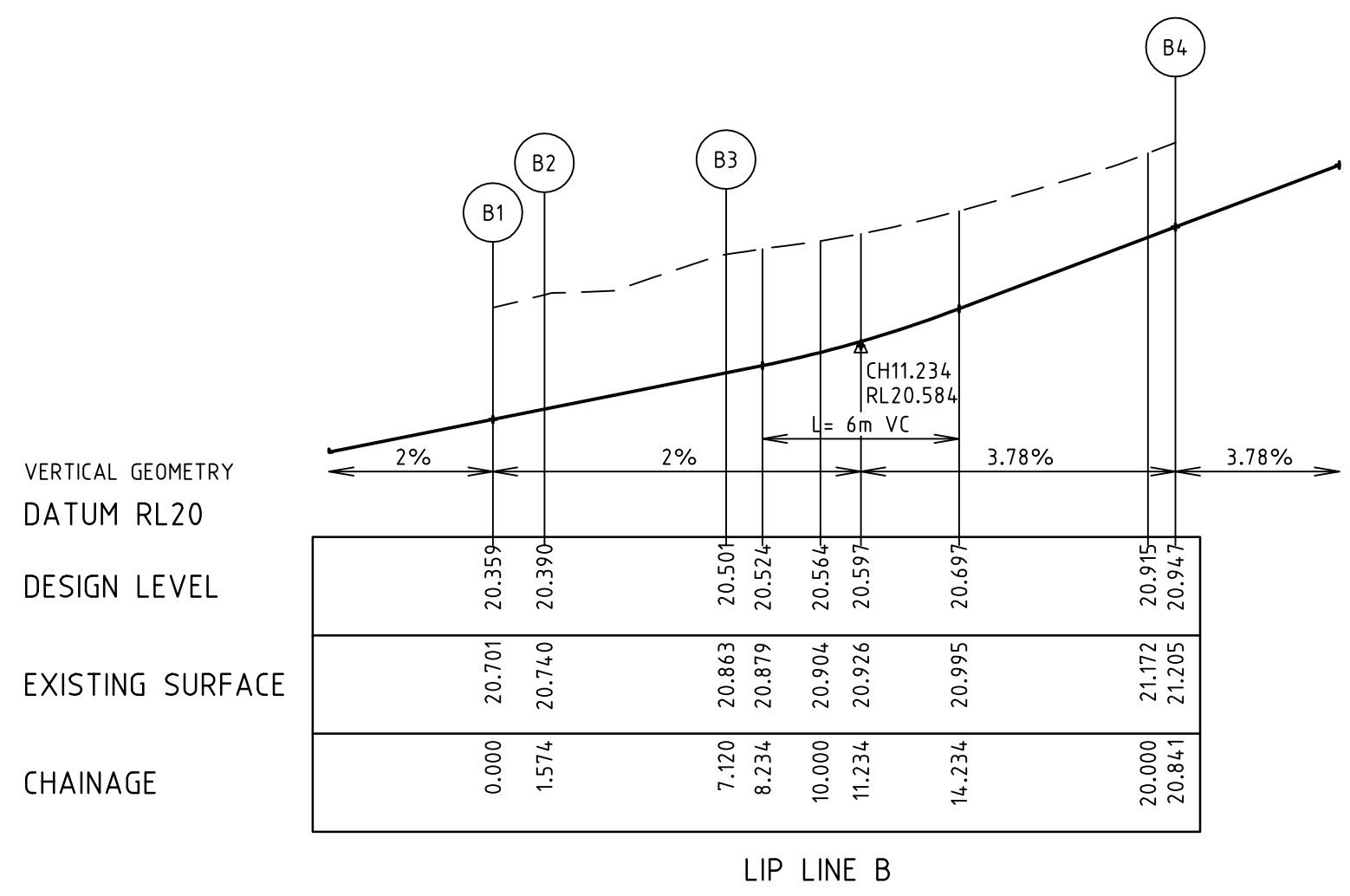
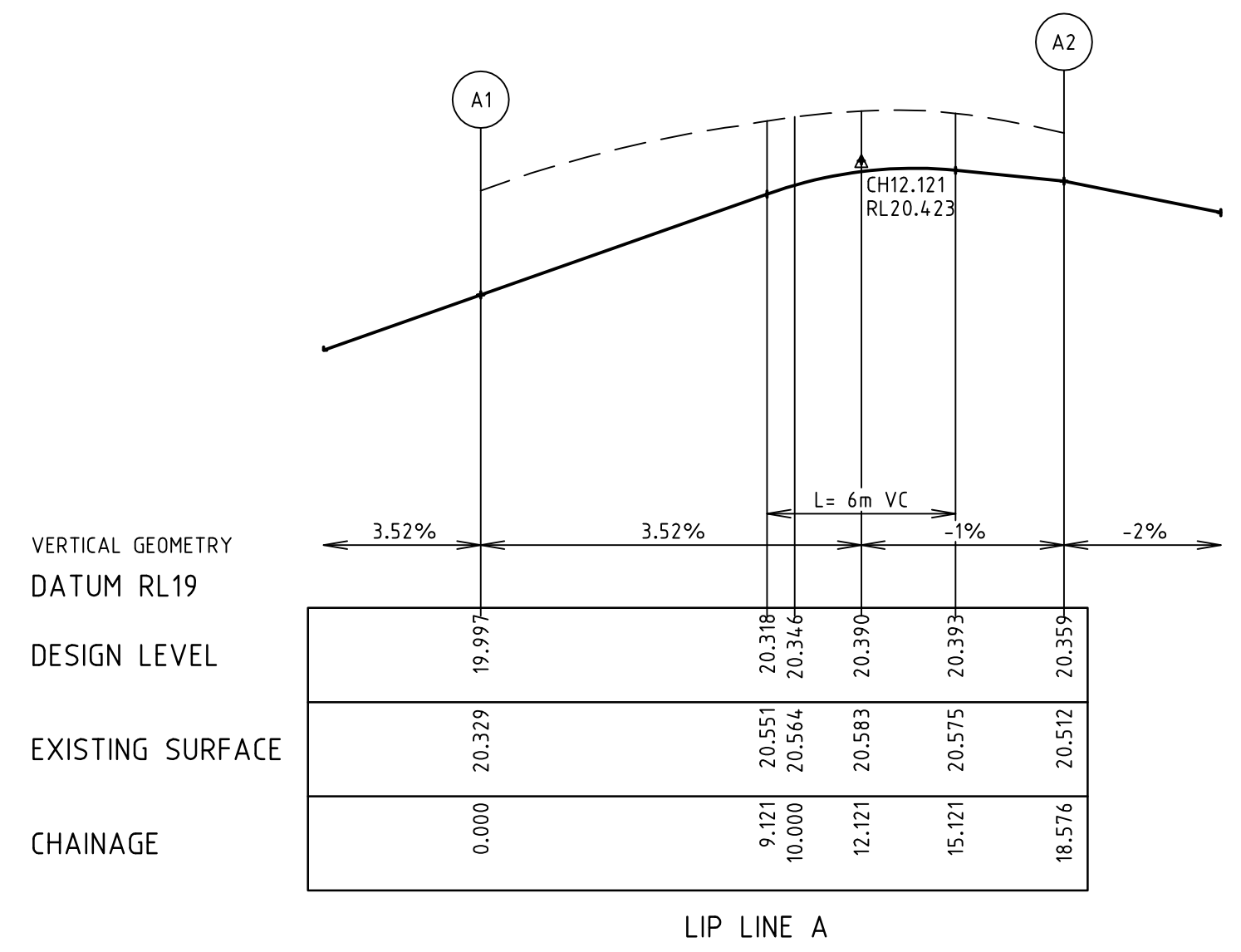
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Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Intersection Detail Plan

Drawing No. 0250EHL-07-08 **Rev F**
 Sheet No. 8 of 42

Approved for Construction

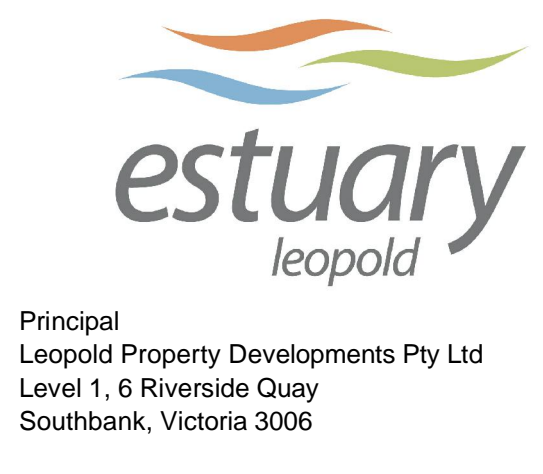
LEGEND
 --- EXISTING SURFACE
 ——— DESIGN LINE
 - - - FUTURE DESIGN LINE



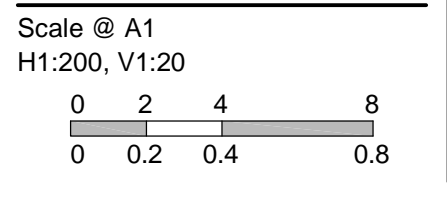
NOTES
 1. CHAINAGES REFER TO LIP OF KERB/EDGE OF CONCRETE.
 2. REFER TO SHEET No's 11 & 12 FOR SETOUT INFORMATION.

I:\work\eng\0250EHL - horizons\leopard\0250EHL - 7\eng\0250EHL-07-09

REVISION	DATE	DES/DFT	APPD
A	13.01.11	AP/AP	JG
B	16.02.11	AP/AP	JG
C	05.04.11	CB/CB	JG
D	08.06.11	CB/CB	JG



Designed
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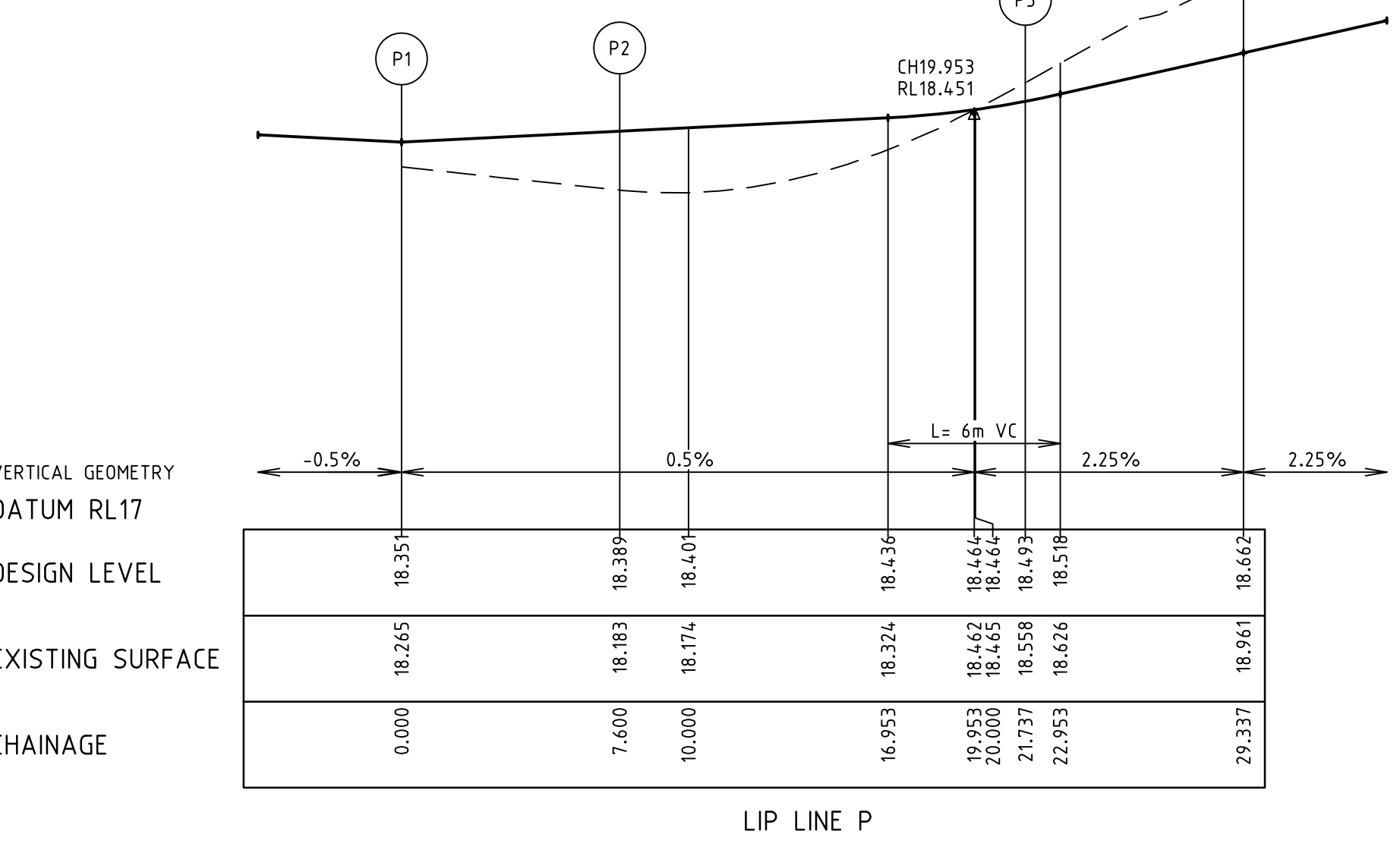
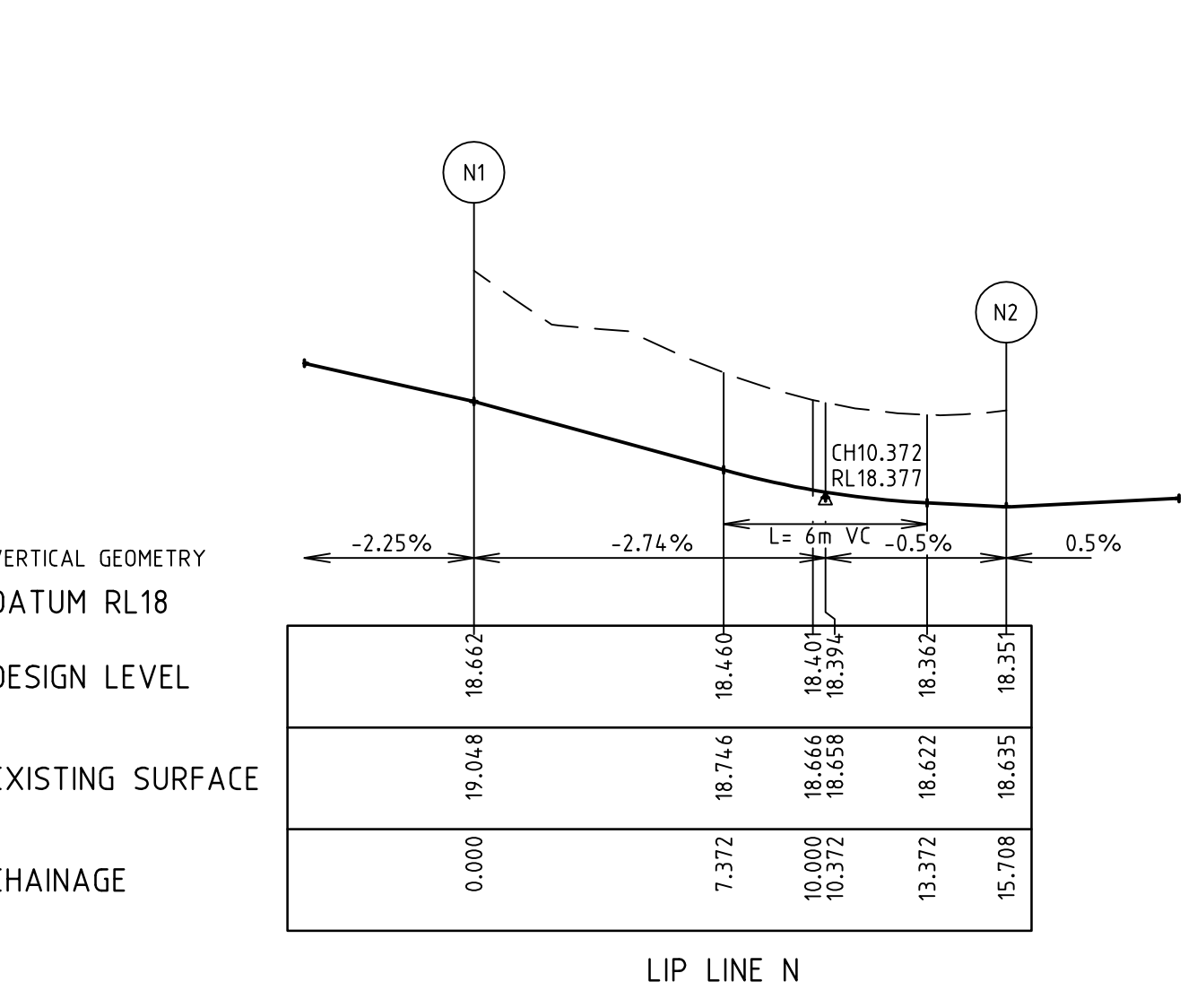
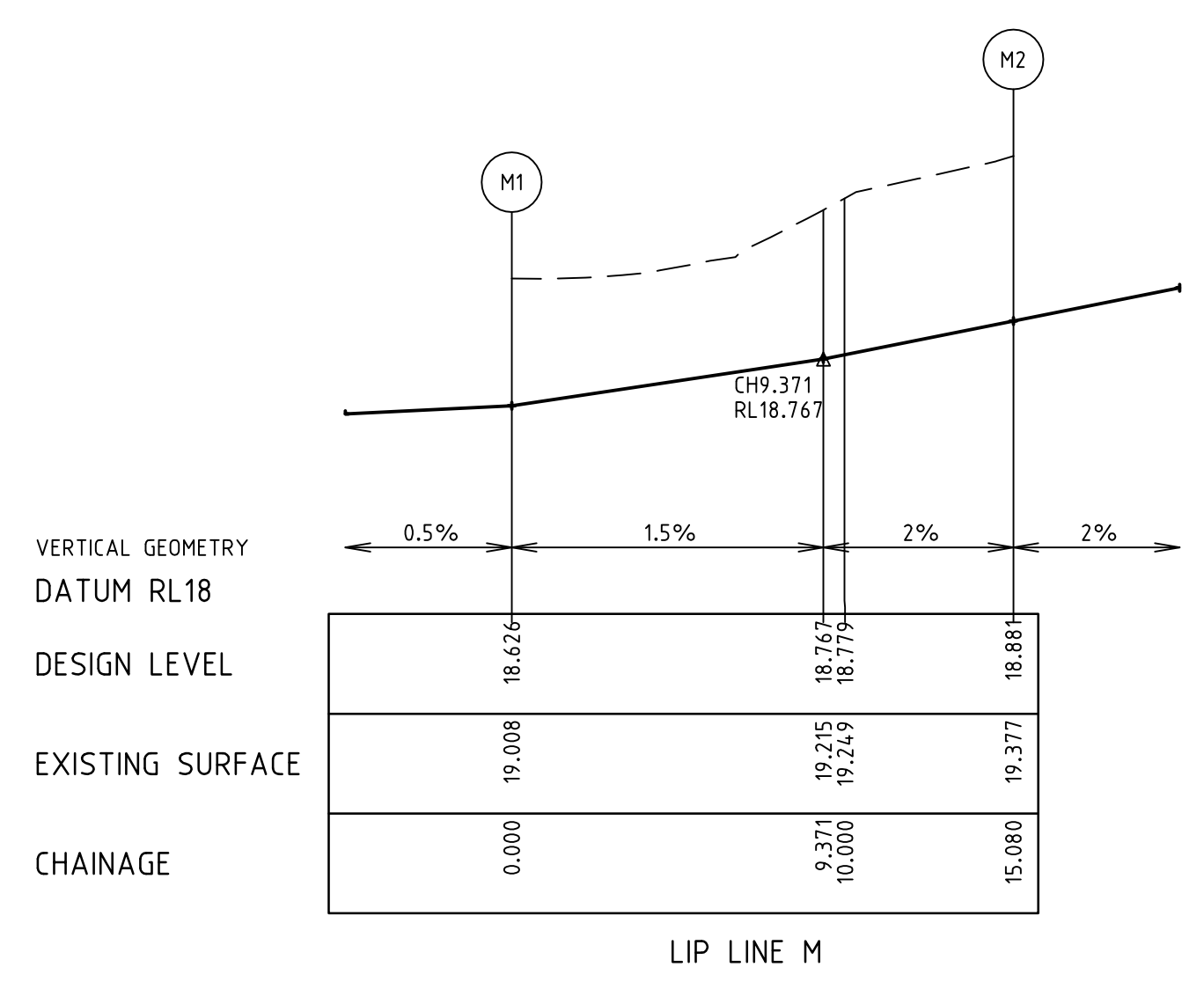
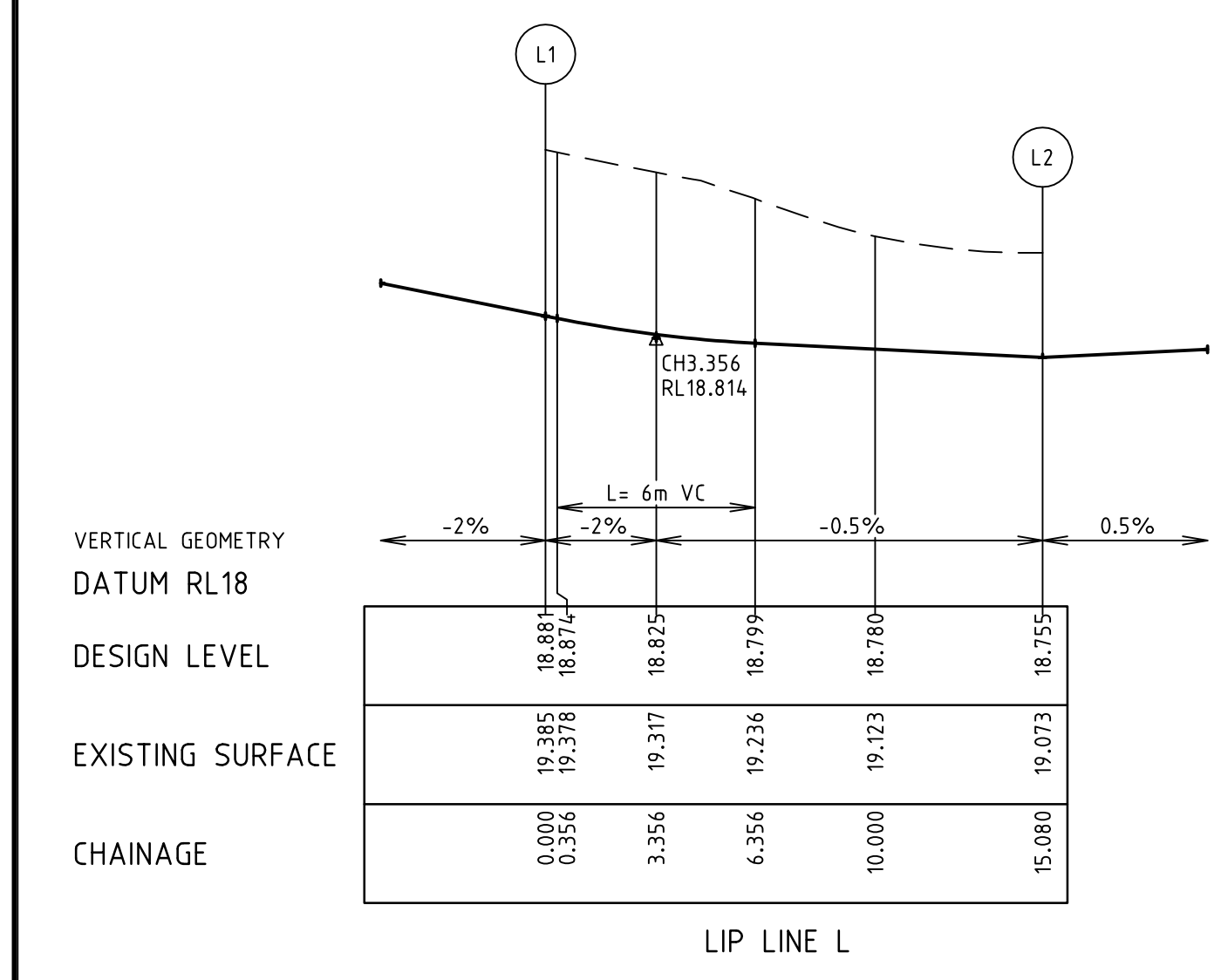
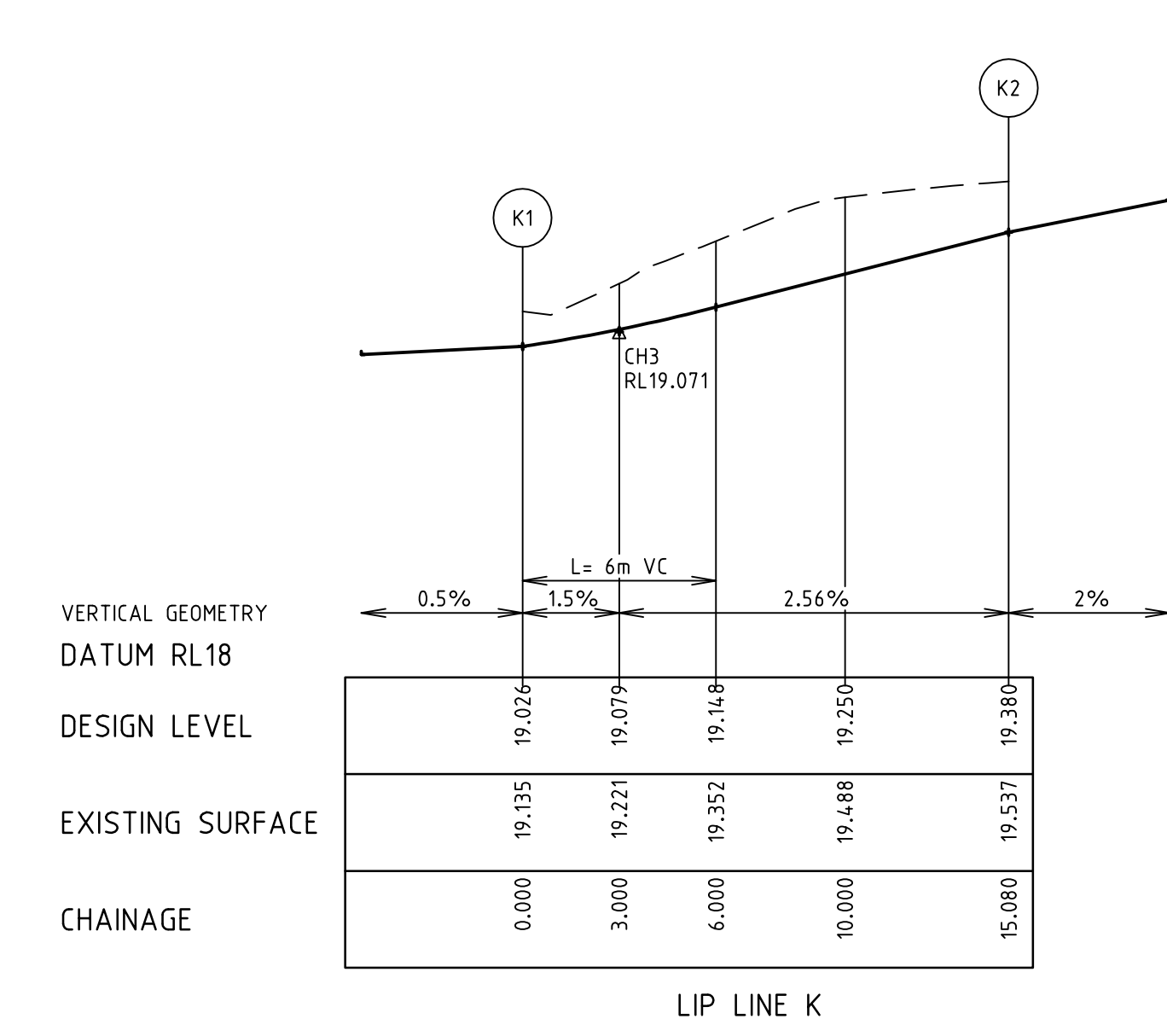
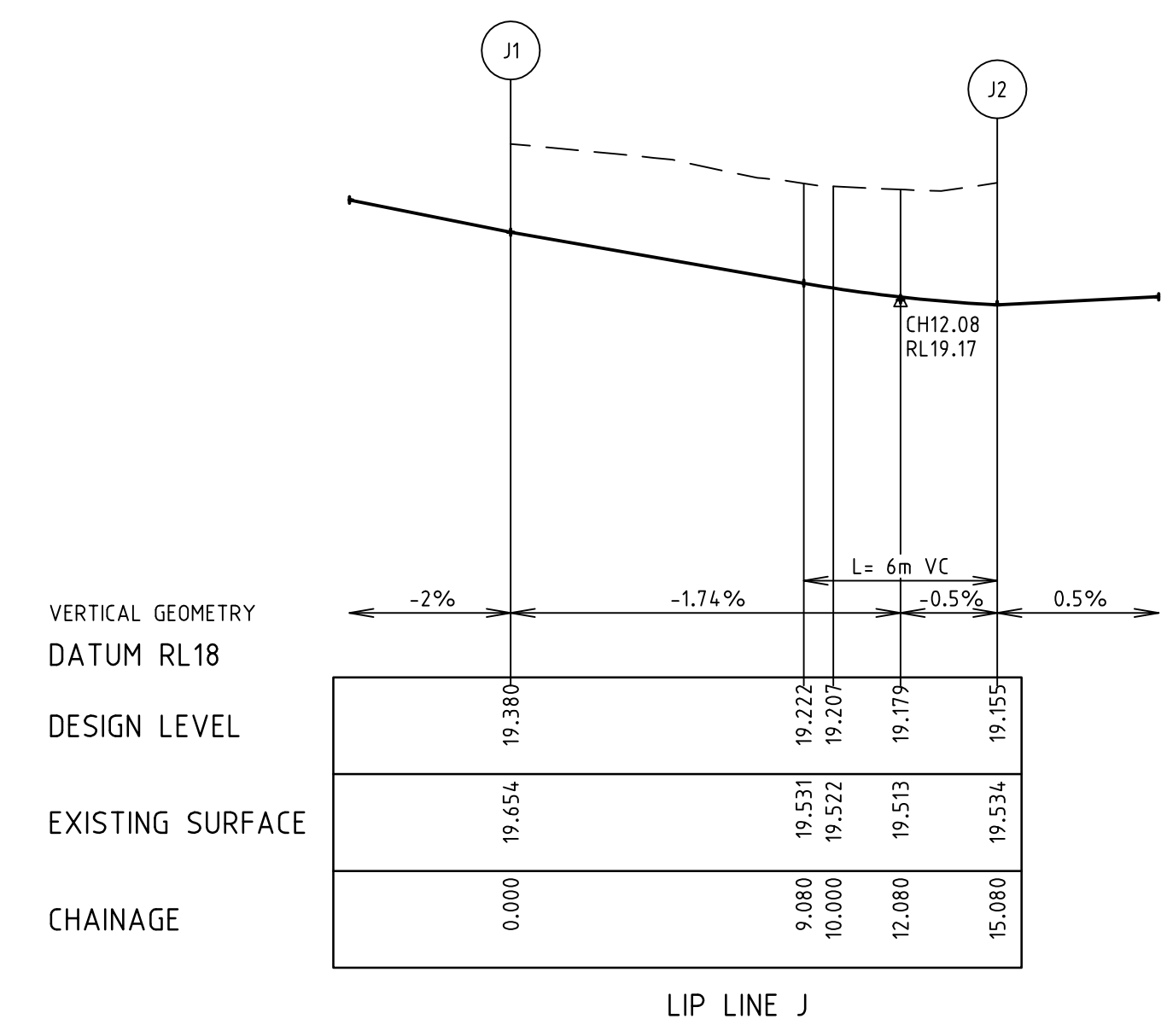
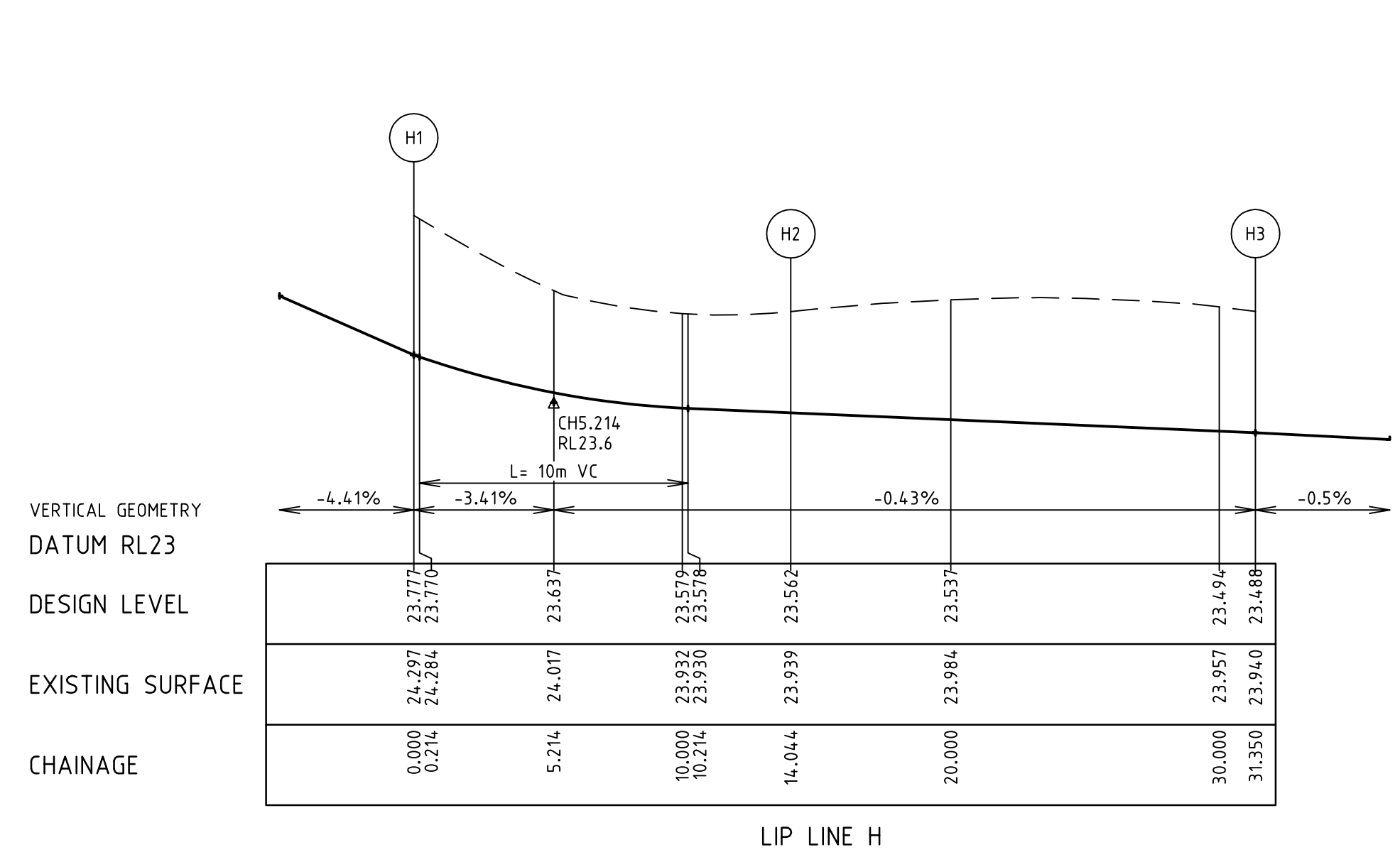


Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Lip Profiles - 1
 Drawing No. 0250EHL-07-09
 Sheet No. 9 of 41

Rev C

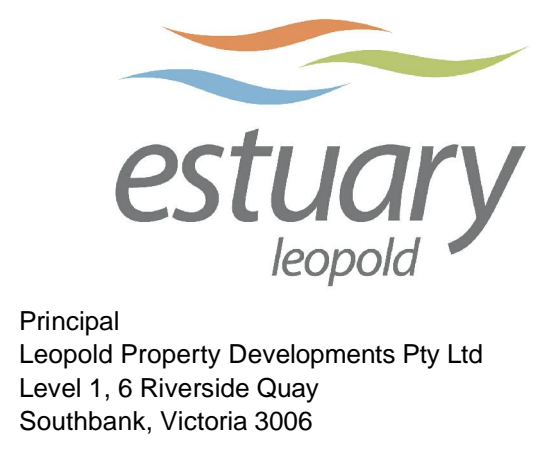
Approved for Construction

---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE

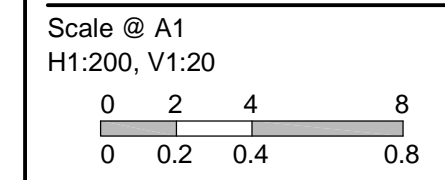


NOTES
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REVISION	DATE	DES/DFT	APPD
A	13.01.11	AP/AP	JG
B	16.02.11	AP/AP	JG
C	05.04.11	CB/CB	JG
D	09.06.11	CB/CB	JG
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Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Lip Profiles - 2
Drawing No. 0250EHL-07-10 **Rev E**
 Sheet No. 10 of 42
 Approved for Construction

ALIGNMENT A	EASTING	NORTHING	RL						
POINT NO A1	10102.011	48451.320	19.997						
A2	10113.679	48440.650	20.359						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
A1 - A2	110.870	9.600	18.576	4.154	3.052	4.465	3.440	4.644	20.324
ALIGNMENT B	EASTING	NORTHING	RL						
POINT NO B1	10120.217	48439.745	20.359						
B2	10120.432	48441.304	20.390						
B3	10120.520	48446.836	20.501						
B4	10127.716	48457.158	20.947						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
B2 - B3	13.938	22.800	5.546	0.168	0.126	1.386	1.381	1.387	20.446
B3 - B4	81.888	9.600	13.720	2.349	1.742	3.358	2.933	3.430	20.687
ALIGNMENT C	EASTING	NORTHING	RL						
POINT NO C1	10127.104	48477.919	21.417						
C2	10127.541	48472.020	21.313						
C3	10114.642	48462.305	20.484						
C4	10111.982	48462.482	20.360						
C5	10111.850	48462.452	20.353						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
C2 - C3	114.498	9.600	19.184	4.407	3.233	4.599	3.475	4.796	20.924
C3 - C4	32.948	4.700	2.703	0.193	0.144	0.673	0.659	0.676	20.422
ALIGNMENT D	EASTING	NORTHING	RL						
POINT NO D1	10146.733	48470.165	21.813						
D2	10133.686	48478.406	21.417						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
D1 - D2	106.972	9.600	17.923	3.888	2.861	4.320	3.396	4.481	21.521
ALIGNMENT E	EASTING	NORTHING	RL						
POINT NO E1	10208.292	48407.274	23.461						
E2	10195.869	48412.751	23.039						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
E1 - E2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	23.181
ALIGNMENT F	EASTING	NORTHING	RL						
POINT NO F1	10205.202	48388.698	23.168						
F2	10210.679	48401.120	23.461						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
F1 - F2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	23.279
ALIGNMENT G	EASTING	NORTHING	RL						
POINT NO G1	10207.709	48363.989	23.488						
G2	10210.093	48353.438	23.341						
G3	10199.204	48343.216	22.627						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
G1 - G2	16.948	36.700	10.856	0.401	0.300	2.712	2.697	2.714	23.465
G2 - G3	102.134	9.600	17.113	3.567	2.630	4.138	3.330	4.278	22.993
ALIGNMENT H	EASTING	NORTHING	RL						
POINT NO H1	10225.055	48339.640	23.777						
H2	10216.775	48349.433	23.562						
H3	10213.862	48366.376	23.488						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
H1 - H2	83.818	9.600	14.044	2.456	1.821	3.433	2.979	3.511	23.607
H2 - H3	22.900	43.300	17.306	0.862	0.646	4.319	4.276	4.327	23.525
ALIGNMENT J	EASTING	NORTHING	RL						
POINT NO J1	10118.106	48354.436	19.380						
J2	10109.912	48365.261	19.155						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
J1 - J2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	19.249
ALIGNMENT K	EASTING	NORTHING	RL						
POINT NO K1	10106.377	48339.704	19.026						
K2	10117.202	48347.898	19.380						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
K1 - K2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	19.187
ALIGNMENT L	EASTING	NORTHING	RL						
POINT NO L1	10107.143	48275.190	18.881						
L2	10098.949	48286.015	18.755						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
L1 - L2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	18.793
ALIGNMENT M	EASTING	NORTHING	RL						
POINT NO M1	10095.413	48260.459	18.626						
M2	10106.238	48268.653	18.881						

CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
M1 - M2	90.000	9.600	15.080	2.812	2.081	3.674	3.114	3.770	18.739
ALIGNMENT N	EASTING	NORTHING	RL						
POINT NO N1	10096.405	48194.652	18.662						
N2	10087.869	48205.928	18.351						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
N1 - N2	90.000	10.000	15.708	2.929	2.168	3.827	3.244	3.927	18.447
ALIGNMENT P	EASTING	NORTHING	RL						
POINT NO P1	10081.332	48206.833	18.351						
P2	10080.290	48199.304	18.389						
P3	10087.972	48189.156	18.493						
P4	10095.500	48188.114	18.662						
CURVE NO	I	RADIUS	ARC	A	B	X	Y	L	MID POINT RL
P2 - P3	90.000	9.000	14.137	2.636	1.951	3.444	2.920	3.534	18.424

ESTUARY BOULEVARD DESIGN LINE

CHAINAGE	EASTING	NORTHING	BEARING
258.268	10062.336	48445.671	77°19'00" IP
300.000	10103.050	48454.834	77°19'00" TC
320.589	10123.136	48459.354	77°19'00" TC
342.900	10144.459	48465.851	68°47'40" CT
346.580	10147.890	48467.182	68°47'40" IP

IP 1	COORDINATE =	10062.3360	48445.6708
	CHAINAGE =	258.2676	
IP 2	COORDINATE =	10134.0398	48461.8081
	CENTRE =	10090.2020	48605.6940
	RADIUS =	-150.0000	
	LENGTH =	22.3111	
	INTERSECT ANGLE =	8°31'20"	
START TANGENT			
	COORDINATE =	10123.1364	48459.3542
	LENGTH =	11.1762	
	CHAINAGE =	320.5887	
	BEARING =	77°19'00"	
END TANGENT			
	COORDINATE =	10144.4592	48465.8507
	LENGTH =	11.1762	
	CHAINAGE =	342.8999	
	BEARING =	68°47'40"	

TREEFERN DESIGN LINE

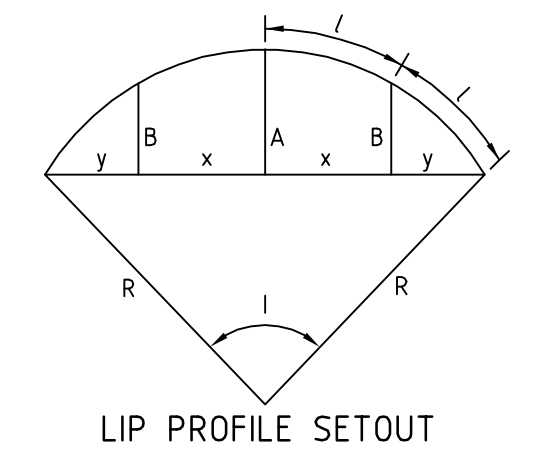
CHAINAGE	EASTING	NORTHING	BEARING
0.000	10114.894	48457.499	167°19'00" IP
9.009	10116.872	48448.710	167°19'00" TC
16.006	10117.164	48441.757	232°52'36" IP
16.006	10117.163	48441.757	187°52'35" IP
100.000	10105.653	48358.555	187°52'35" IP
200.000	10091.949	48259.499	187°52'35" IP
257.625	10084.052	48202.418	187°52'36" IP
272.233	10091.990	48191.931	97°52'36" IP
300.000	10119.495	48188.126	97°52'36" IP
400.000	10218.552	48174.422	97°52'36" IP
428.557	10246.839	48170.509	97°52'36" IP

IP 1	COORDINATE =	10114.8938	48457.4992
	CHAINAGE =	0.0000	
IP 2	COORDINATE =	10116.8717	48448.7103
	CHAINAGE =	9.0087	
	INTERSECT ANGLE =	0°00'00"	
IP 3	COORDINATE =	10117.6483	48445.2599
	CENTRE =	10097.8476	48444.4288
	RADIUS =	19.5000	
	LENGTH =	6.9973	
	INTERSECT ANGLE =	20°33'36"	
START TANGENT			
	COORDINATE =	10116.8717	48448.7103
	LENGTH =	3.5367	
	CHAINAGE =	9.0087	
	BEARING =	167°19'00"	
END TANGENT			
	COORDINATE =	10117.1636	48441.7565
	LENGTH =	3.5367	
	CHAINAGE =	16.0061	
	BEARING =	187°52'36"	

NOTES
 1. SETOUT CO-ORDINATES REFER TO LIP OF KERB/EDGE OF CONCRETE.
 2. REFER TO SHEET No's 9 & 10 FOR LIP PROFILES.

REVISION	DATE	DESIGN	APP'D
E ROAD NAMES AMENDED	22.11.11	AH/AH	JG
D MINOR AMENDMENTS	09.06.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006



Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C. Birkett
 Authorised
J. Golden
 Date
January 2011

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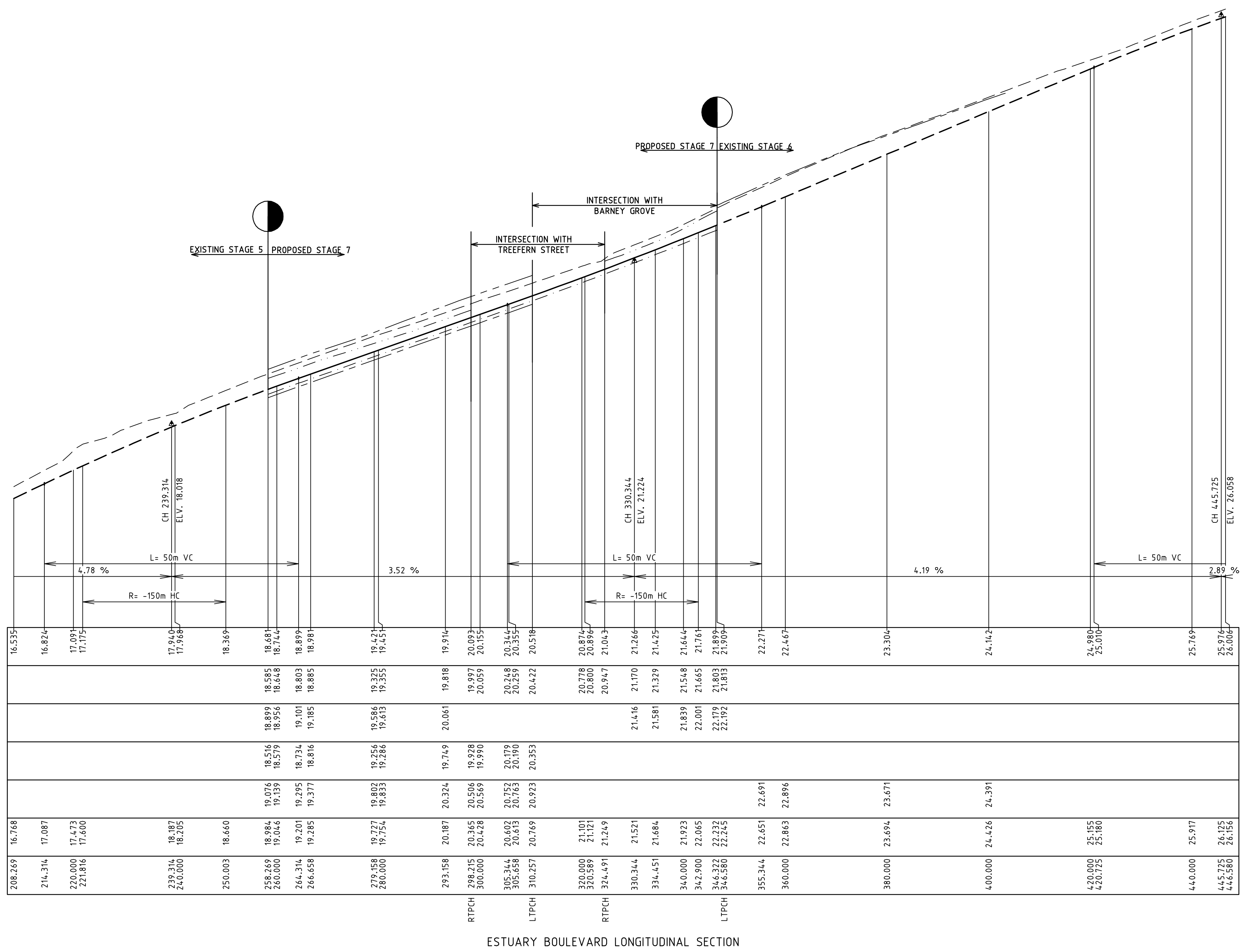
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Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Setout Information Plan - 1

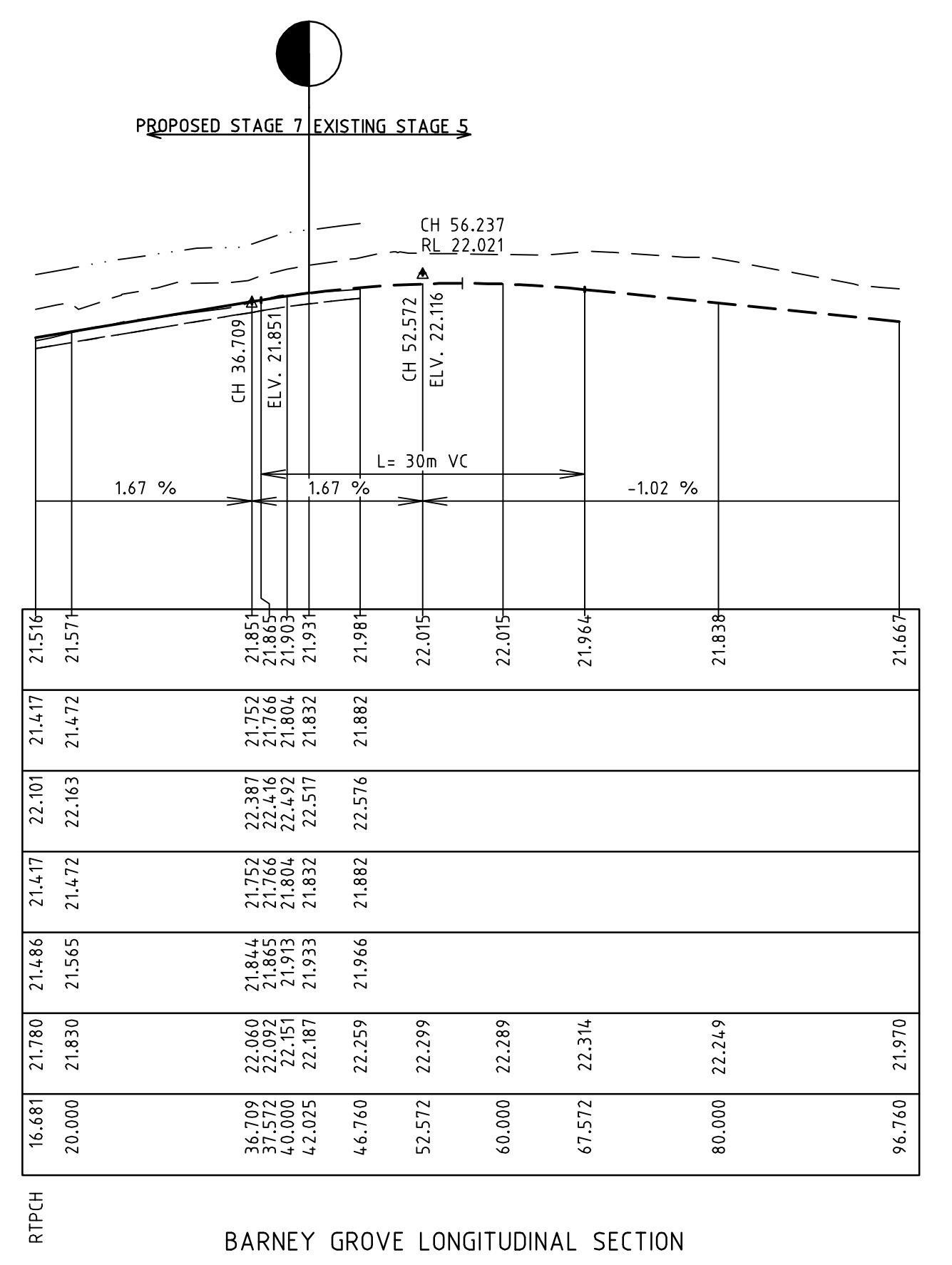
Drawing No. **0250EHL-07-11** Rev **E**
 Sheet No. 11 of 42

Approved for Construction

LEGEND	
---	EXISTING SURFACE
—	DESIGN LINE
- - -	FUTURE DESIGN LINE
---	RIGHT BUILDING LINE
---	RIGHT LIP OF KERB
---	LEFT BUILDING LINE
---	LEFT LIP OF KERB



VERTICAL GEOMETRY
 HORIZONTAL GEOMETRY
 DATUM RL14
 DESIGN CENTRELINE
 RIGHT LIP OF KERB
 EXISTING SURFACE AT RIGHT BOUNDARY
 LEFT LIP OF KERB
 EXISTING SURFACE AT LEFT BOUNDARY
 EXISTING SURFACE
 CHAINAGE



VERTICAL GEOMETRY
 HORIZONTAL GEOMETRY
 DATUM RL19
 DESIGN CENTRELINE
 RIGHT LIP OF KERB
 EXISTING SURFACE AT RIGHT BOUNDARY
 LEFT LIP OF KERB
 EXISTING SURFACE AT LEFT BOUNDARY
 EXISTING SURFACE
 CHAINAGE

ESTUARY BOULEVARD LONGITUDINAL SECTION

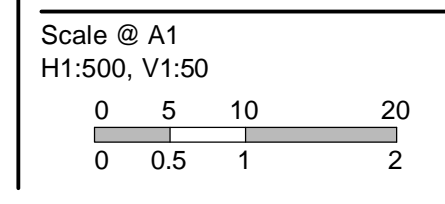
BARNEY GROVE LONGITUDINAL SECTION

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REVISION	DATE	DESIGN	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
 A.Perkins
 Drawn
 A.Perkins
 Checked
 C.Birkett
 Authorised
 J. Golden
 Date
 January 2011



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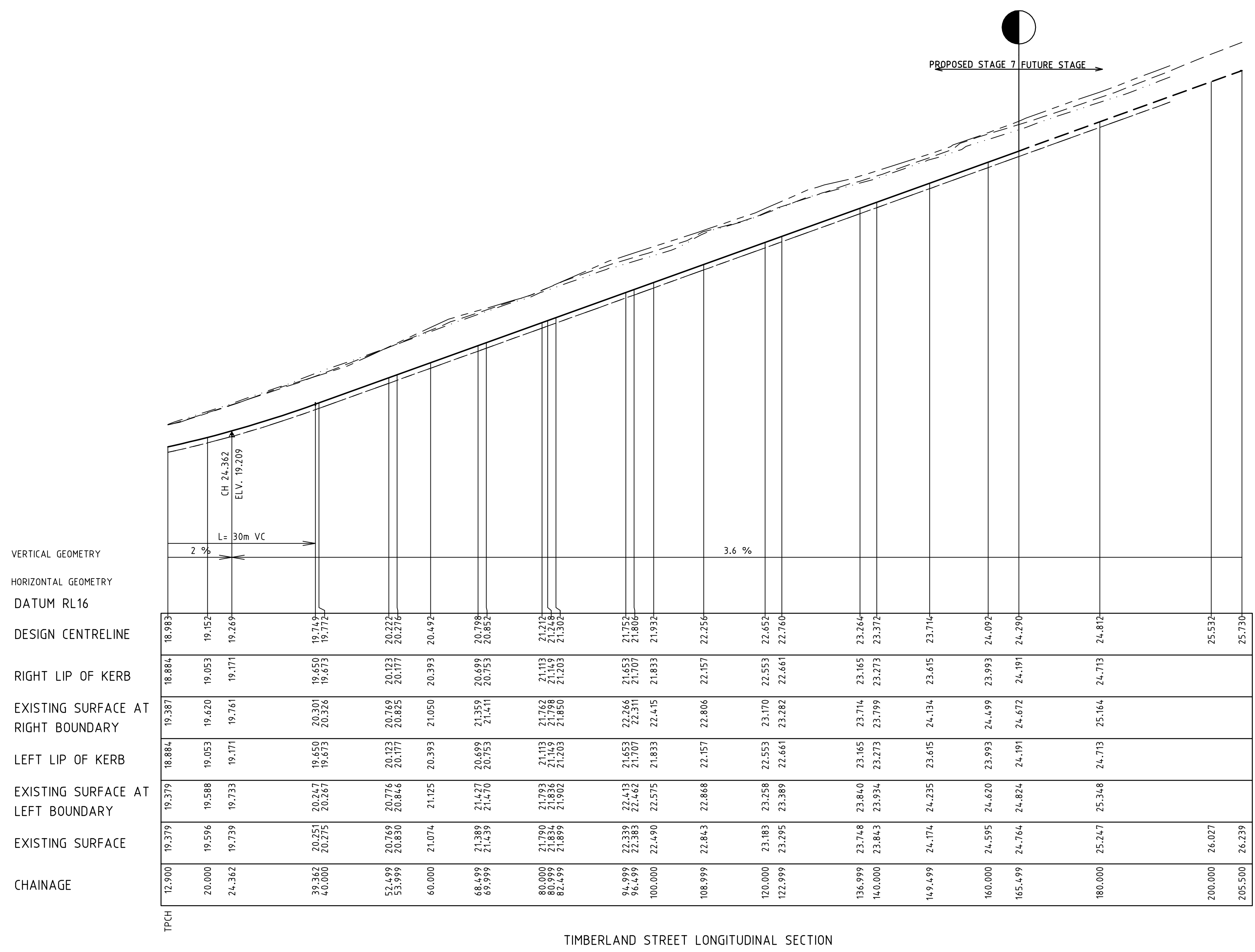
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 Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
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Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Longitudinal Sections - 1

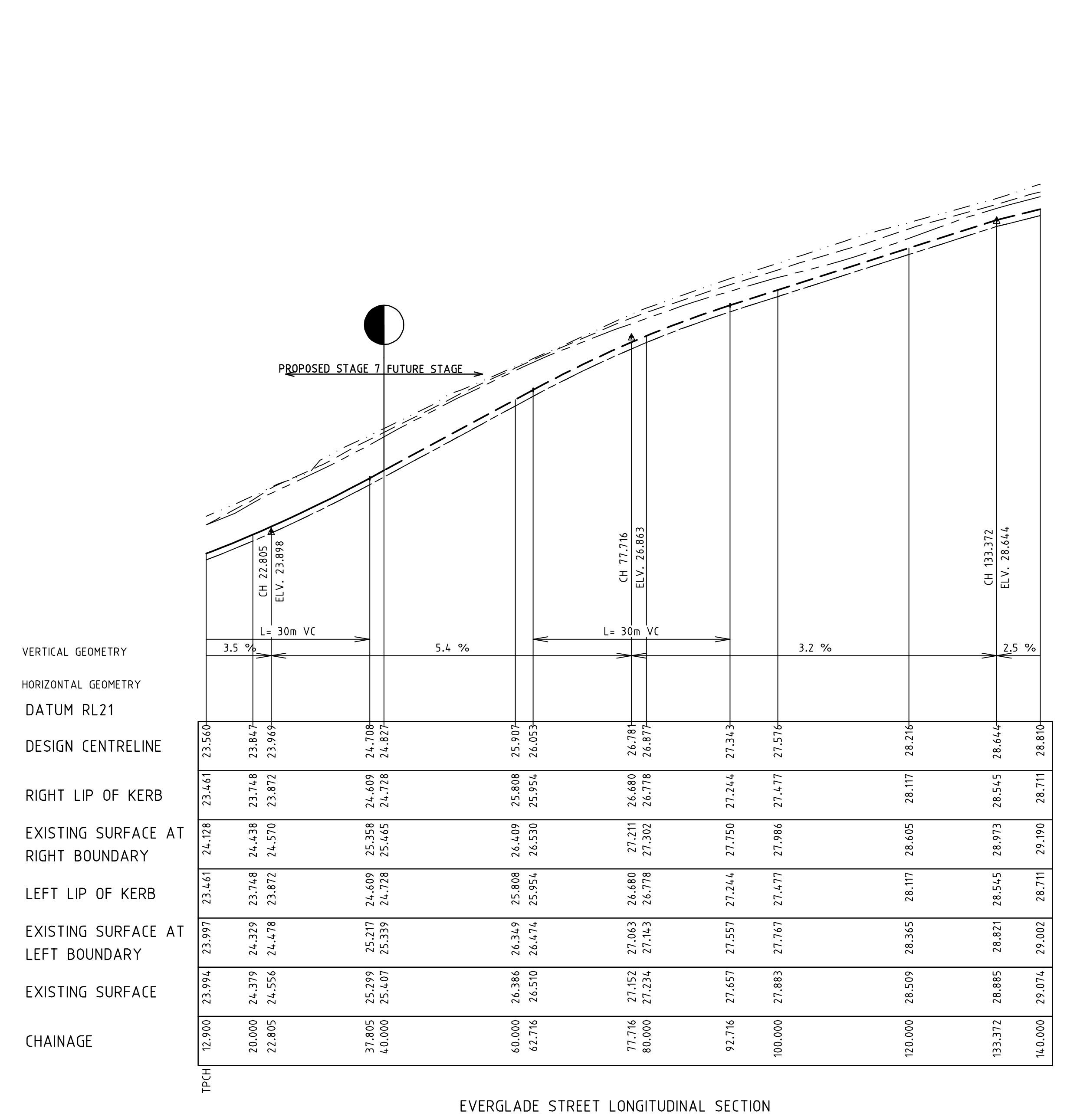
Drawing No. **0250EHL-07-13** Rev D
 Sheet No. 13 of 42

Approved for Construction

LEGEND	
---	EXISTING SURFACE
—	DESIGN LINE
---	FUTURE DESIGN LINE
---	RIGHT BUILDING LINE
---	RIGHT LIP OF KERB
---	LEFT BUILDING LINE
---	LEFT LIP OF KERB



TIMBERLAND STREET LONGITUDINAL SECTION



EVERGLADE STREET LONGITUDINAL SECTION

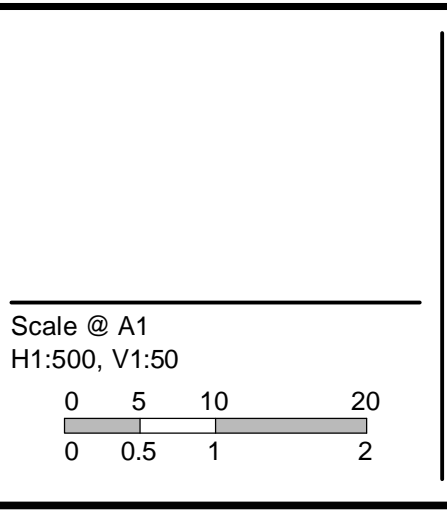
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REVISION	DATE	DESIGNER	APP'D
D	22.11.11	AH/AH	JG
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J. Golden
Date
January 2011

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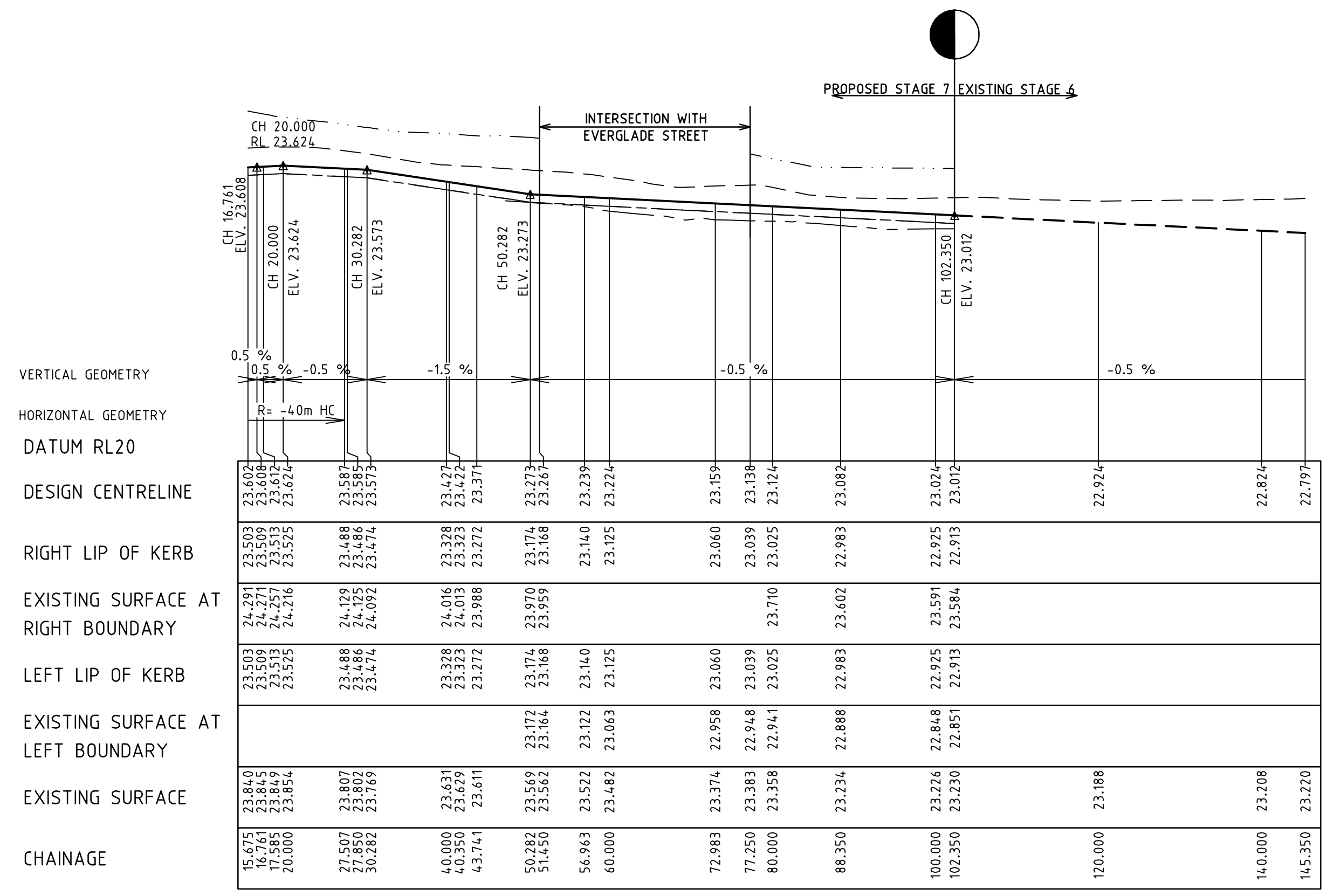
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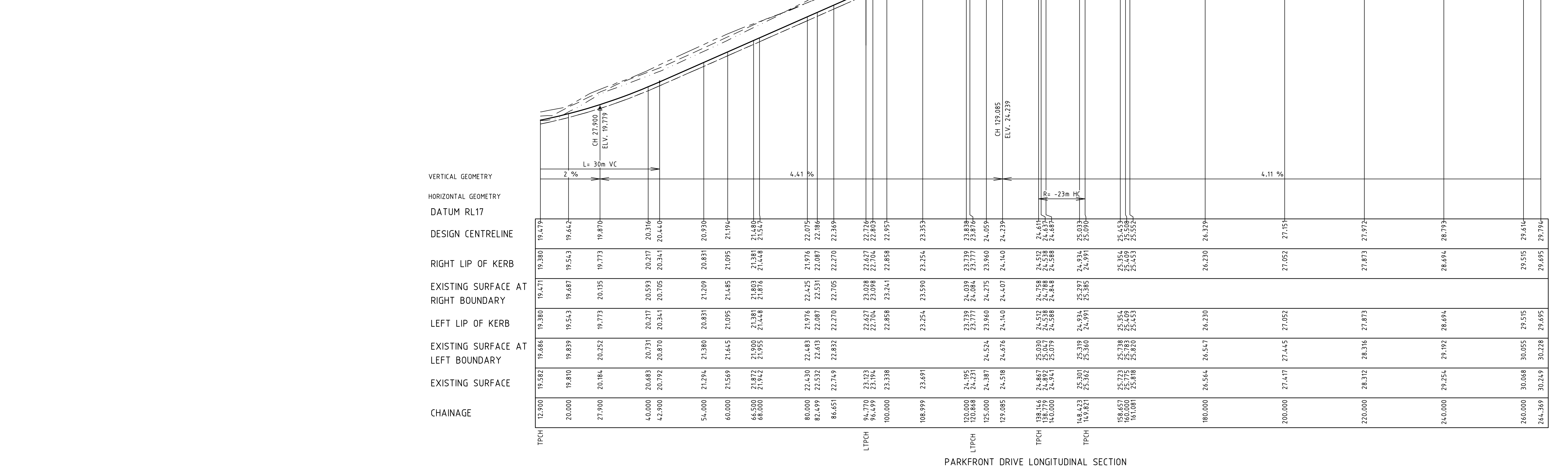
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 2

Drawing No. **0250EHL-07-14** Rev D
Sheet No. 14 of 42
Approved for Construction

LEGEND	
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE
---	RIGHT BUILDING LINE
---	RIGHT LIP OF KERB
---	LEFT BUILDING LINE
---	LEFT LIP OF KERB



HEADLAND DRIVE LONGITUDINAL SECTION



PARKFRONT DRIVE LONGITUDINAL SECTION

REVISION	DATE	DES/DT	APPD
D	22.11.11	AH/AH	JG
C	05.04.11	CB/CB	NI
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins

Drawn
A.Perkins

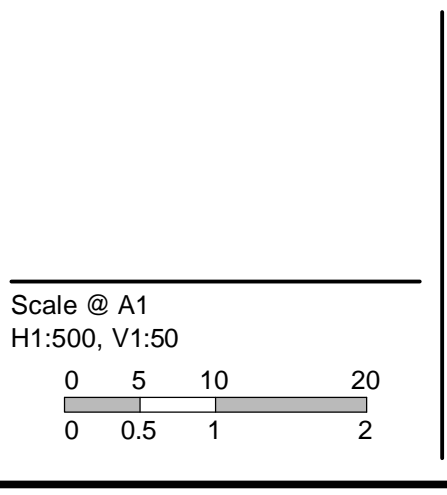
Checked
C.Birkett

Authorised
J. Golden

Date
January 2011

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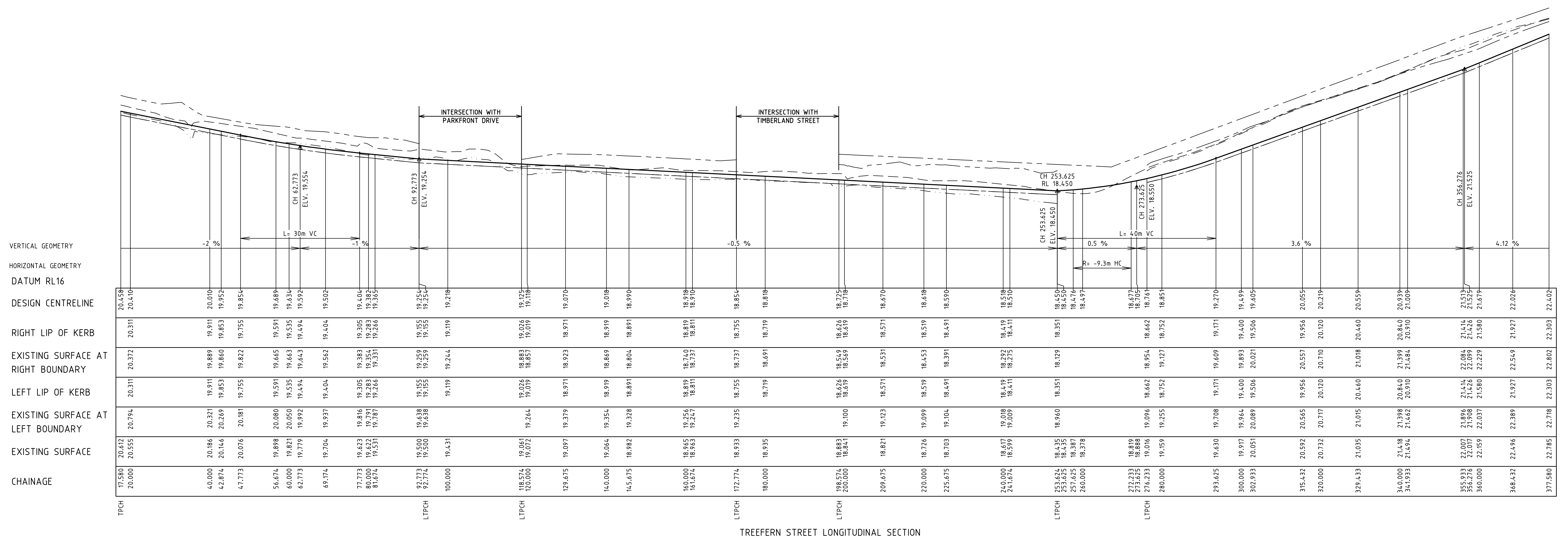
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 3

Drawing No. 0250EHL-07-15
Sheet No. 15 of 42

Approved for Construction

Revision table and drawing information.

LEGEND	
---	EXISTING SURFACE
—	DESIGN LINE
---	FUTURE DESIGN LINE
---	RIGHT BUILDING LINE
---	RIGHT LIP OF KERB
---	LEFT BUILDING LINE
---	LEFT LIP OF KERB



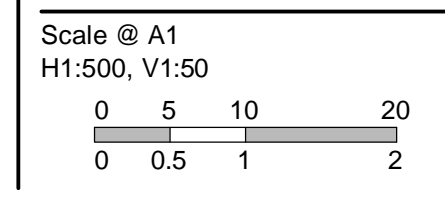
TREEFERN STREET LONGITUDINAL SECTION

I:\work\0250EHL - horizontal\leopold\0250EHL - 7m\0250EHL-07-16

REVISION	DATE	DES/DF	APP/D
D	22.11.11	AH/AH	JG
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J. Golden
Date
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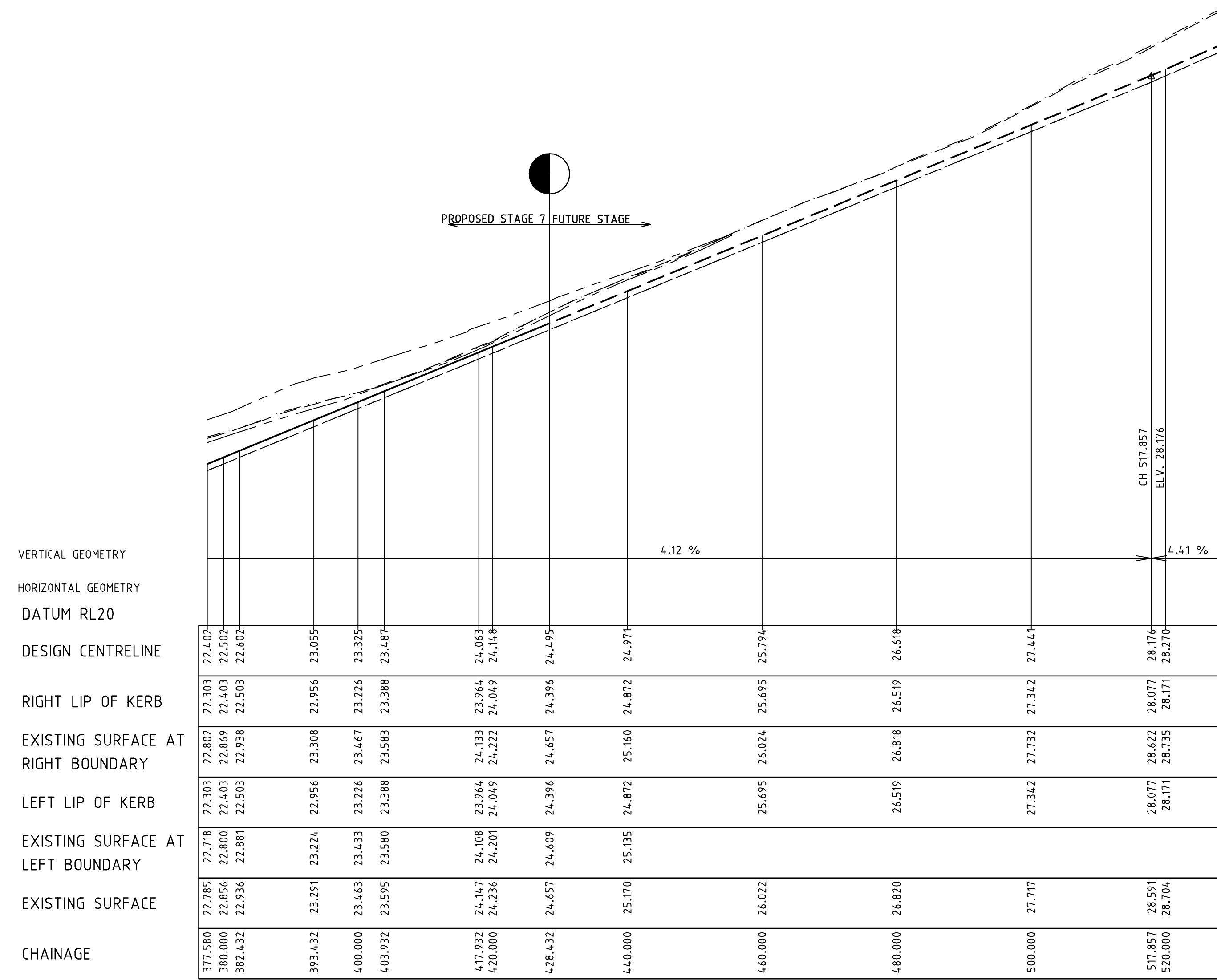
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Brisbane +61 7 3831 8988
Carlisle +61 2 6126 1900
Gold Coast +61 7 5578 0222
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 4

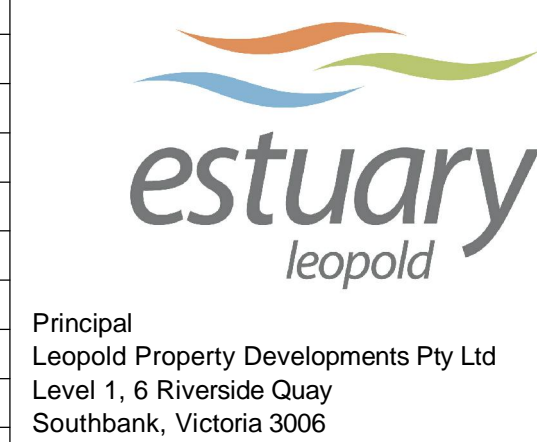
Drawing No. 0250EHL-07-16 **Rev D**
Sheet No. 16 of 42
Approved for Construction

LEGEND	
---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE
---	RIGHT BUILDING LINE
---	RIGHT LIP OF KERB
---	LEFT BUILDING LINE
---	LEFT LIP OF KERB



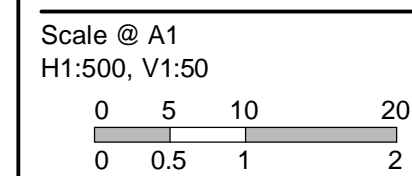
TREEFERN STREET LONGITUDINAL SECTION (CONTINUED)

REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J. Golden
Date
January 2011



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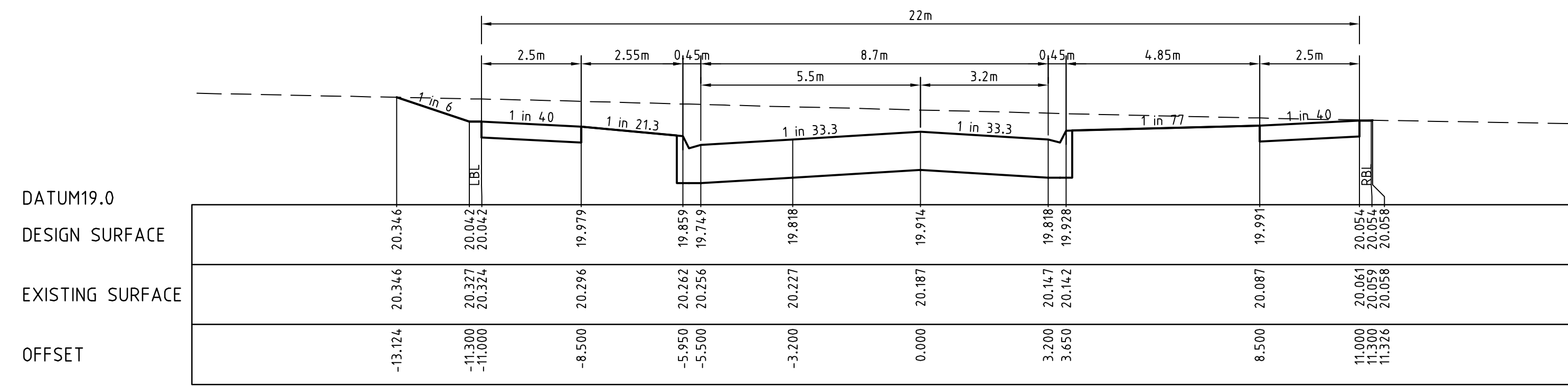
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Longitudinal Sections - 5

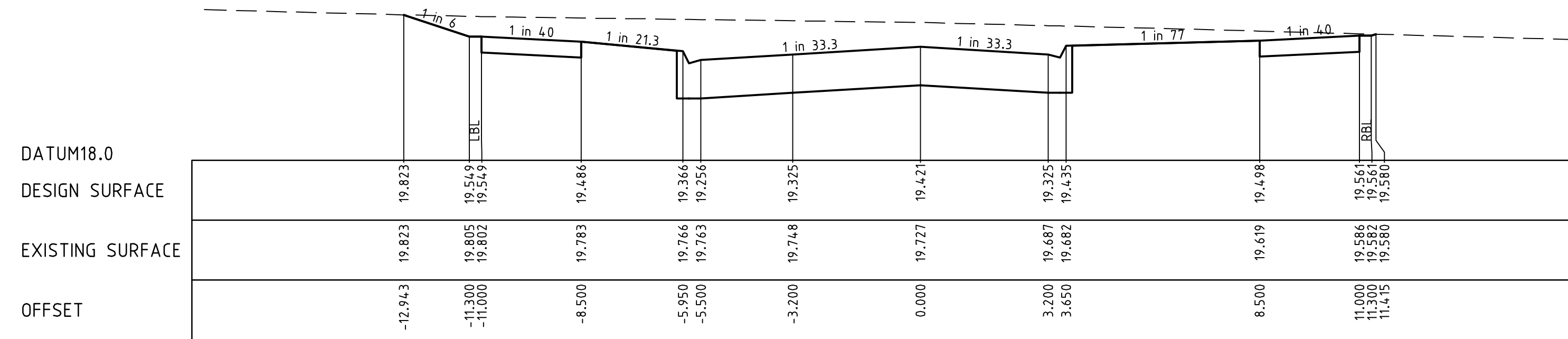
Drawing No. 0250EHL-07-17 Rev D
Sheet No. 17 of 42

Approved for Construction

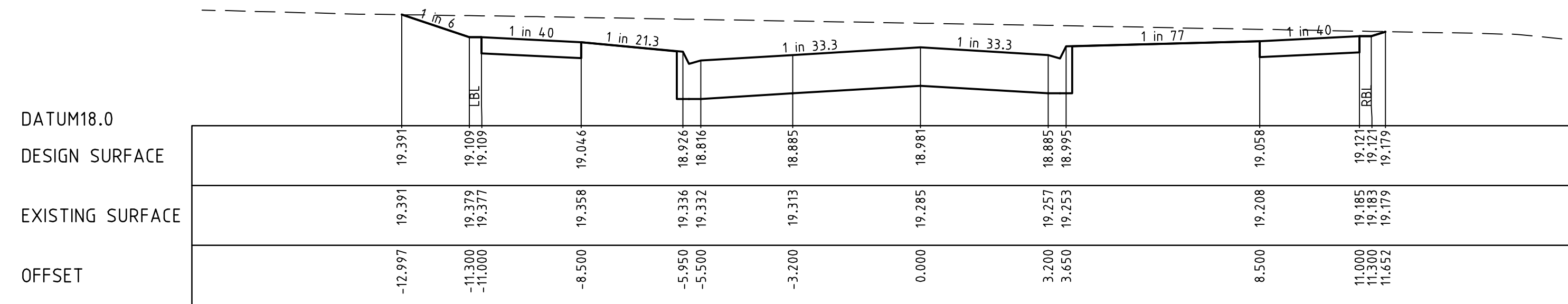
LEGEND
 --- EXISTING SURFACE
 --- DESIGN LINE
 --- FUTURE DESIGN LINE



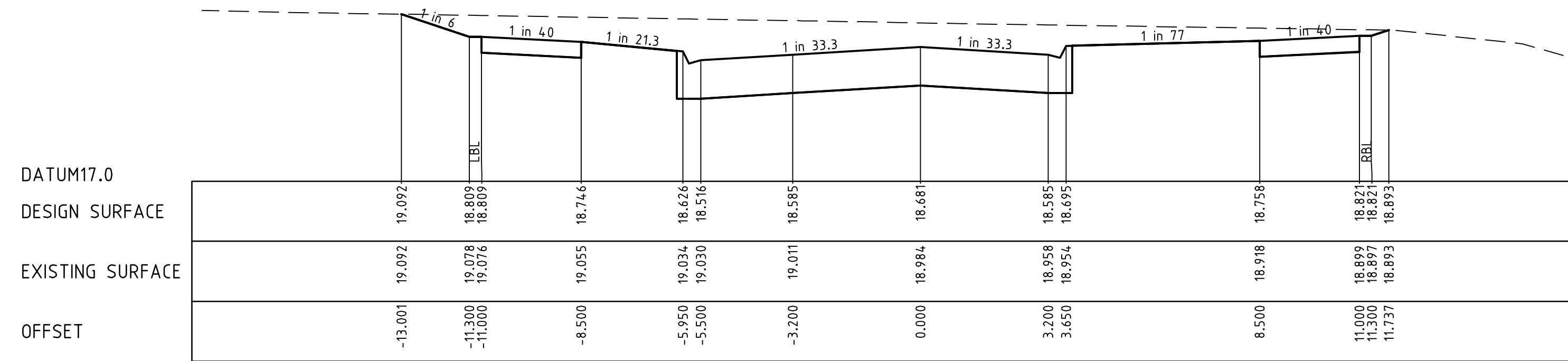
CH 293.158



CH 279.158

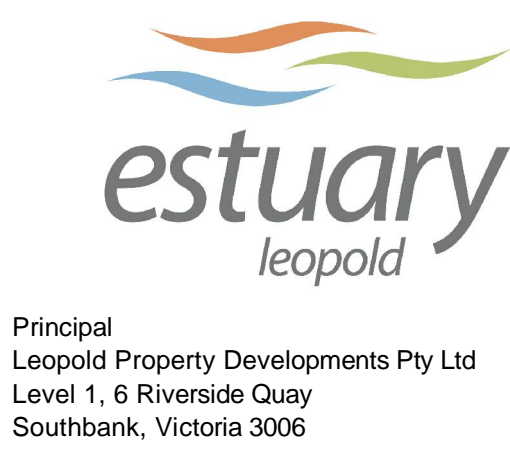


CH 266.658

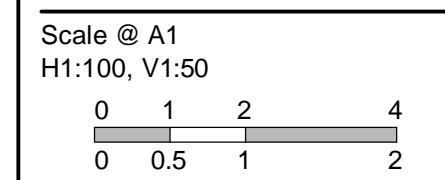


CH 258.269

REVISION	DATE	DESIGN	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Designed
A.Perkins
 Drawn
A.Perkins
 Checked
C. Birkett
 Authorised
J. Golden
 Date
January 2011

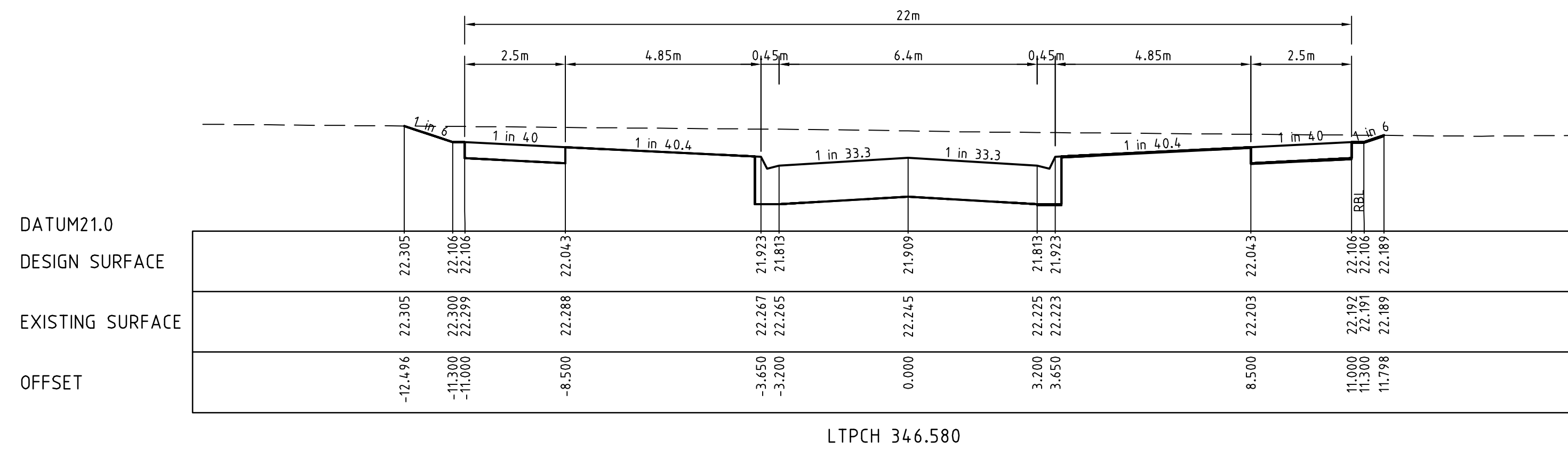


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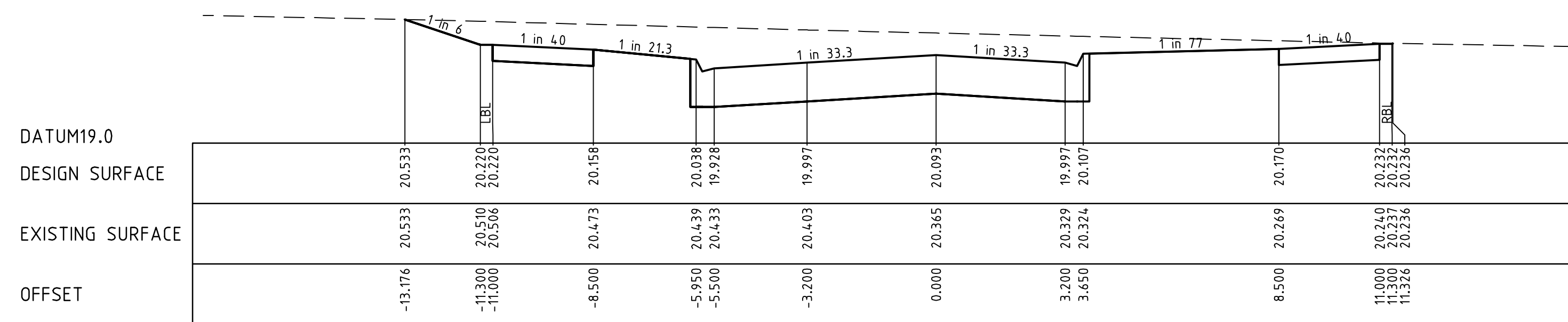


Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Cross Sections Estuary Boulevard -1
 Ch258.269 - Ch293.158
Drawing No. 0250EHL-07-18 **Rev D**
 Sheet No. 18 of 42
 Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN LINE
	FUTURE DESIGN LINE



LTPCH 346.580



RTPCH 298.215

REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011

Scale @ A1
H1:100, V1:50
0 1 2 4
0 0.5 1 2

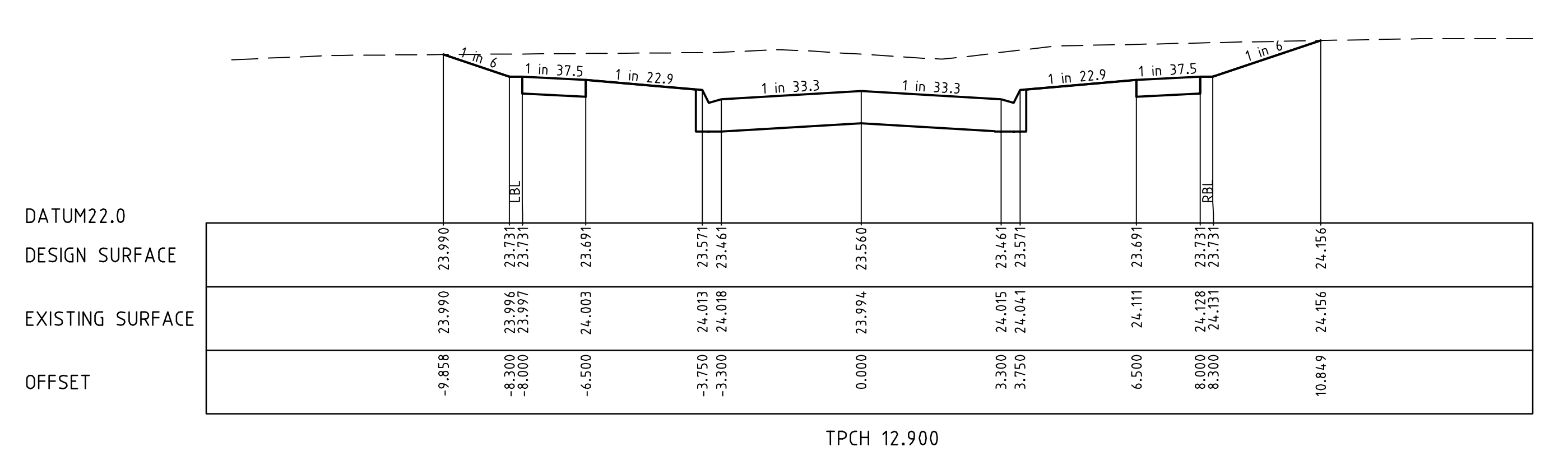
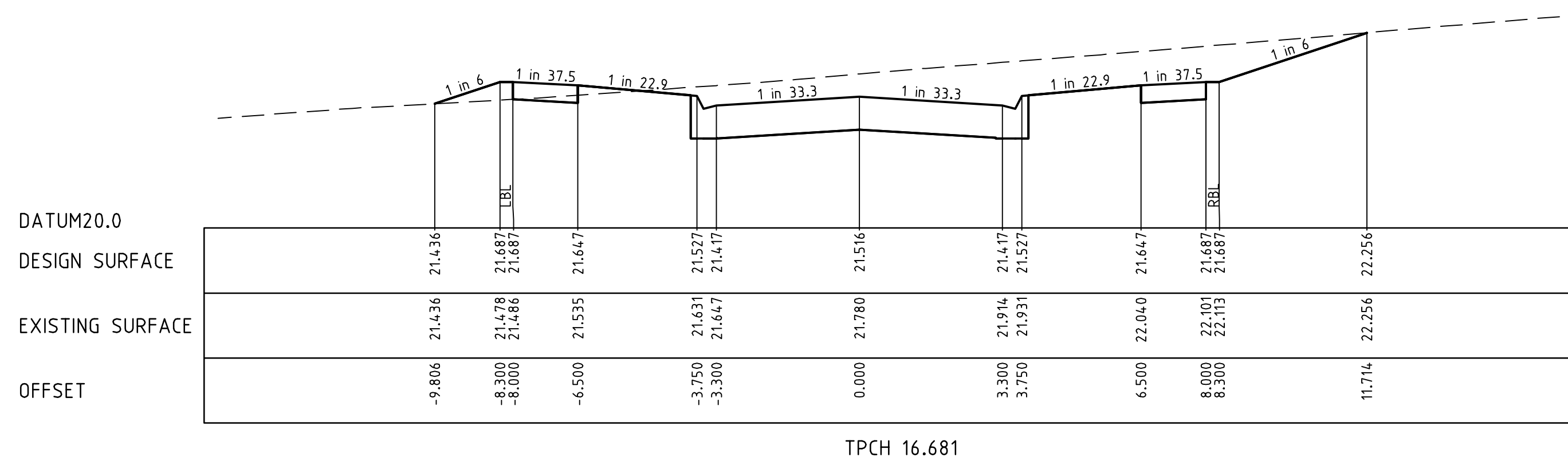
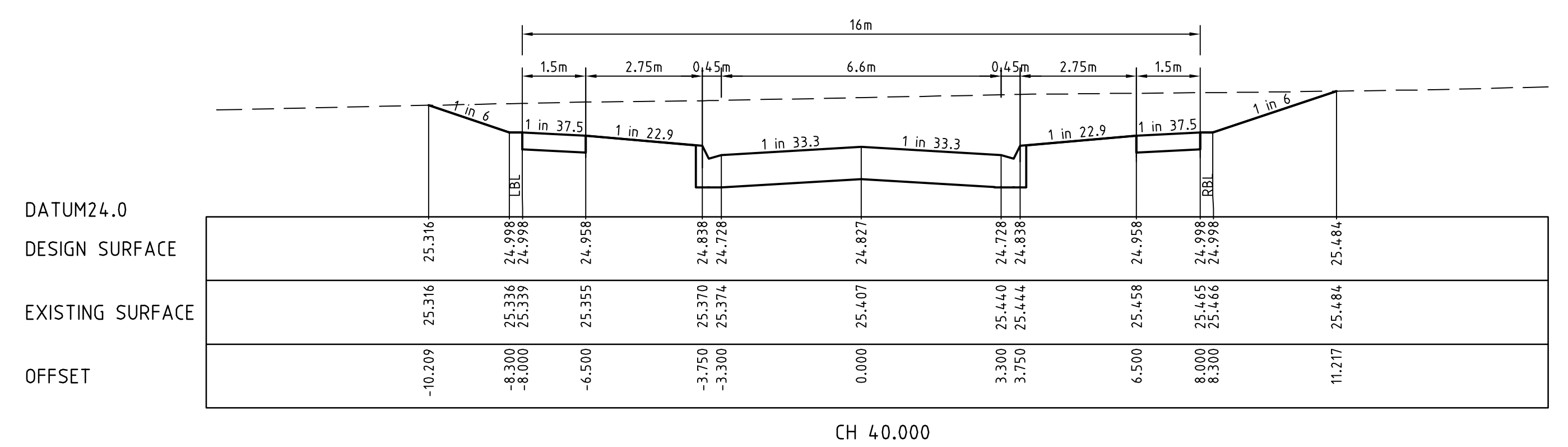
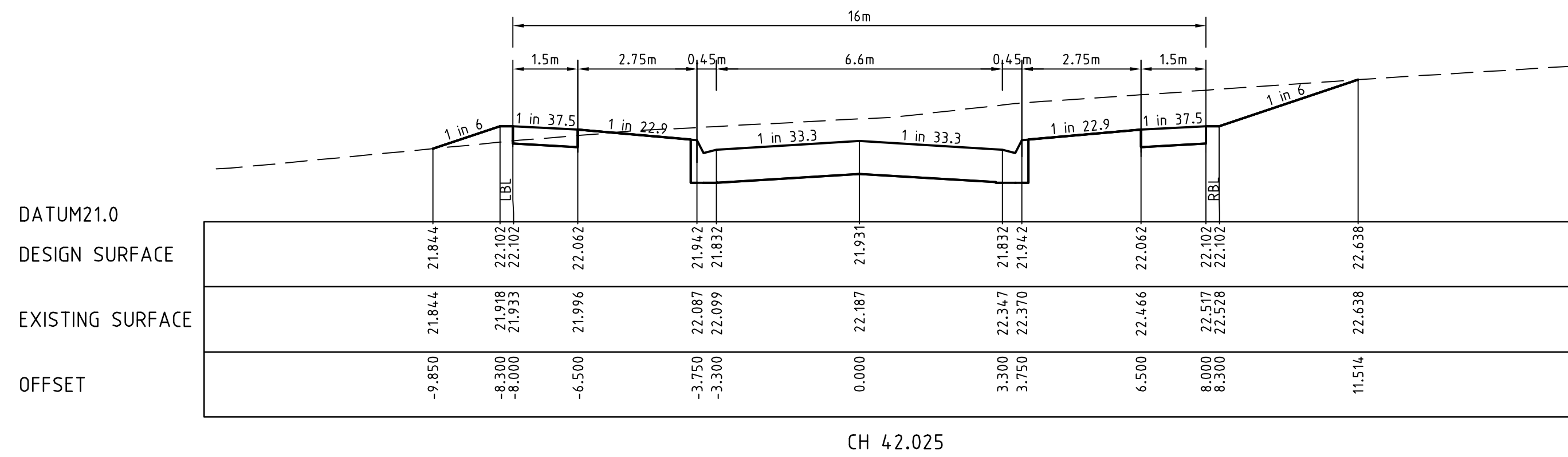
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Estuary Boulevard - 2
Ch298.215 - Ch346.580
Drawing No. 0250EHL-07-19 **Rev D**
Sheet No. 19 of 42
Approved for Construction

---	EXISTING SURFACE
---	DESIGN LINE
---	FUTURE DESIGN LINE



CROSS SECTIONS BARNEY GROVE

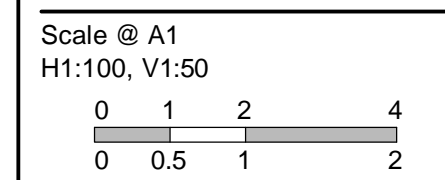
CROSS SECTIONS LEMONDRA STREET

REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



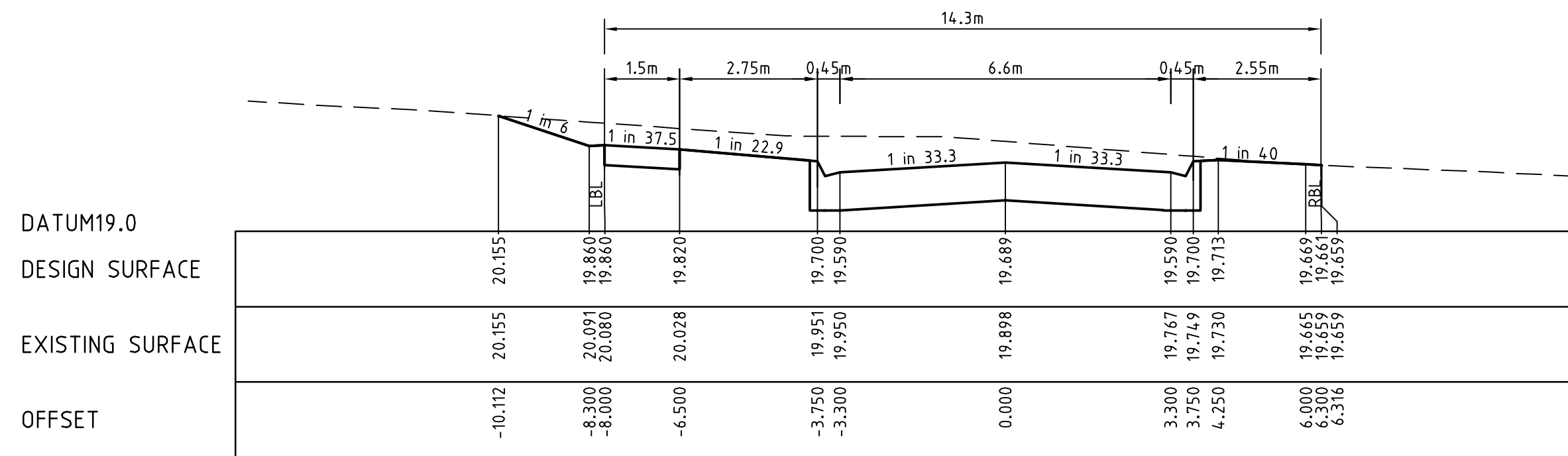
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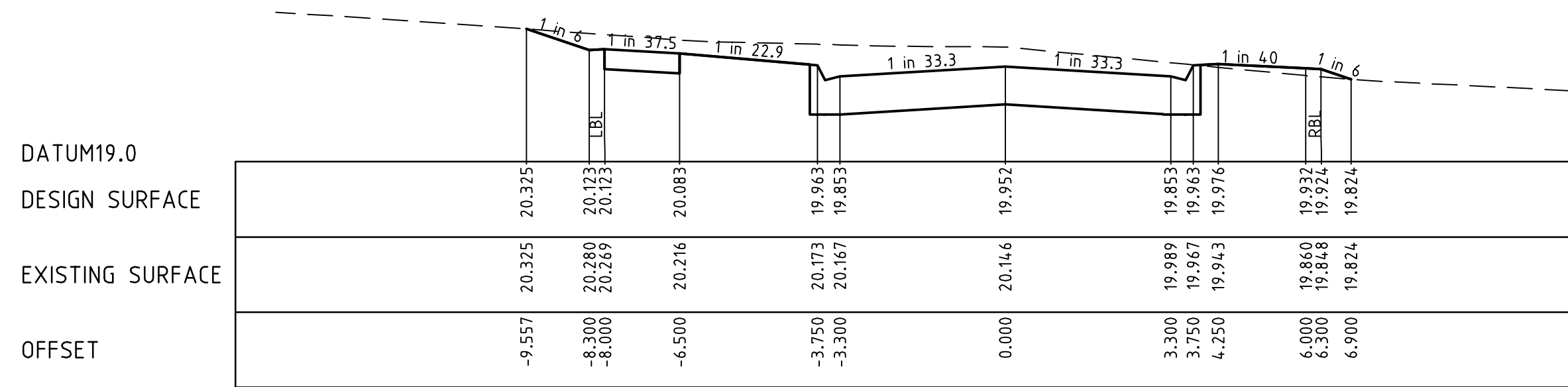
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Barney Grove
& Everglade Street
Drawing No. 0250EHL-07-20 **Rev D**
Sheet No. 20 of 42
Approved for Construction

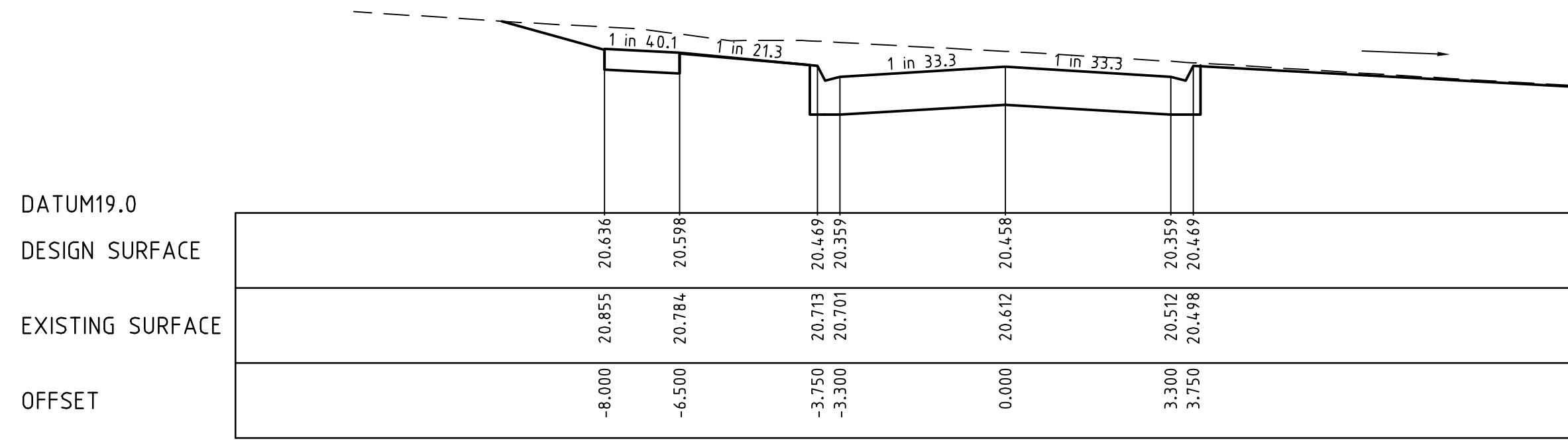
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	EXISTING SURFACE
	DESIGN LINE
	FUTURE DESIGN LINE



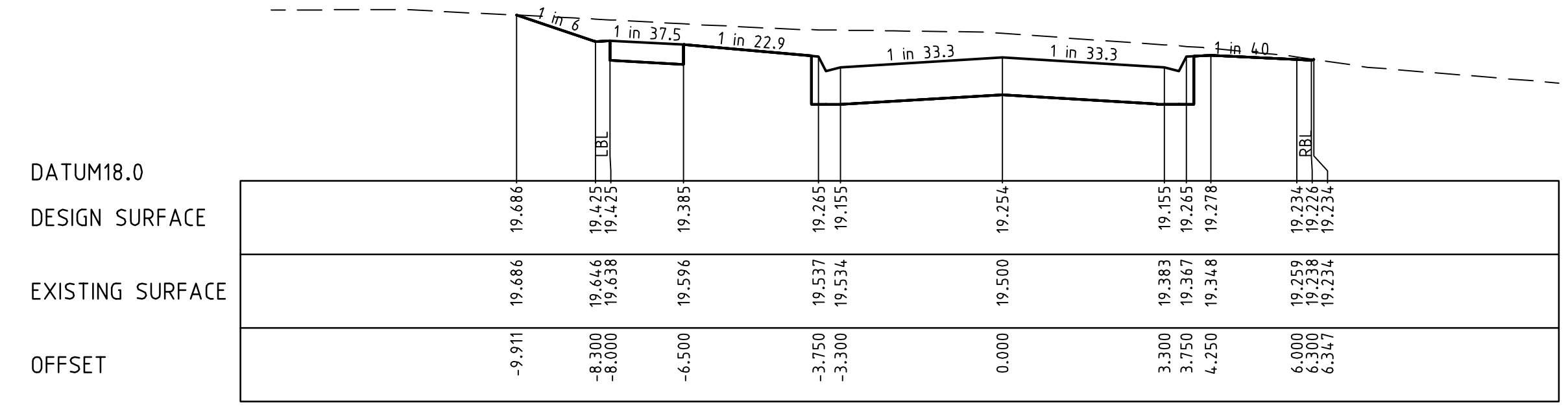
CH 56.674



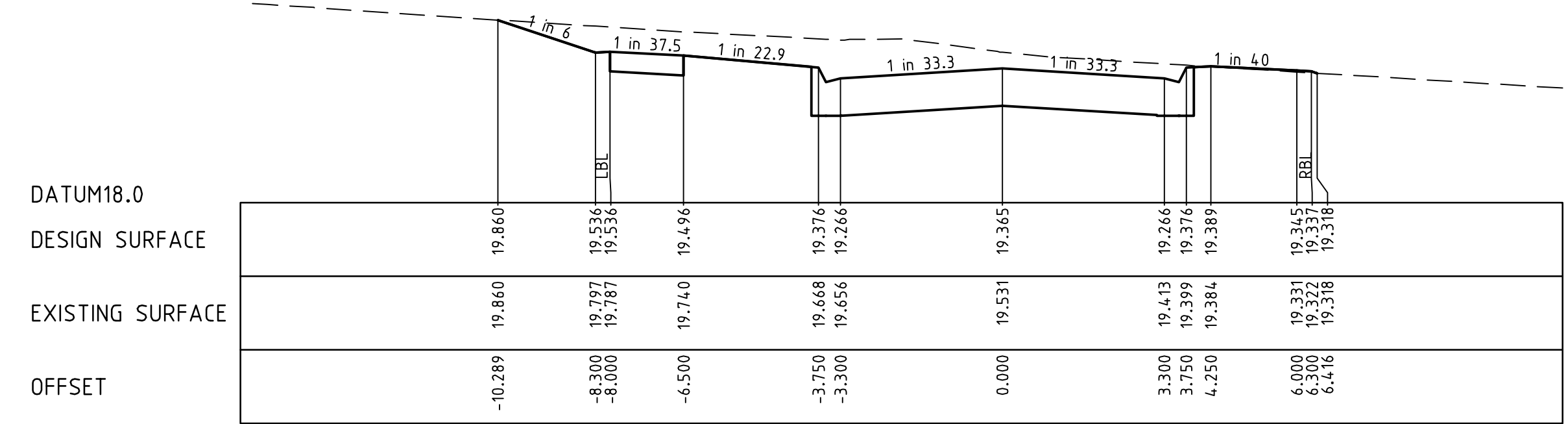
CH 42.874



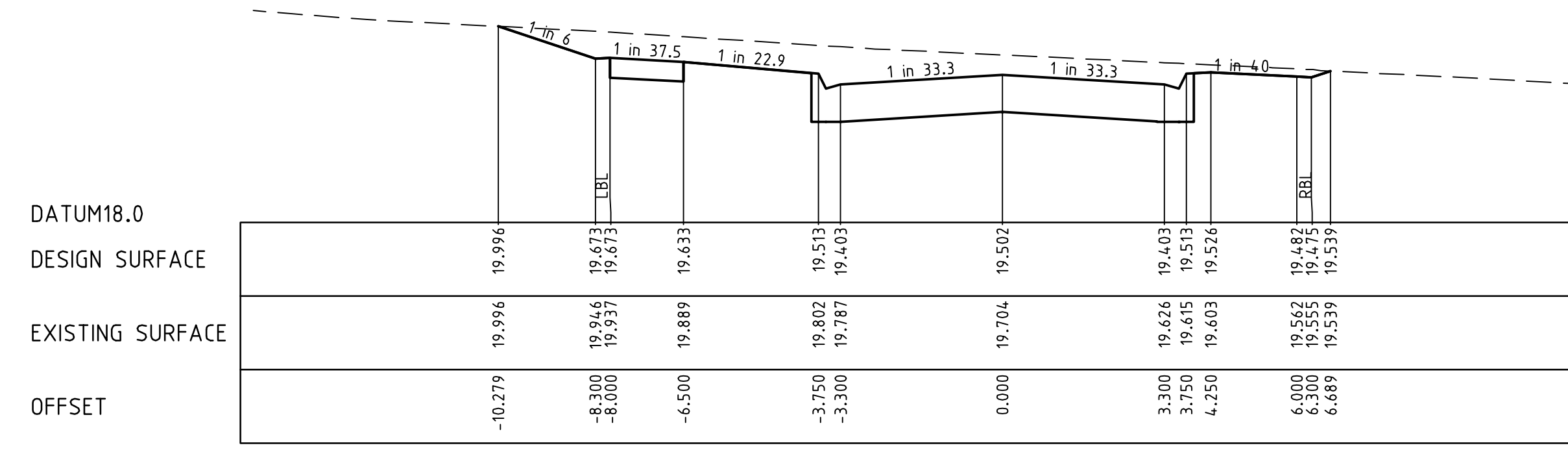
RTPCH 17.580



LTPCH 92.774



CH 81.674



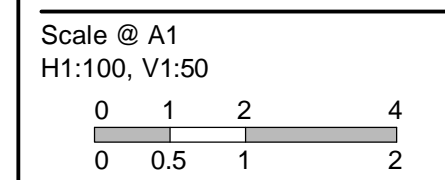
CH 69.174

REVISION	DATE	DESIGNER	APP'D
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C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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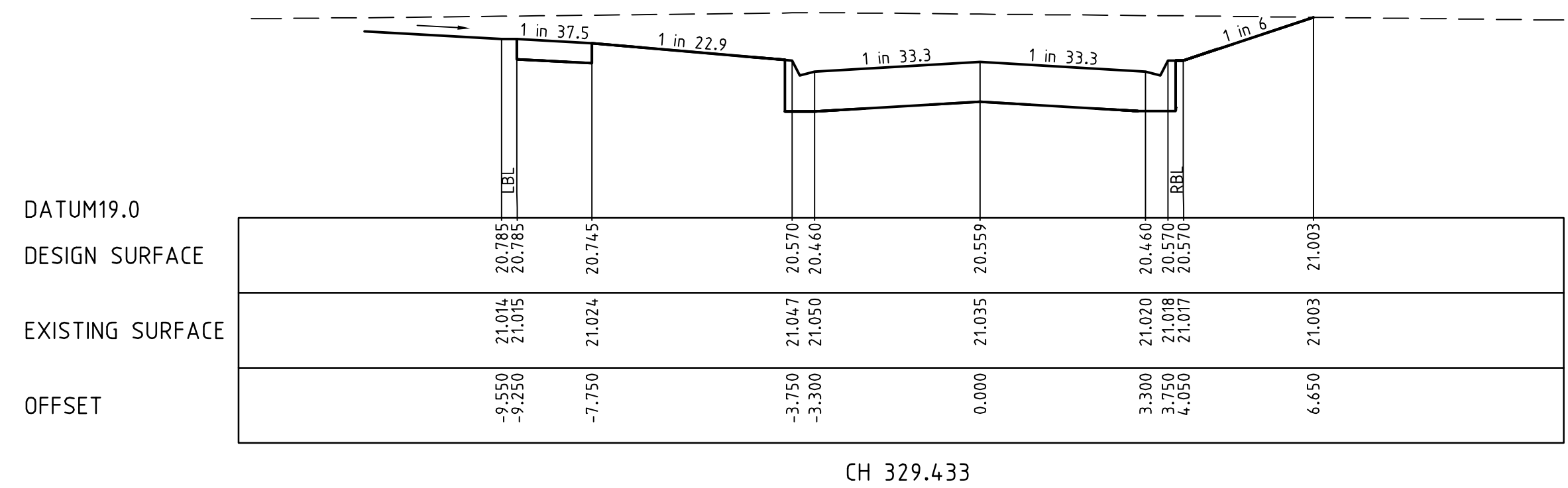
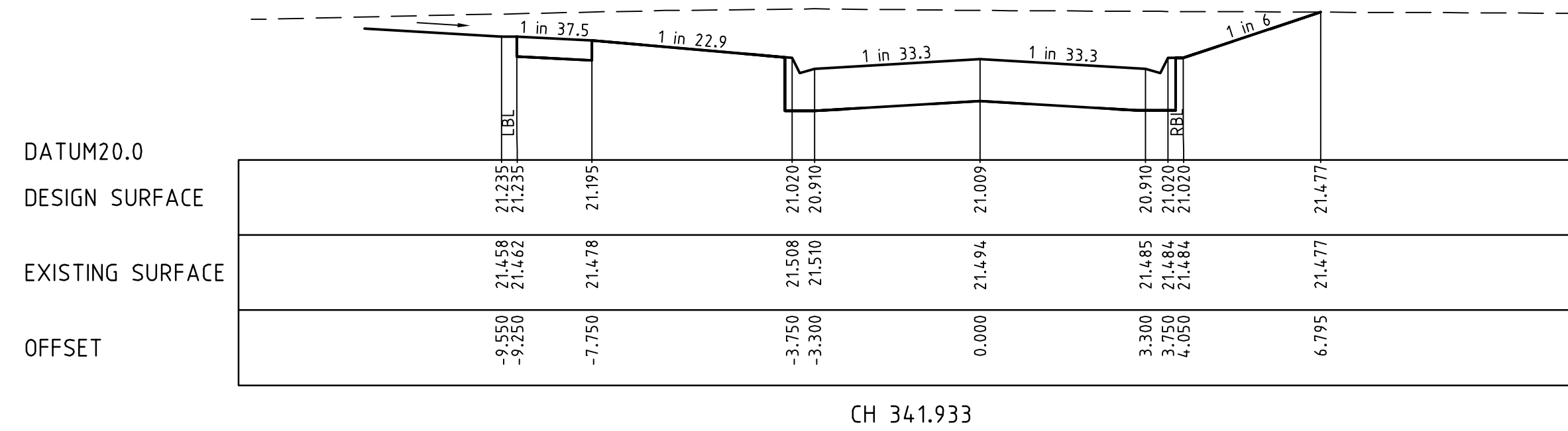
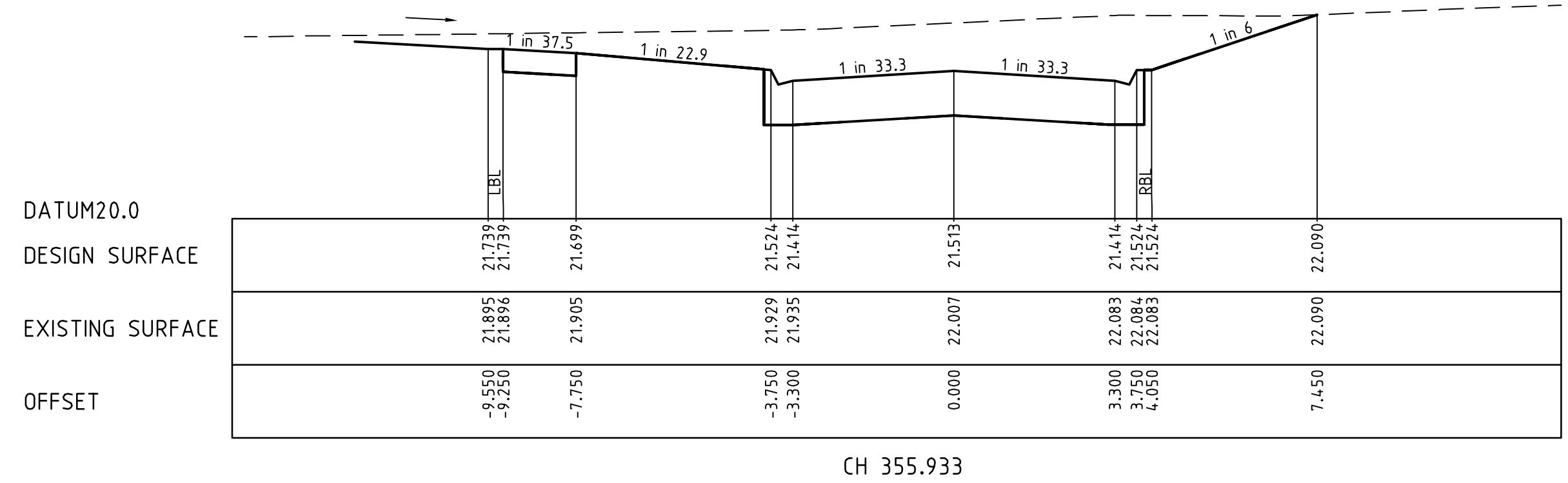
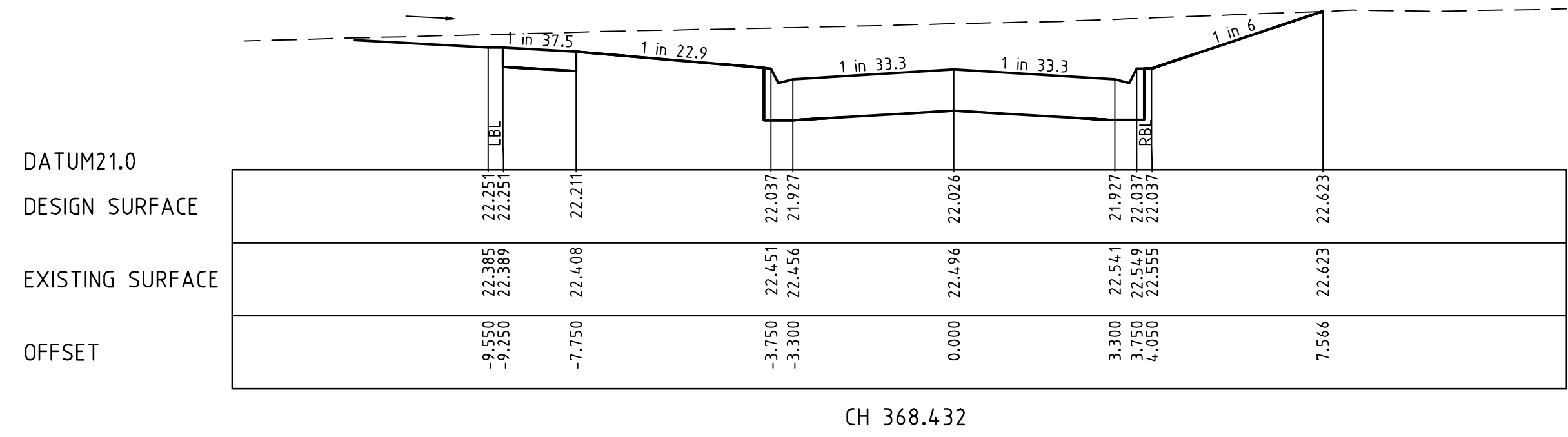
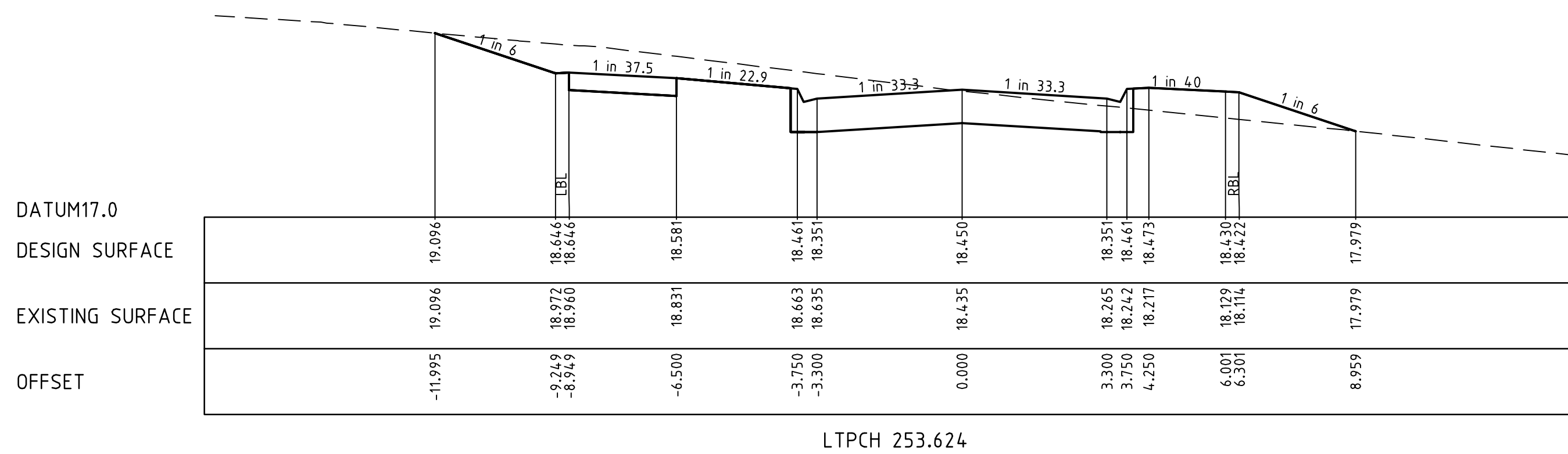
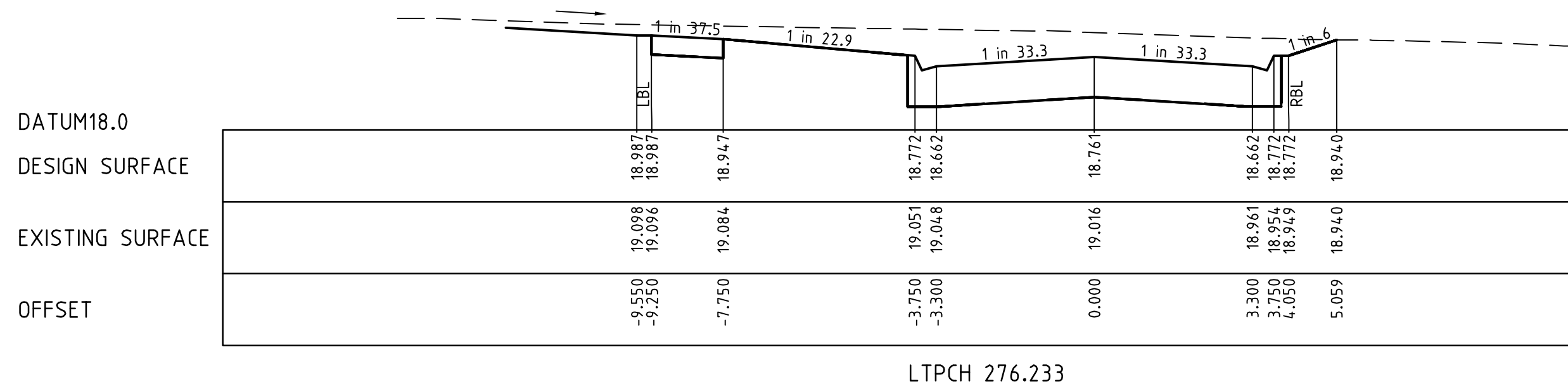
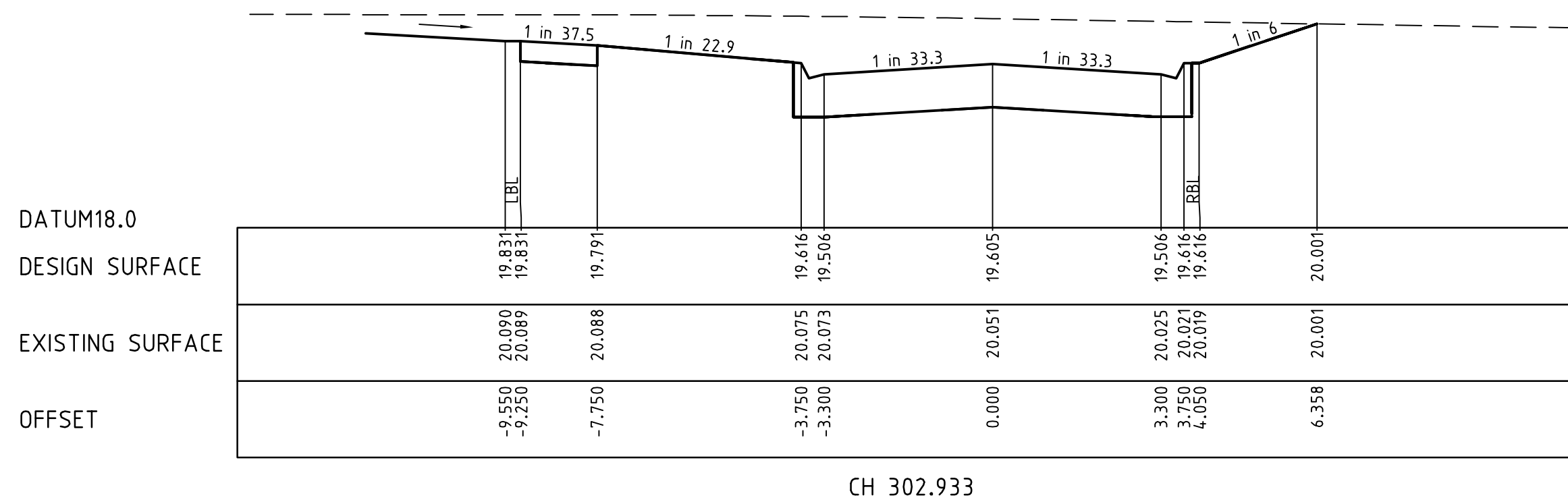
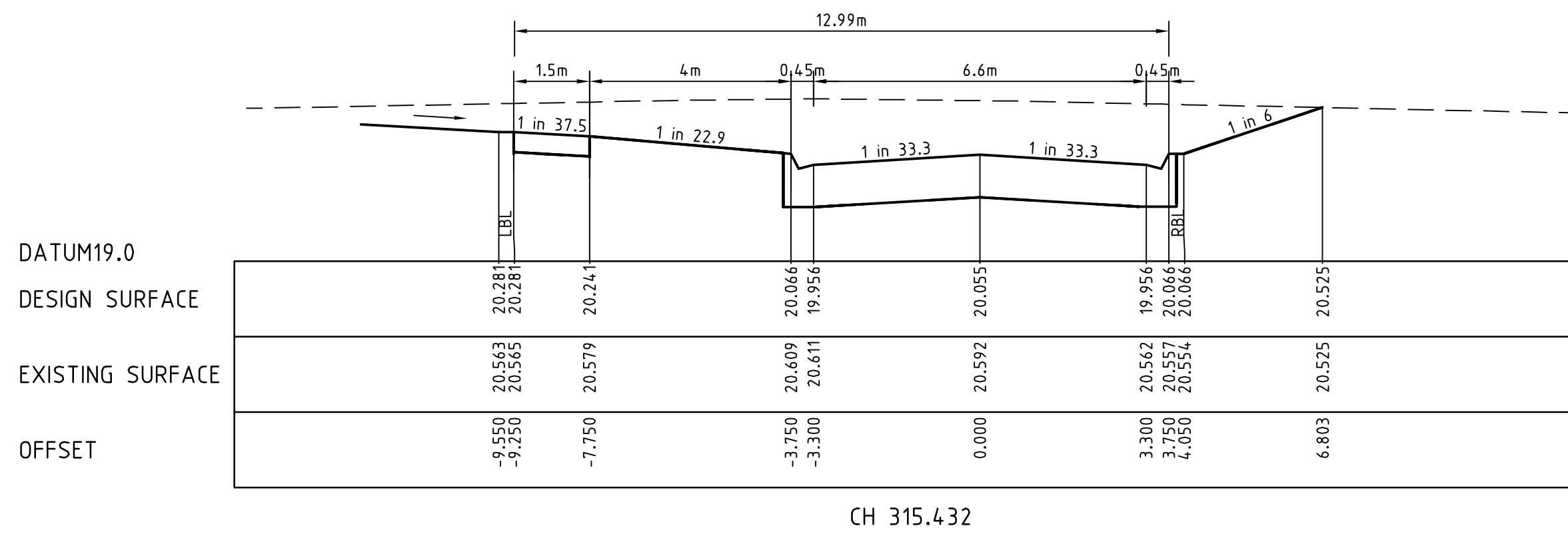


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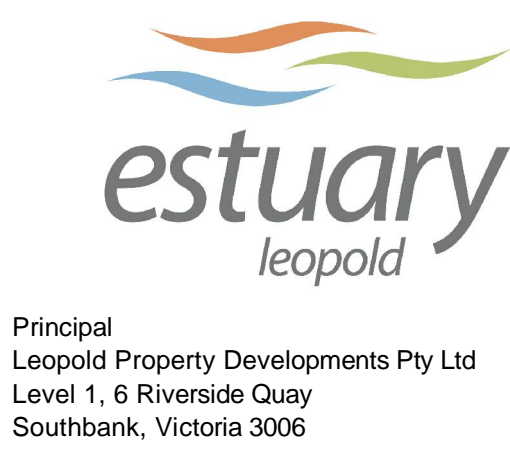
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Treefern Street - 1
Ch17.580 - Ch92.774
Drawing No. 0250EHL-07-21 **Rev D**
Sheet No. 21 of 42

Approved for Construction

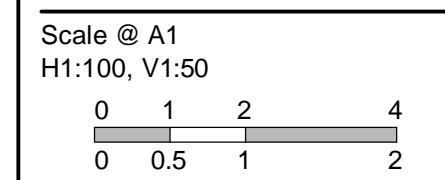
LEGEND
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 --- DESIGN LINE
 --- FUTURE DESIGN LINE



D	ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C	COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B	COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A	ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG
REVISION	DATE	DES/DFT	APP'D	



Designed
 A.Perkins
 Drawn
 A.Perkins
 Checked
 C. Birkett
 Authorised
 J. Golden
 Date
 January 2011

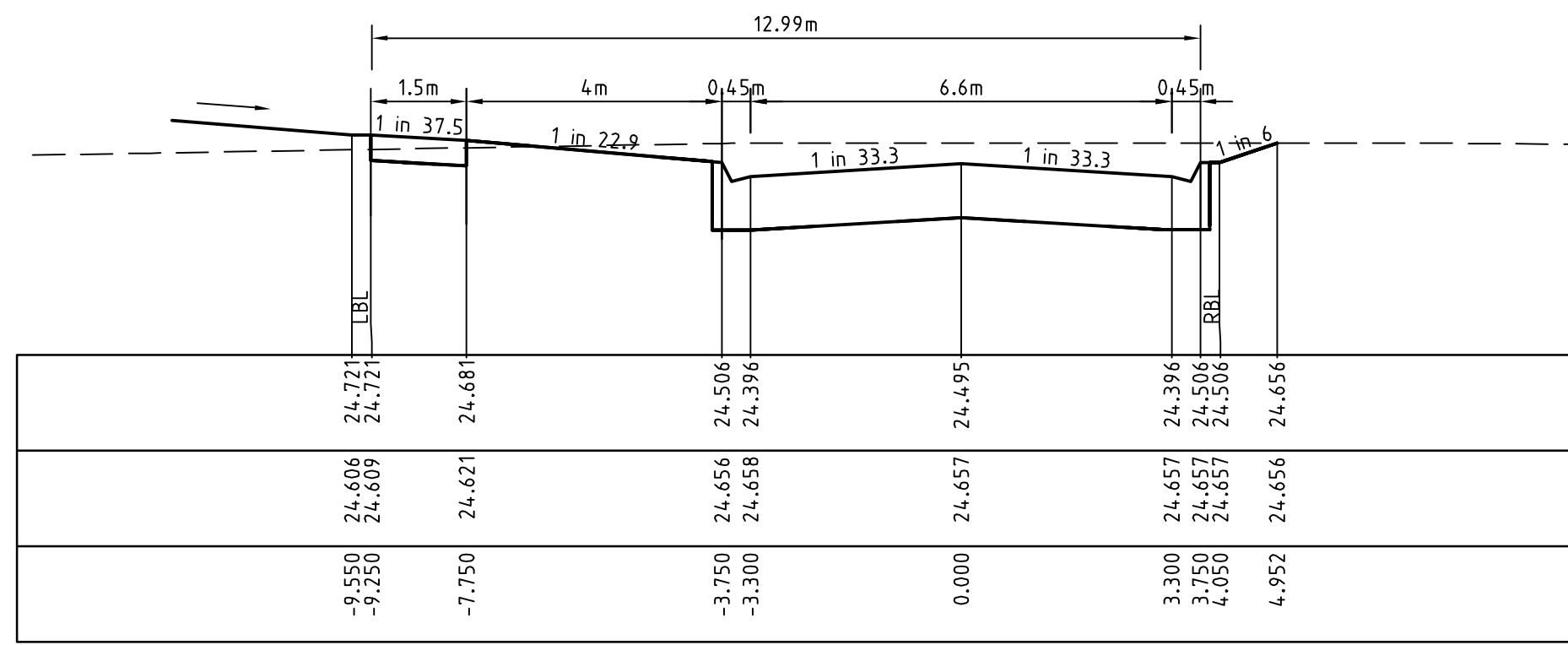


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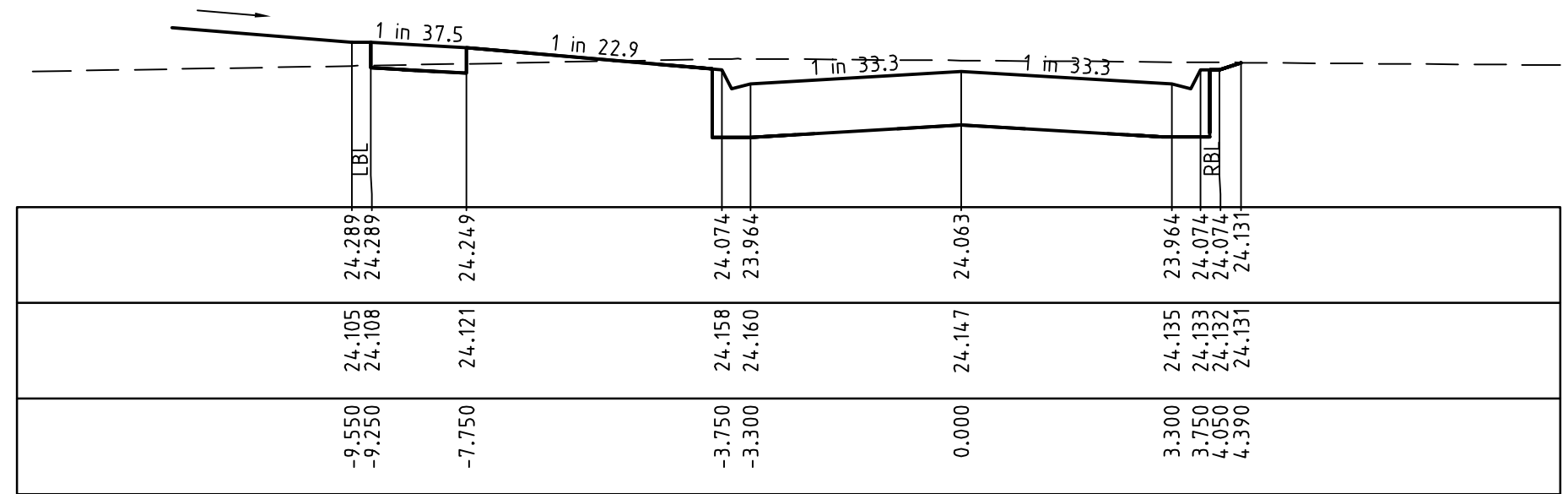


Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Cross Sections Treefern Street E/W - 1
 Ch253.624 - Ch308.432
Drawing No. 0250EHL-07-23 **Rev D**
 Sheet No. 23 of 42
 Approved for Construction

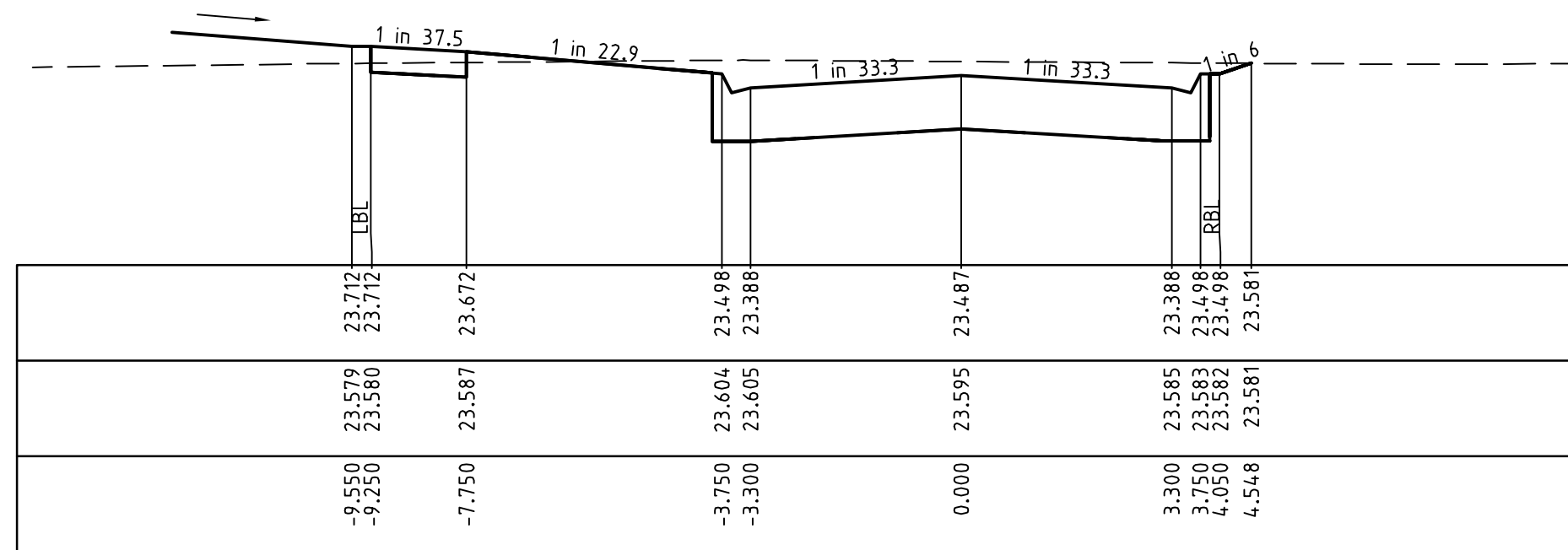
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---	DESIGN LINE
---	FUTURE DESIGN LINE



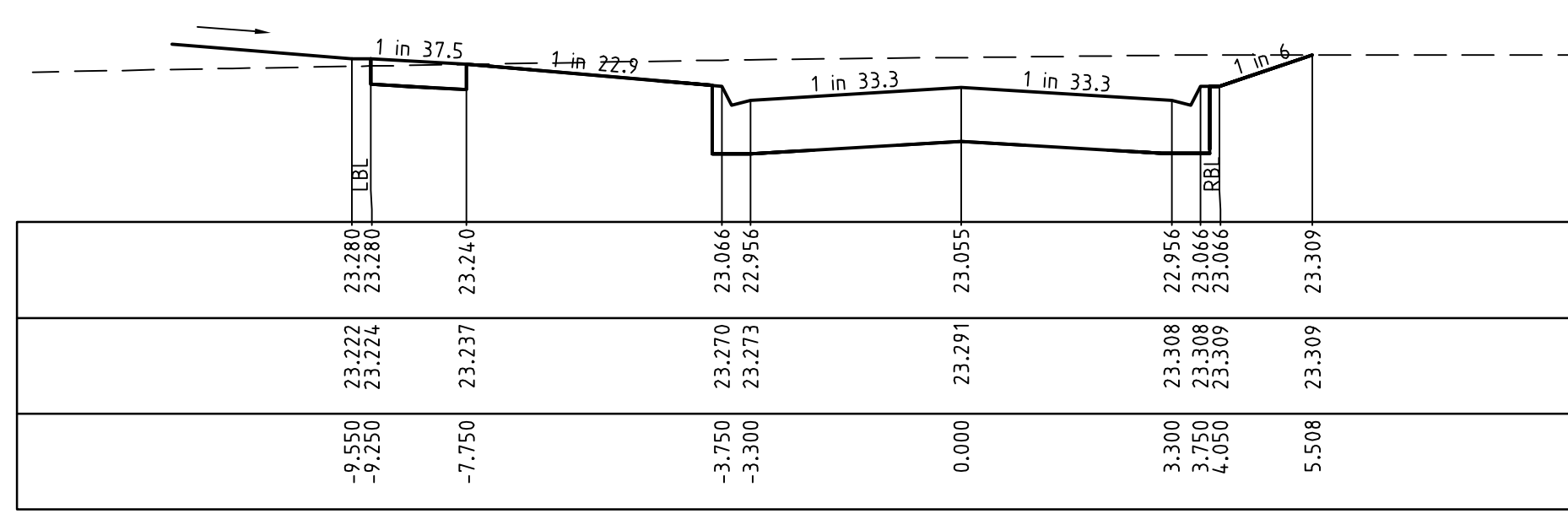
CH 428.432



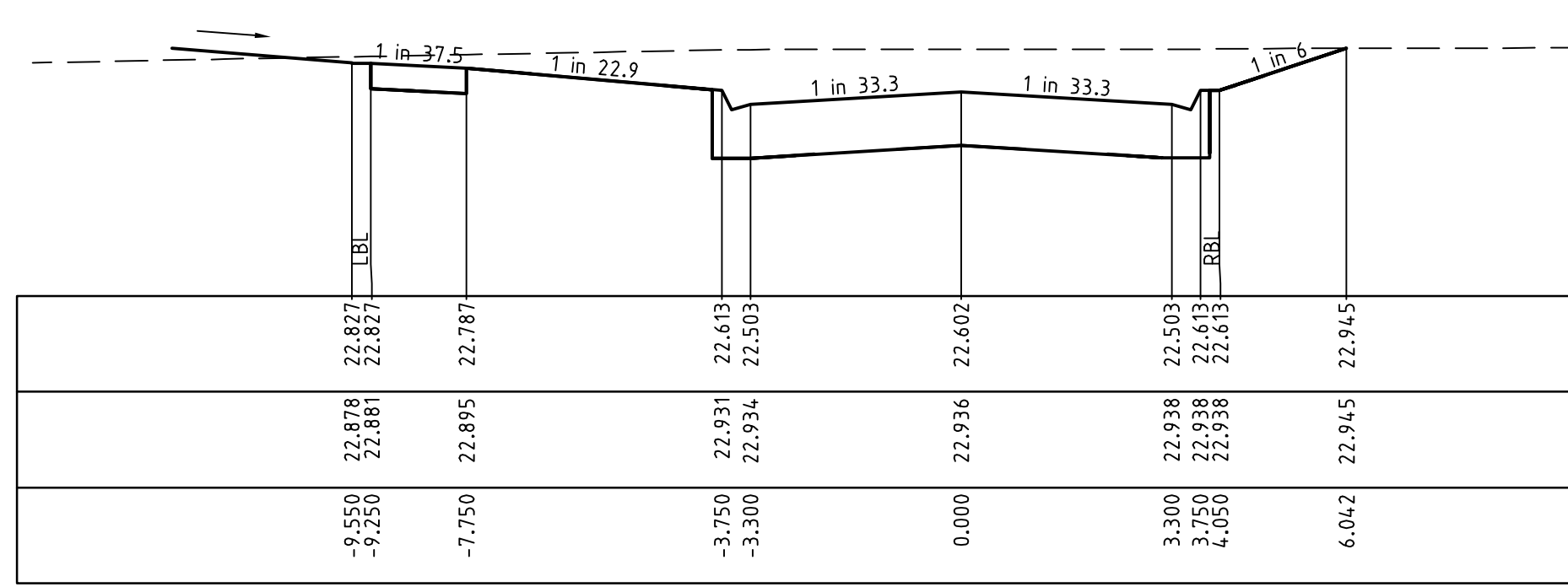
CH 417.932



CH 403.932



CH 393.432



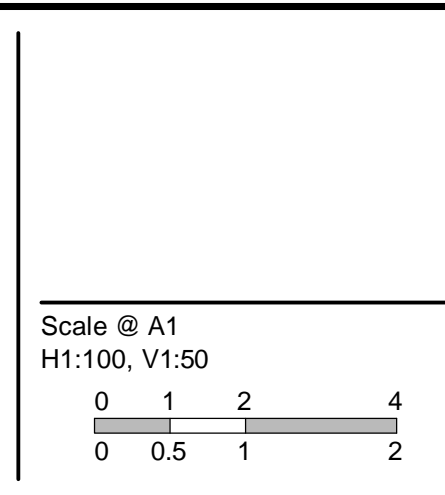
CH 382.432

REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birckett
Authorised
J. Golden
Date
January 2011

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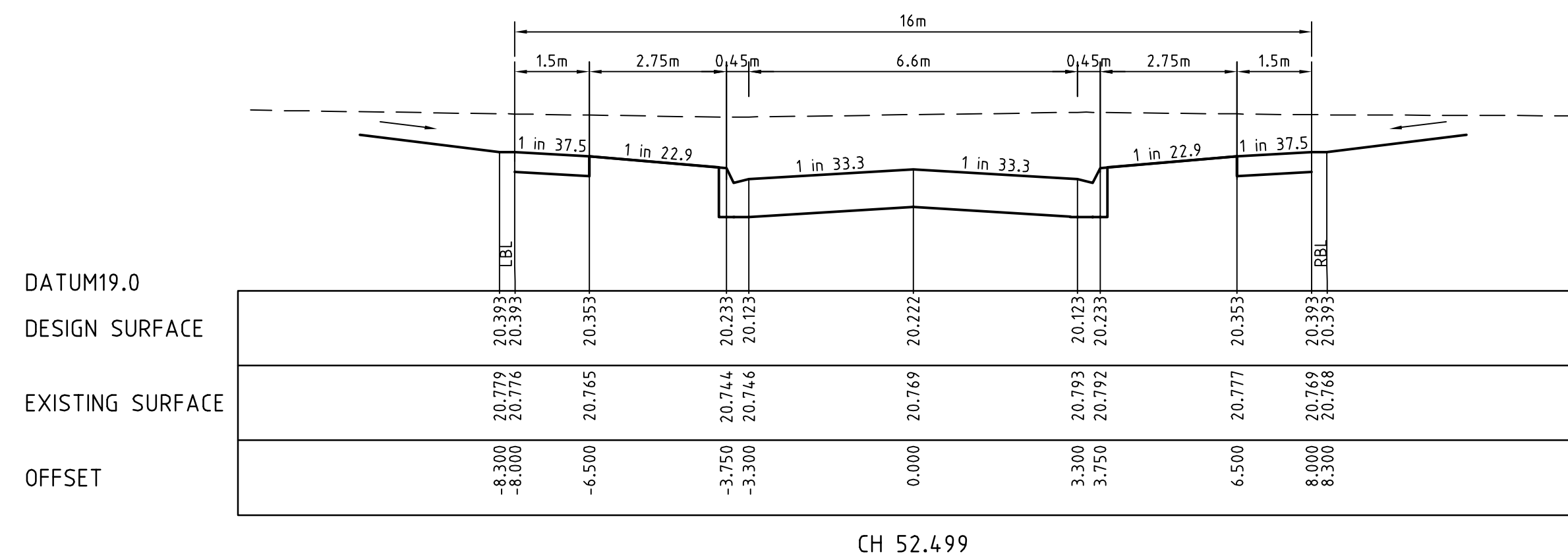


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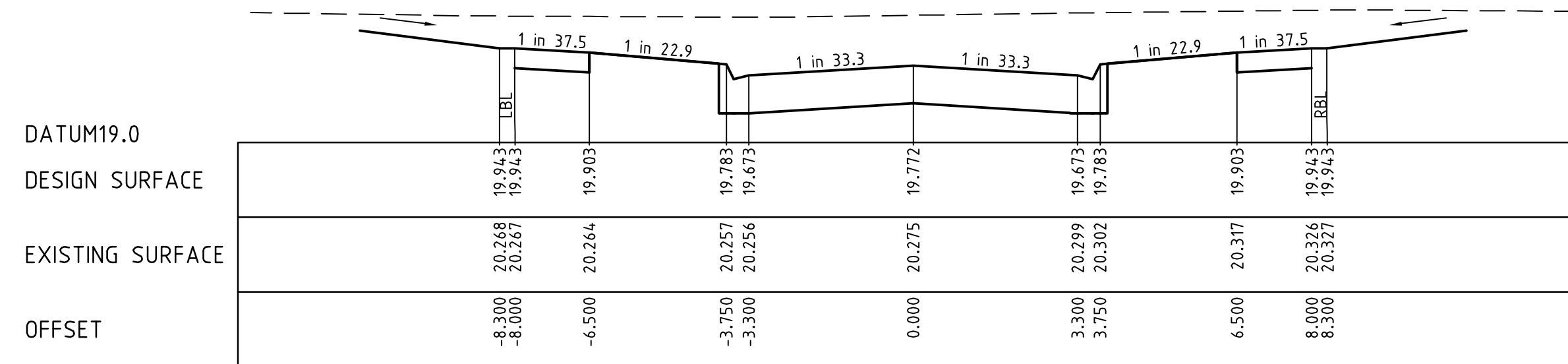
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Treefern Street E/W - 2
Ch382.432 - Ch428.432
Drawing No. 0250EHL-07-24 **Rev D**
Sheet No. 24 of 42
Approved for Construction

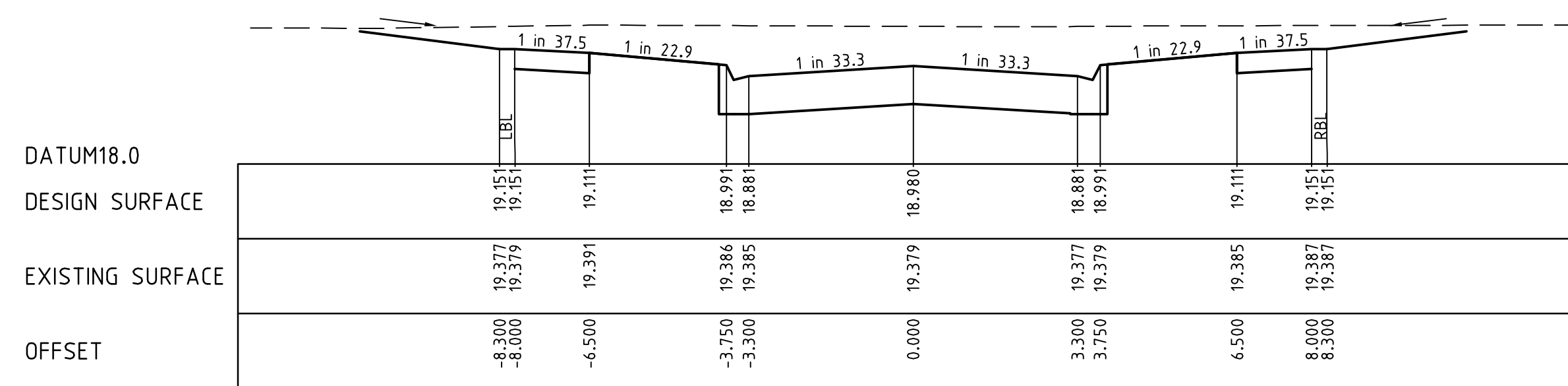
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---	DESIGN LINE
---	FUTURE DESIGN LINE



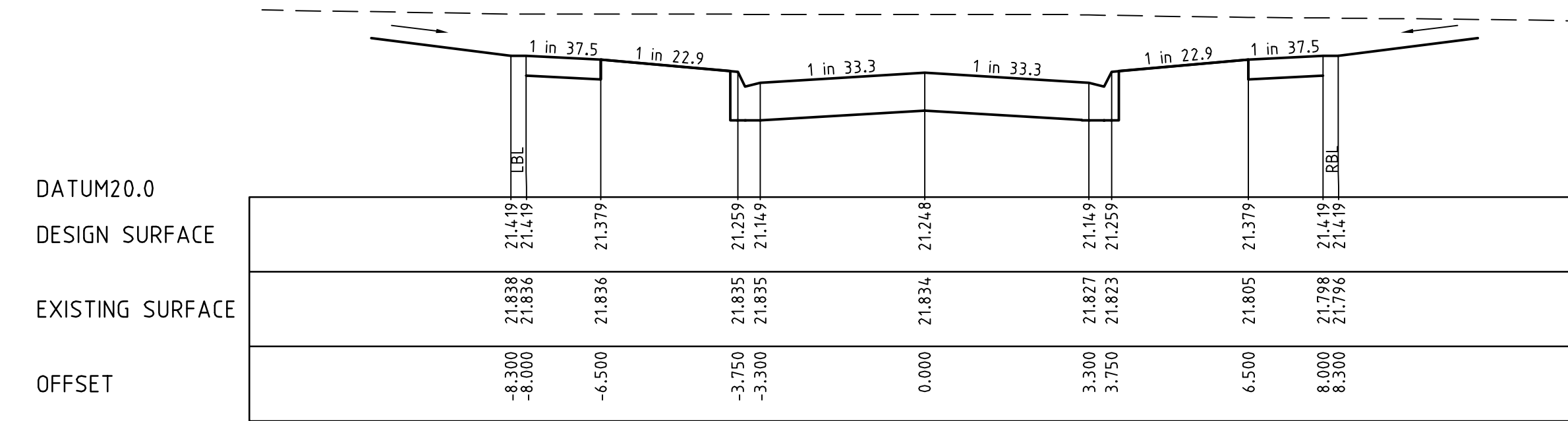
CH 52.499



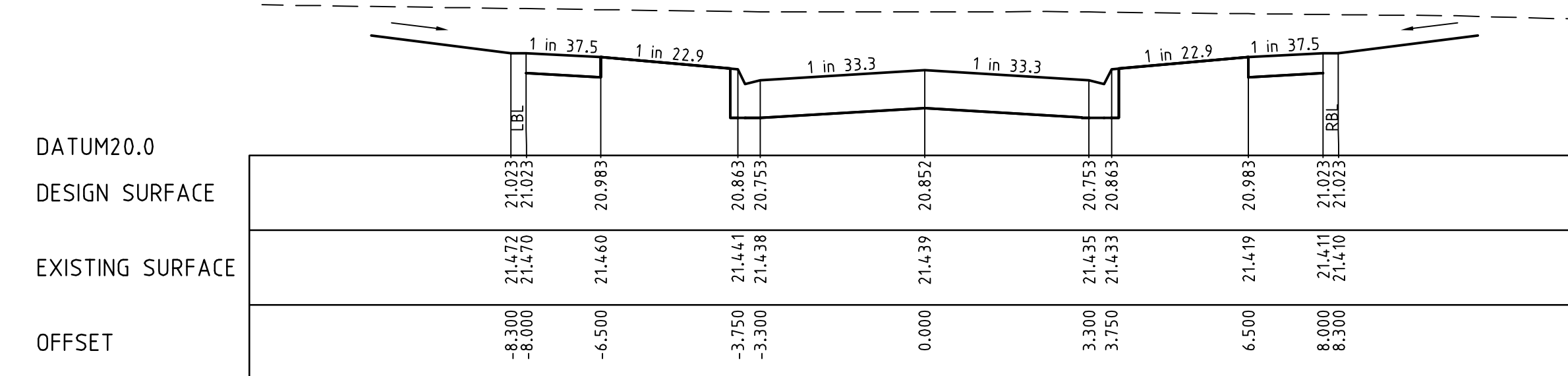
CH 40.000



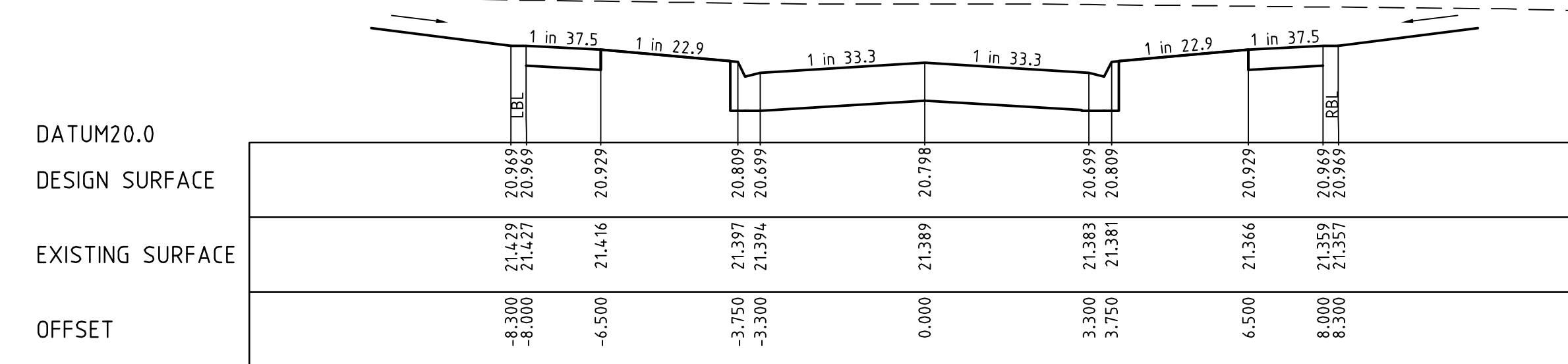
TPCH 12.900



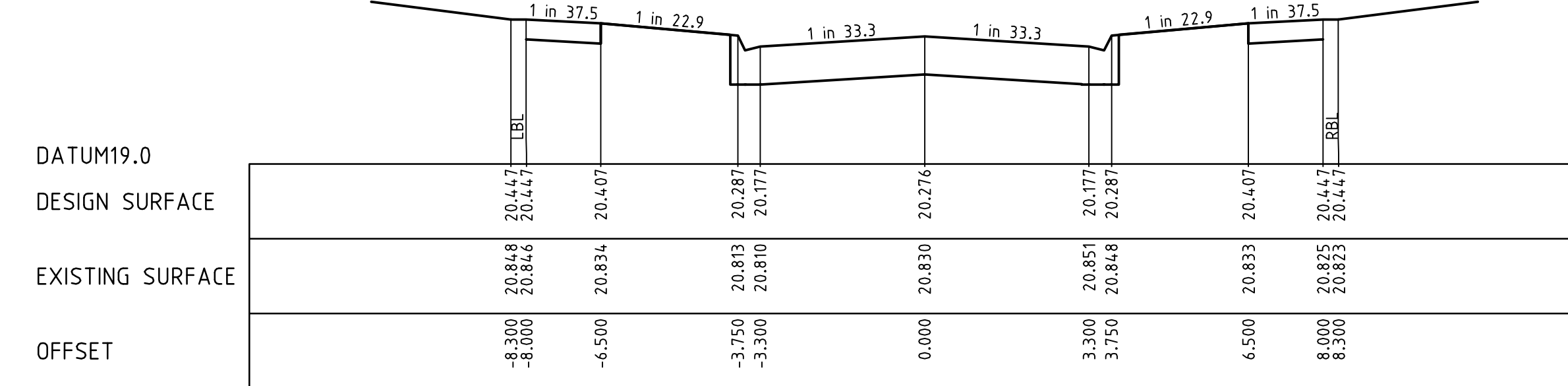
CH 80.999



CH 69.999



CH 68.499

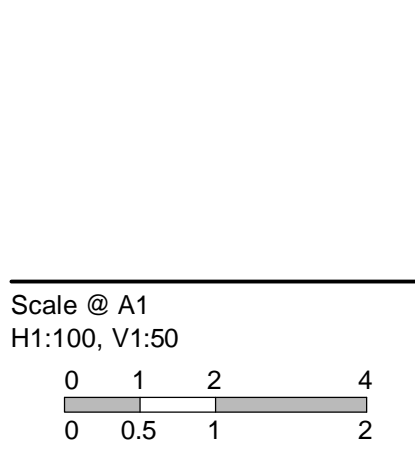


CH 53.999

D	ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C	COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B	COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A	ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG
REVISION		DATE	DES/DFT	APP'D

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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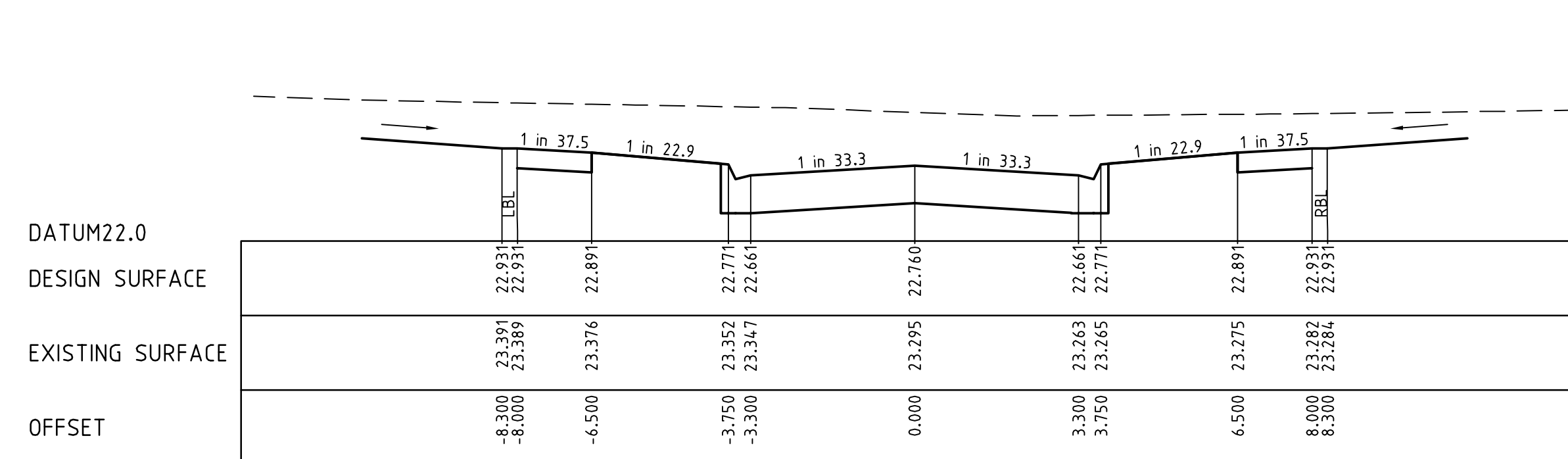
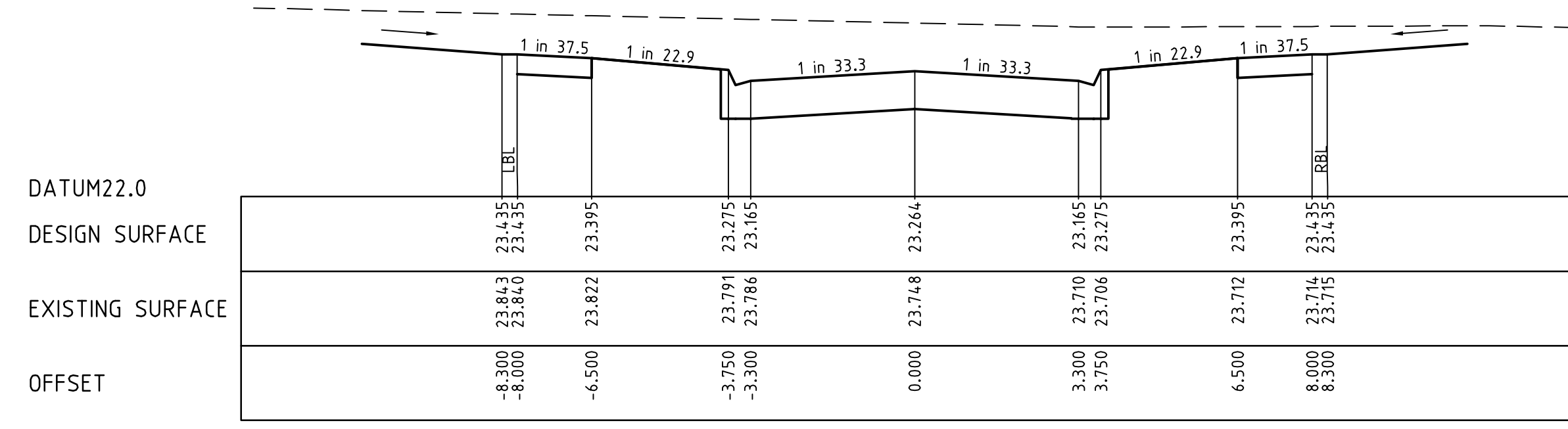
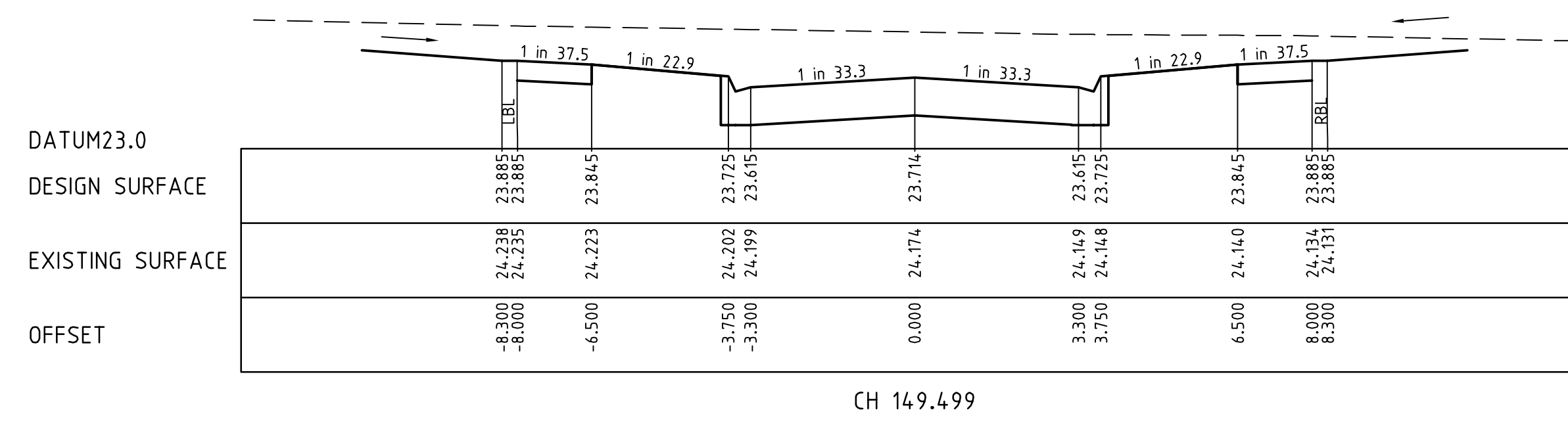
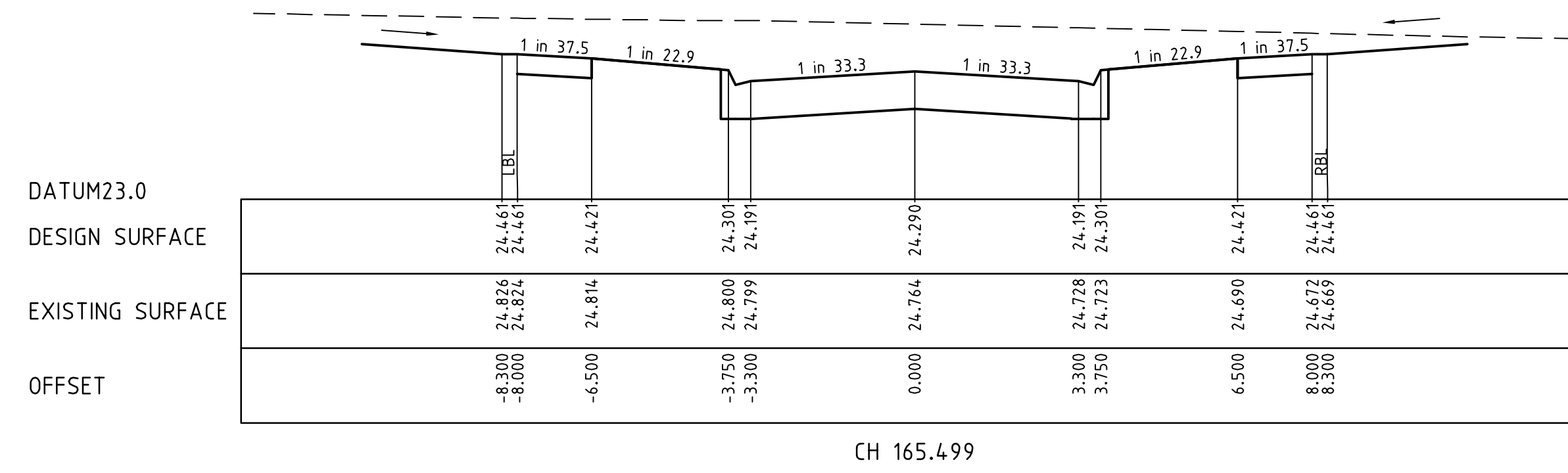
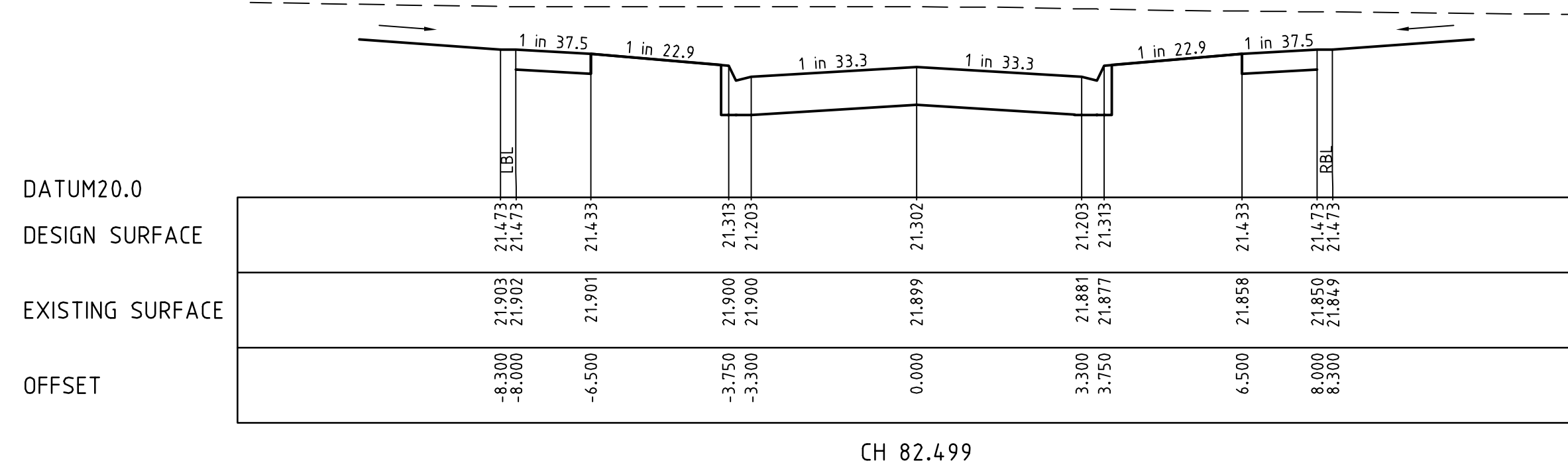
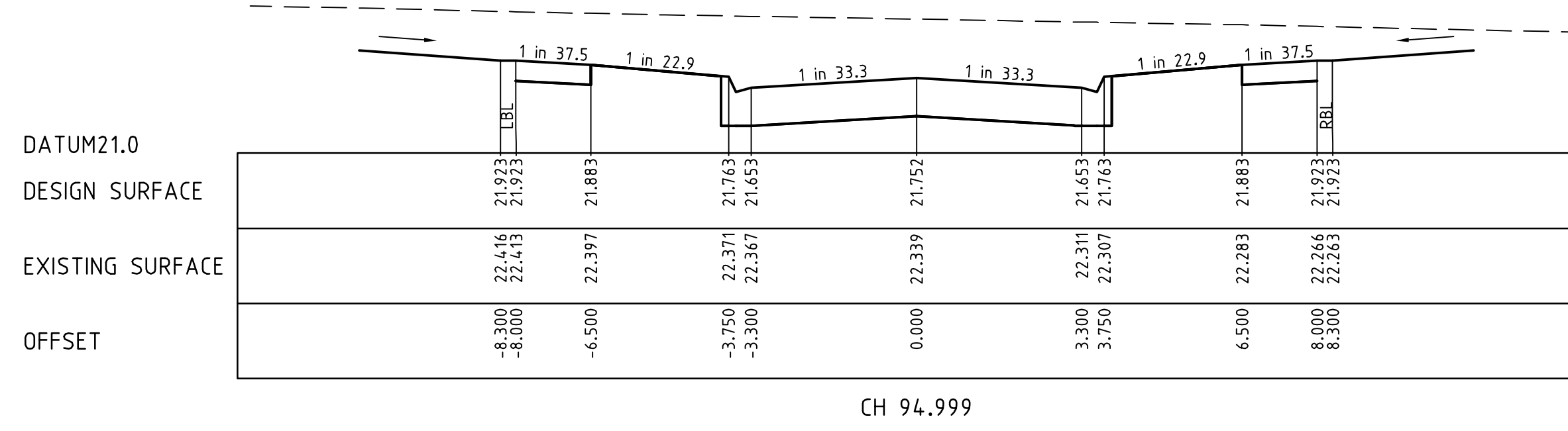
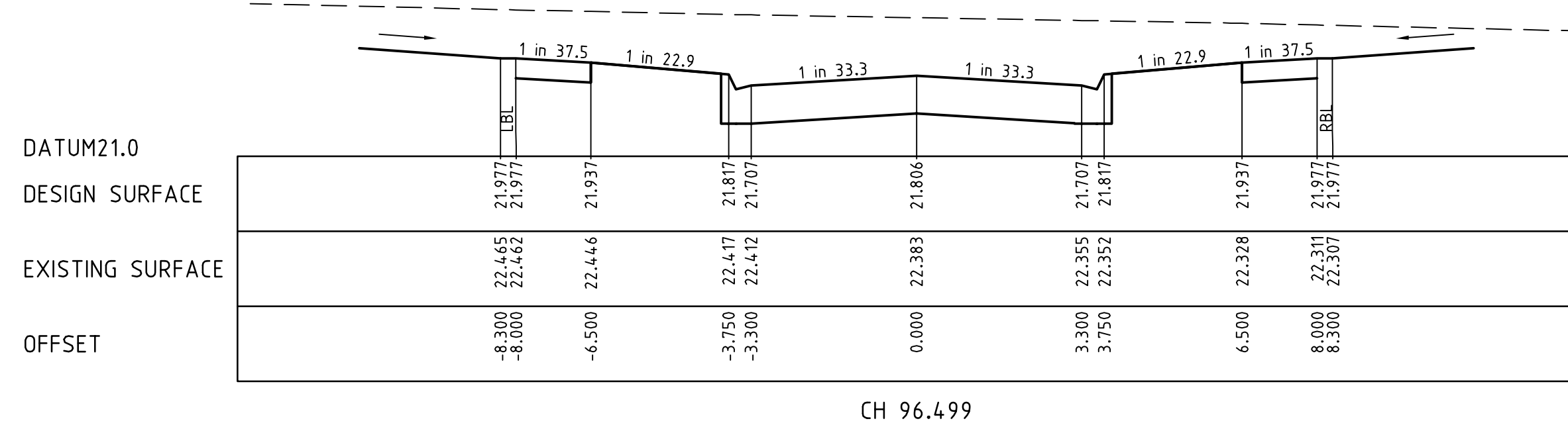
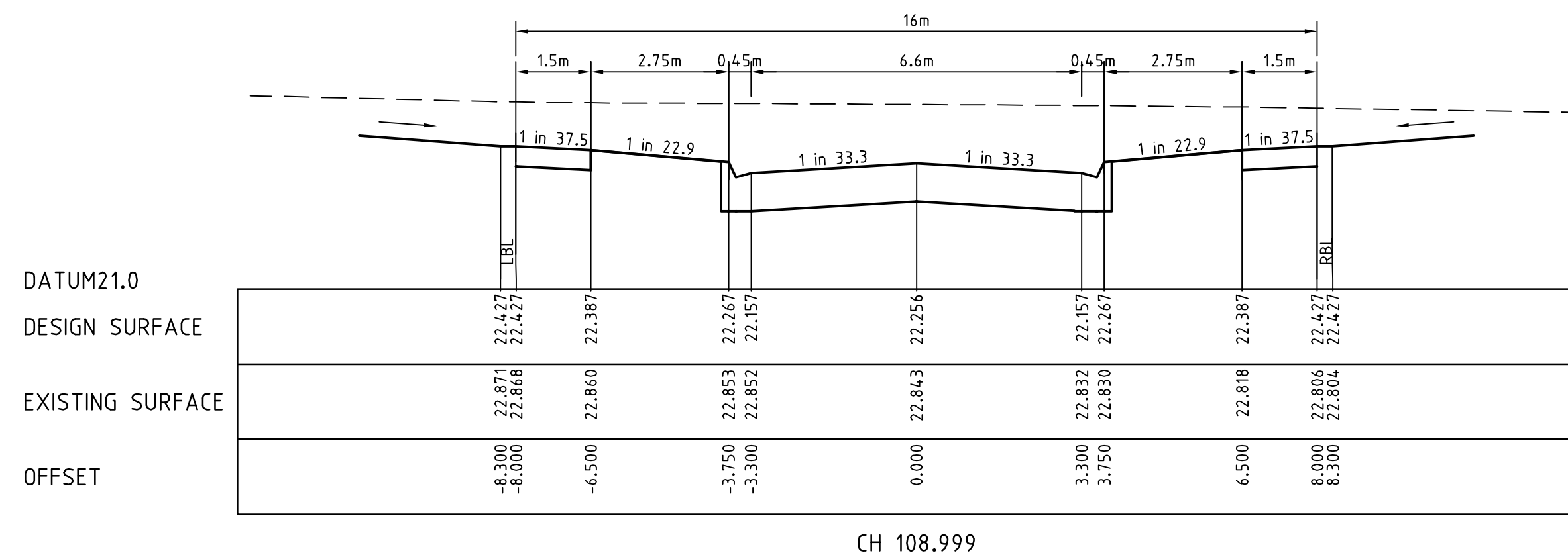
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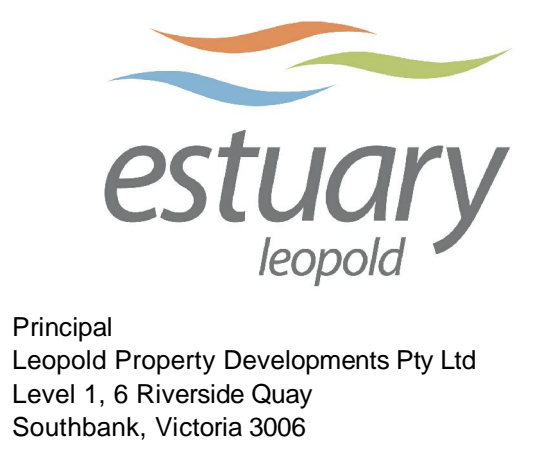
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Timberland Street - 1
Ch12.900 - Ch80.999
Drawing No. 0250EHL-07-25 **Rev D**
Sheet No. 25 of 42
Approved for Construction

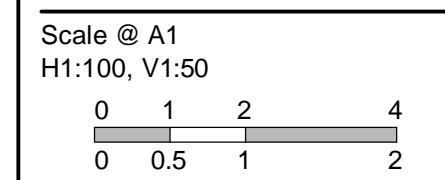
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---	DESIGN LINE
---	FUTURE DESIGN LINE



REVISION				
D	ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C	COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B	COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A	ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birckett
Authorised
J. Golden
Date
January 2011

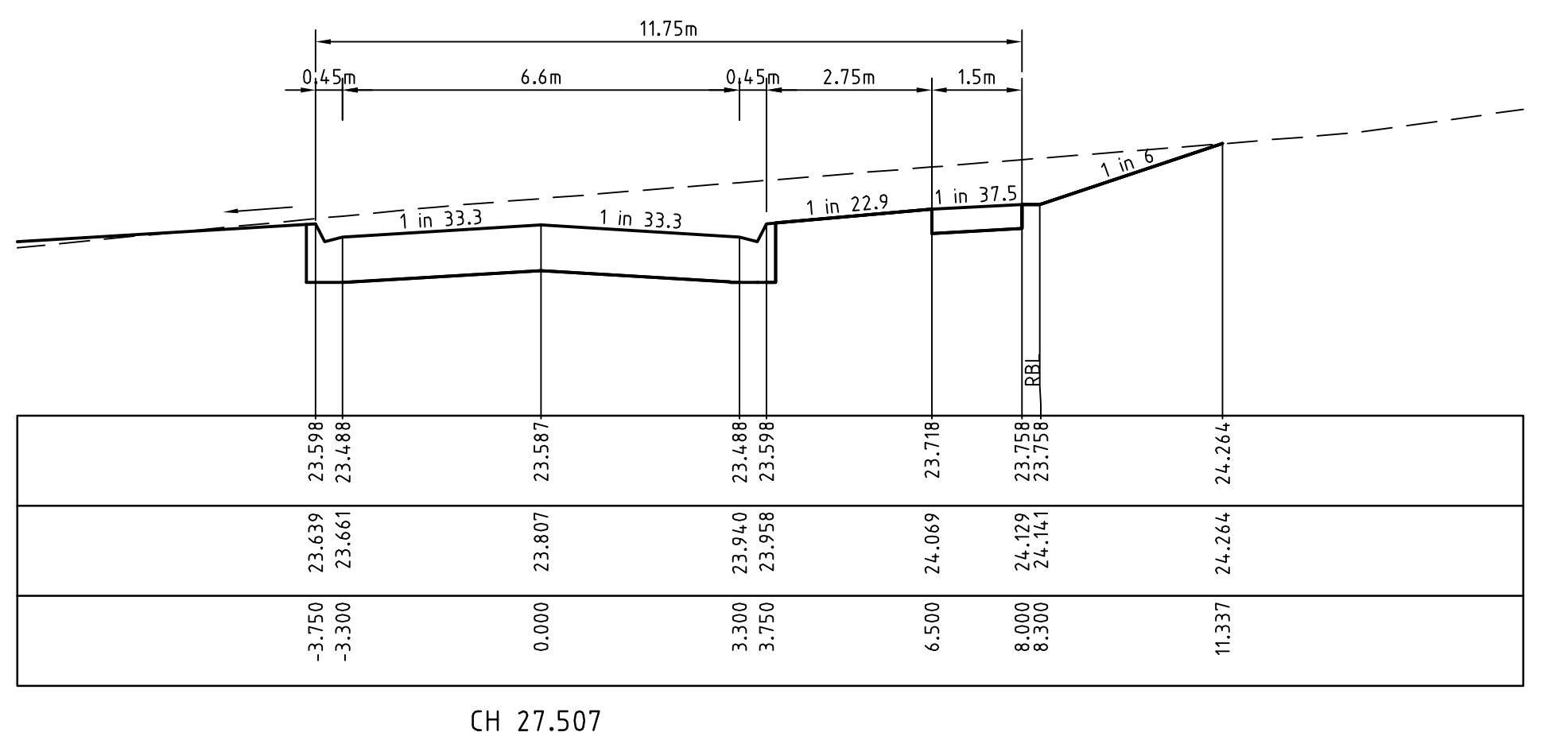
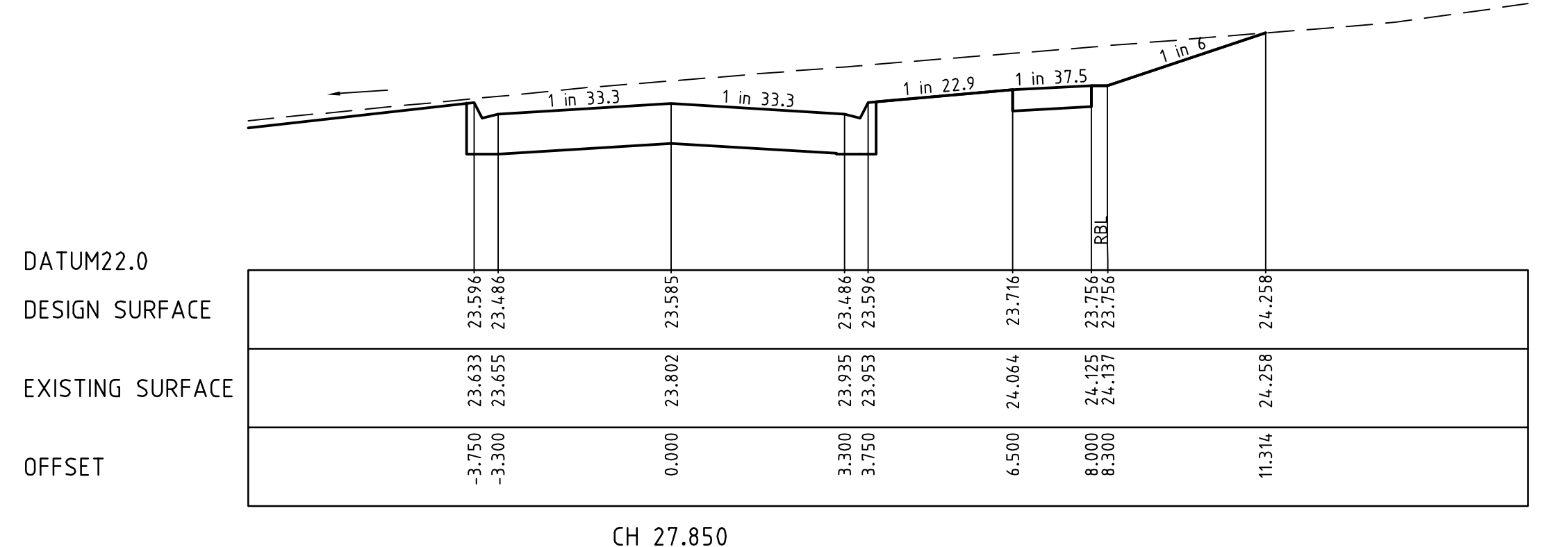
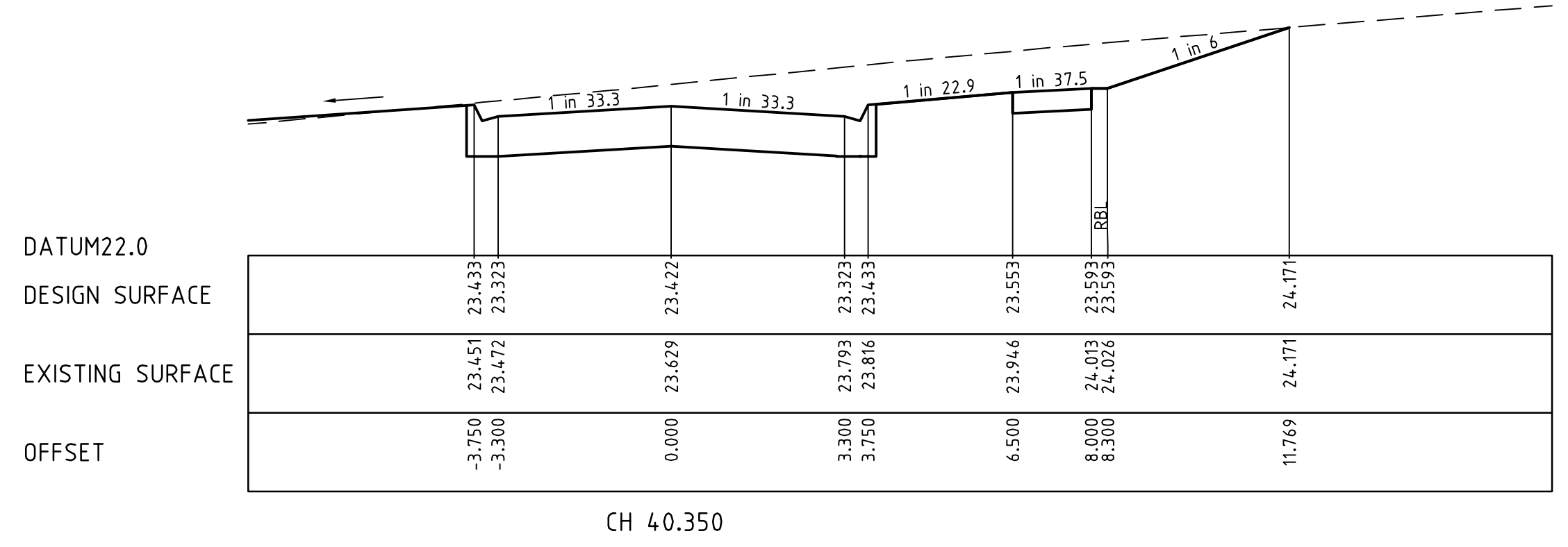
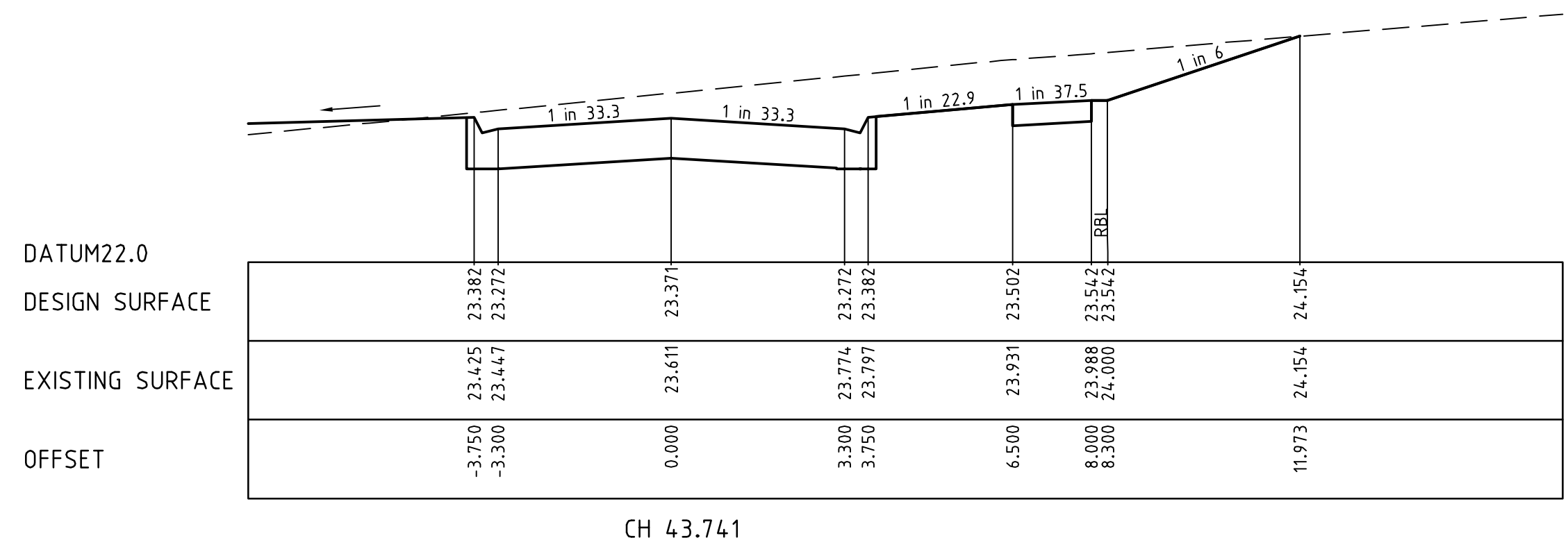


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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Timberland Street - 2
Ch82.499 - Ch165.499
Drawing No. 0250EHL-07-26 **Rev D**
Sheet No. 26 of 42
Approved for Construction

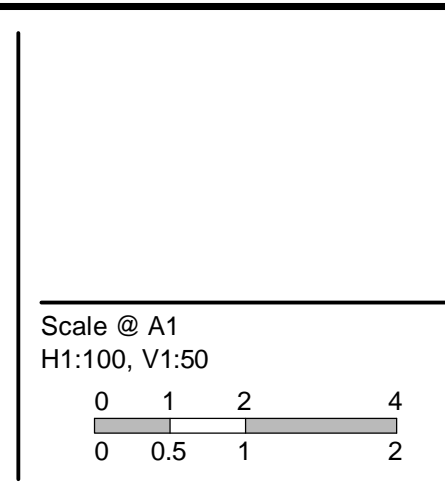
LEGEND	
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REVISION	DATE	DES/IDT	APP'D
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D MINOR AMENDMENTS	09.06.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birckett
Authorised
J. Golden
Date
January 2011



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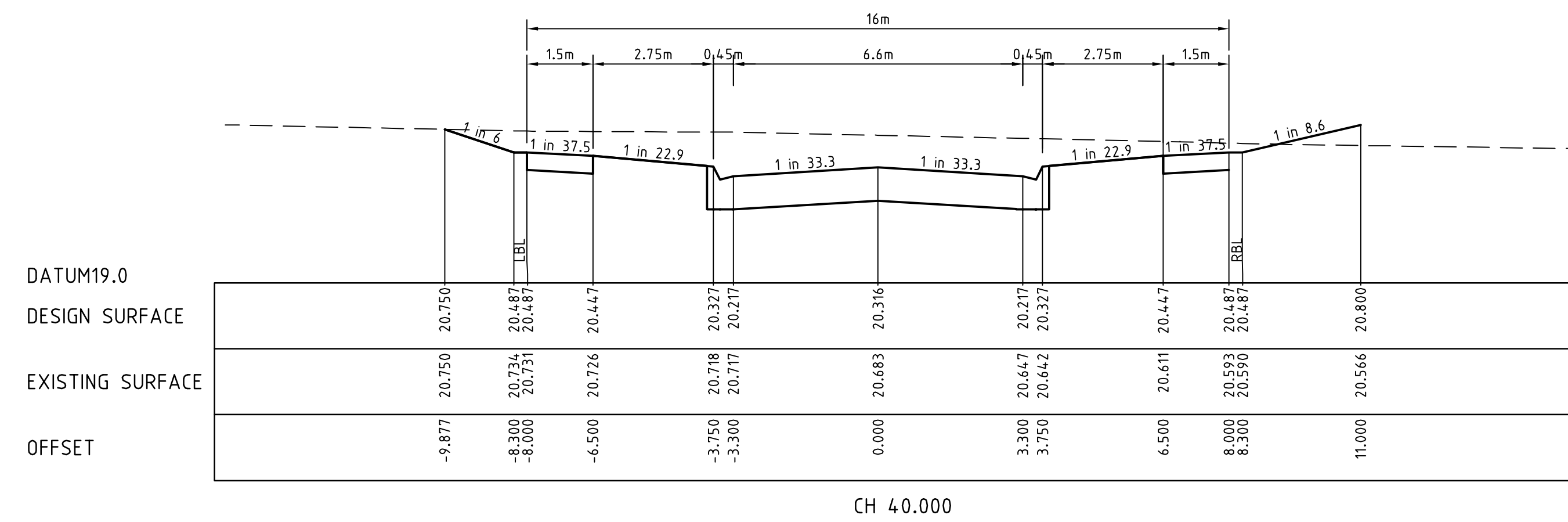
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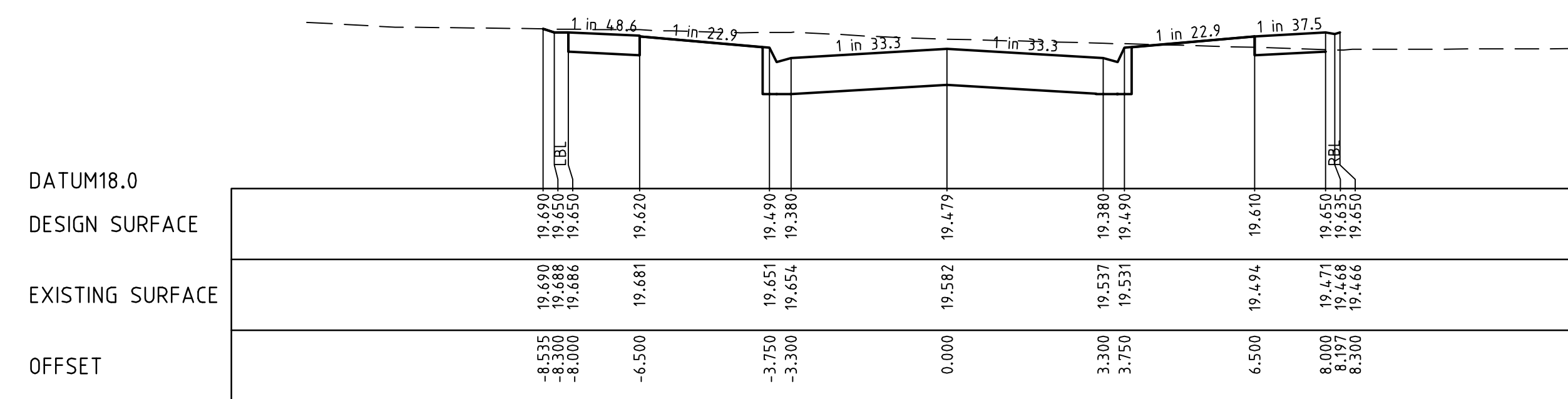
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Headland Drive - 1
Ch27.507 - Ch43.741
Drawing No. 0250EHL-07-27 **Rev E**
Sheet No. 27 of 42

Approved for Construction

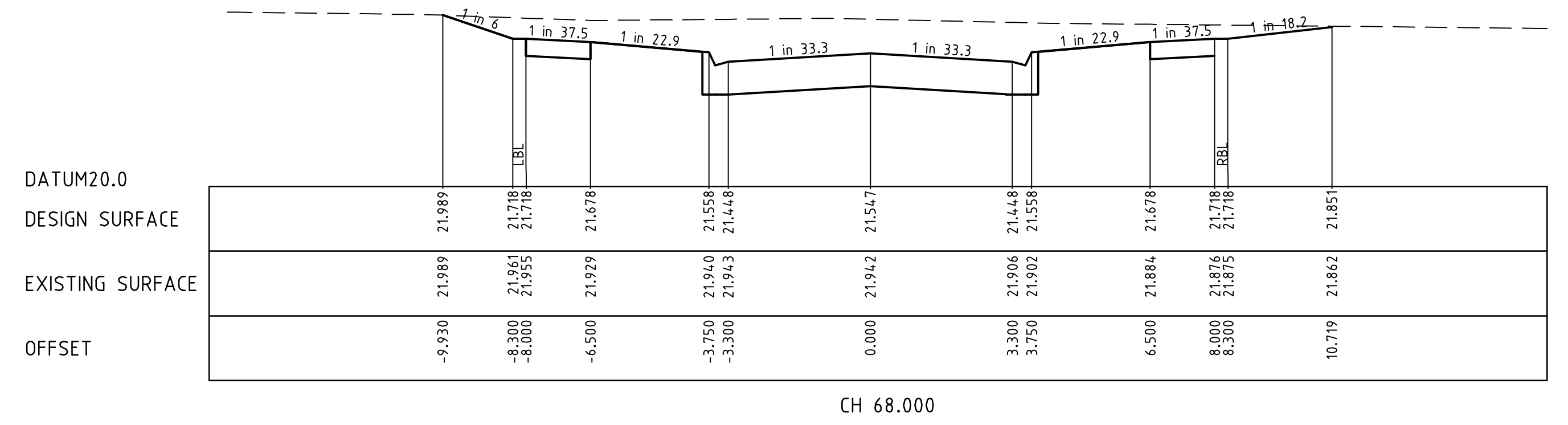
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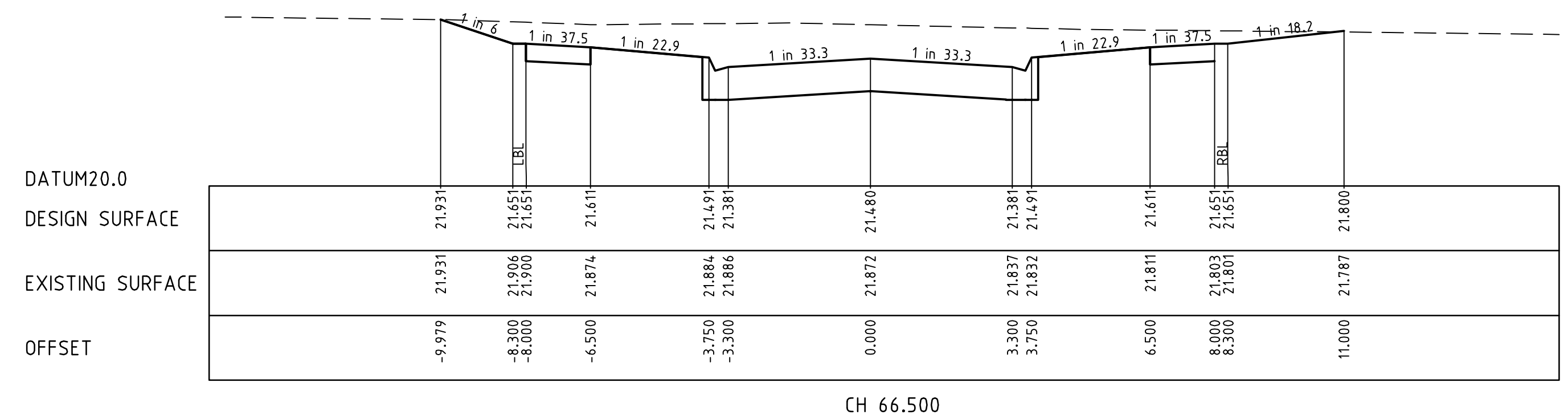
CH 40.000



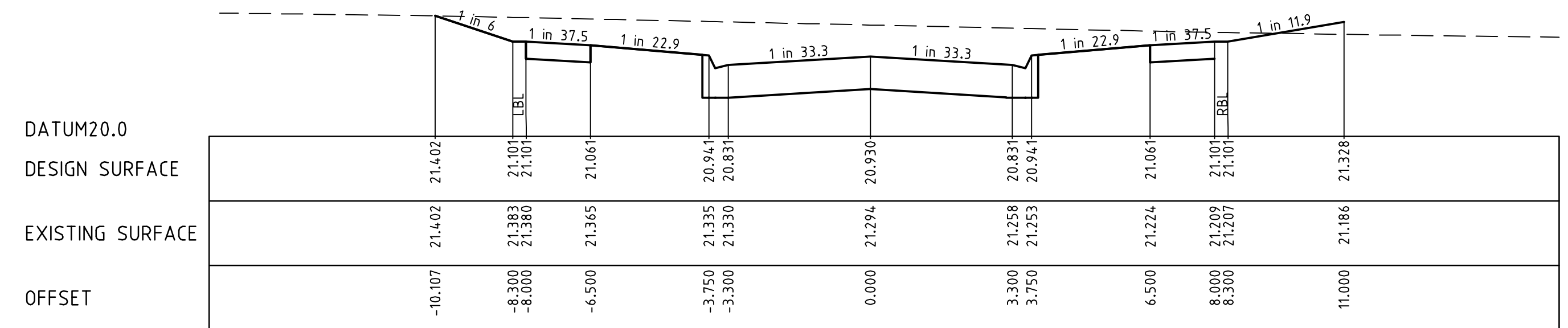
TPCH 12.900



CH 68.000

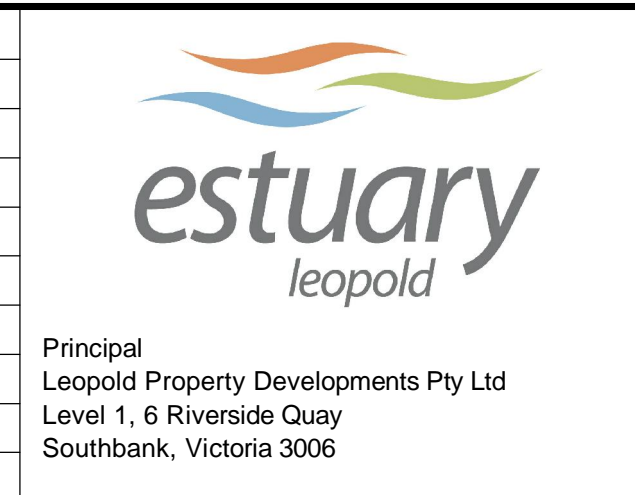


CH 66.500

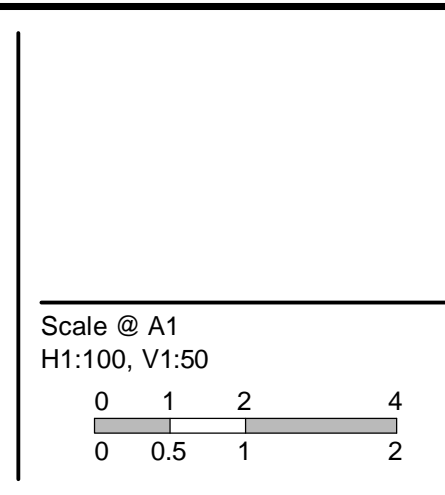


CH 54.000

REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



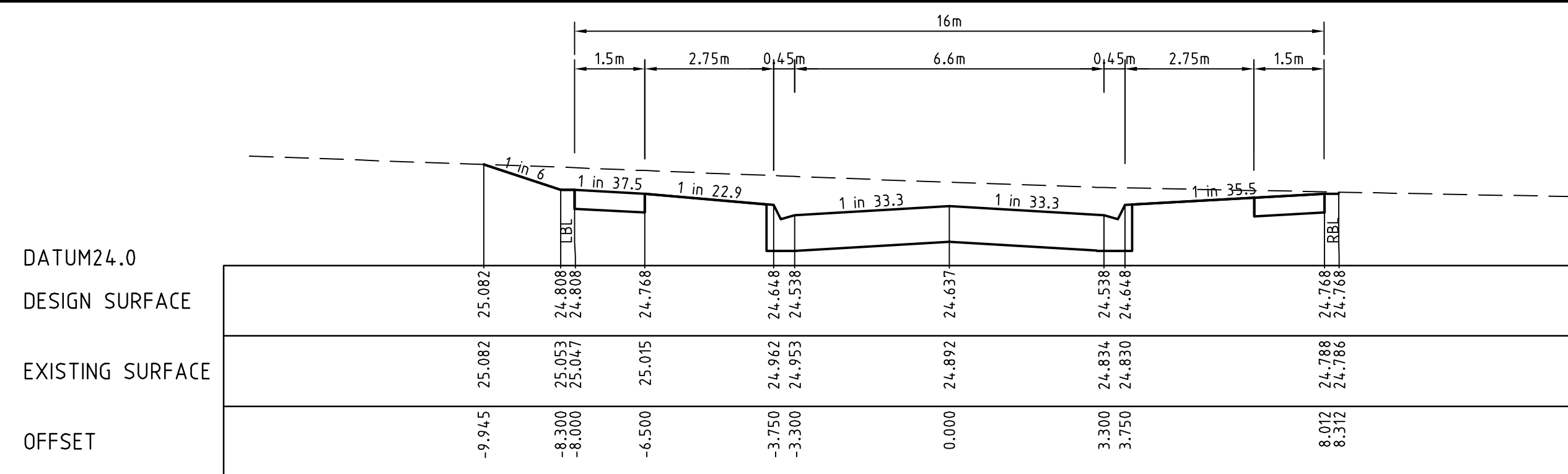
Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



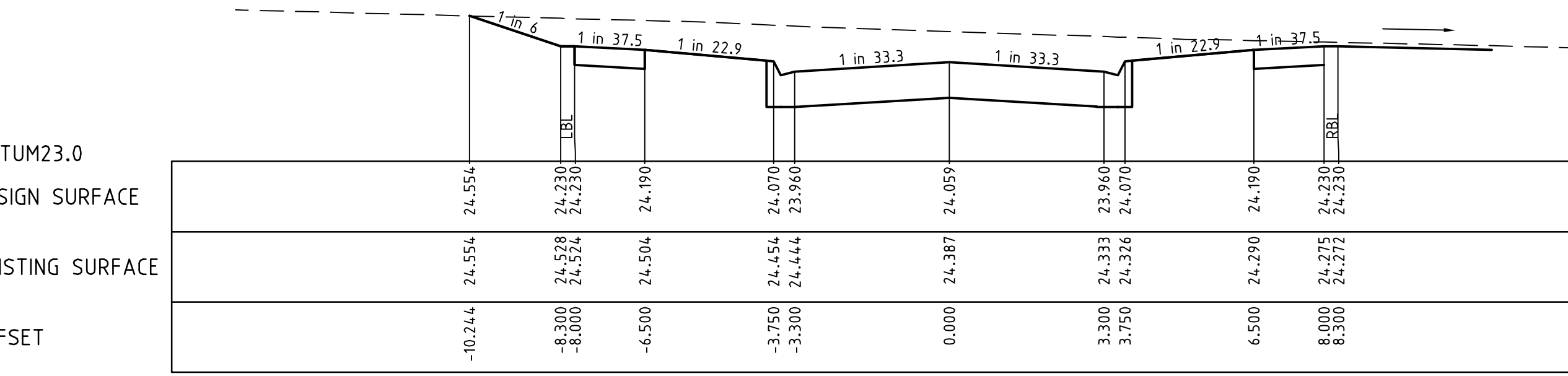
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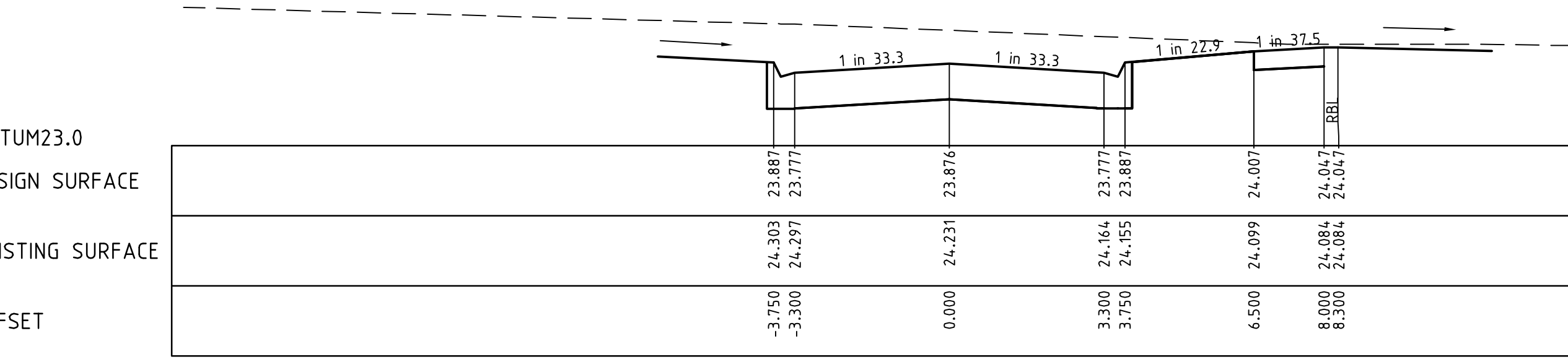
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Cross Sections Parkfront Drive - 1
Ch12.900 - Ch68.000
Drawing No. 0250EHL-07-29 **Rev D**
Sheet No. 29 of 42
Approved for Construction



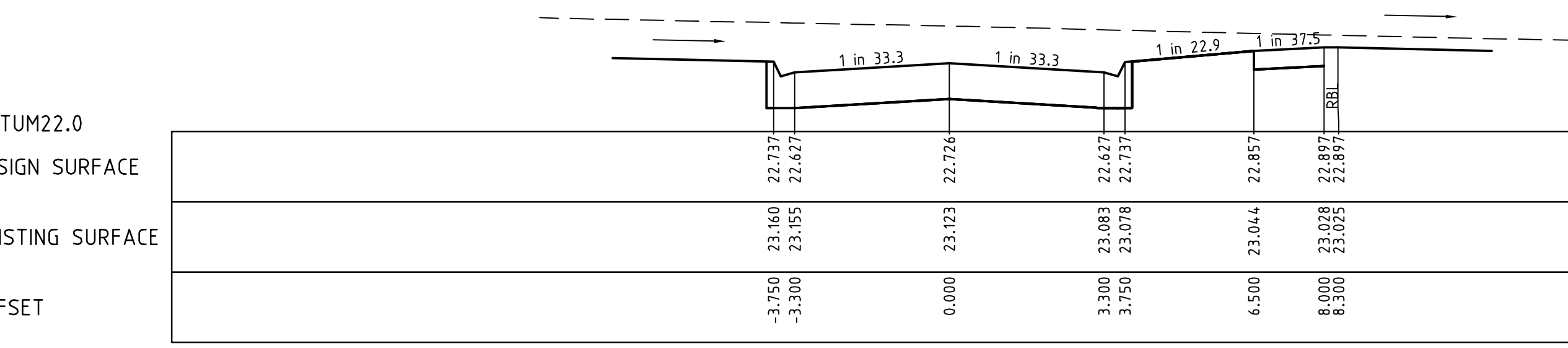
CH 138.779



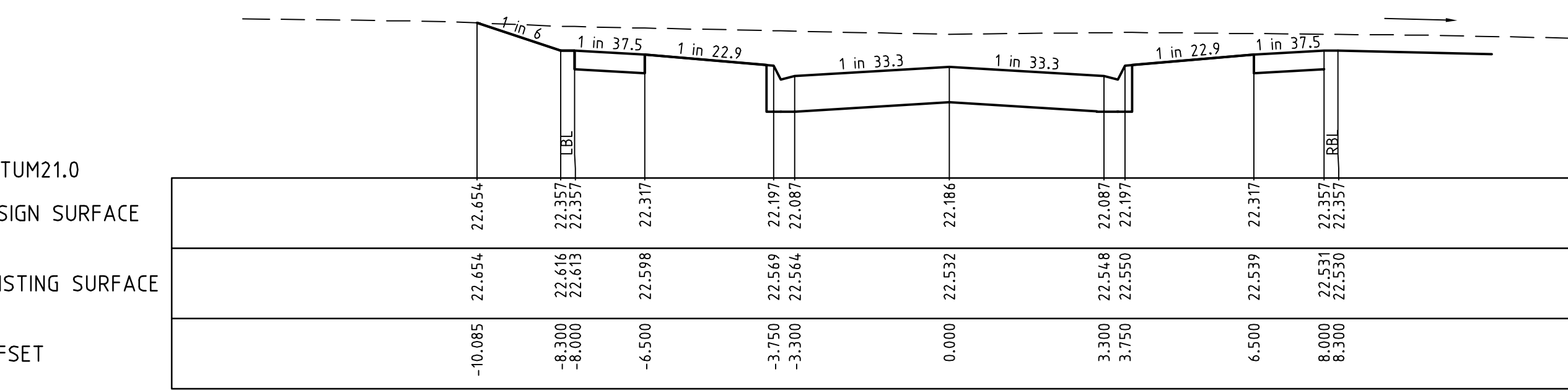
CH 125.000



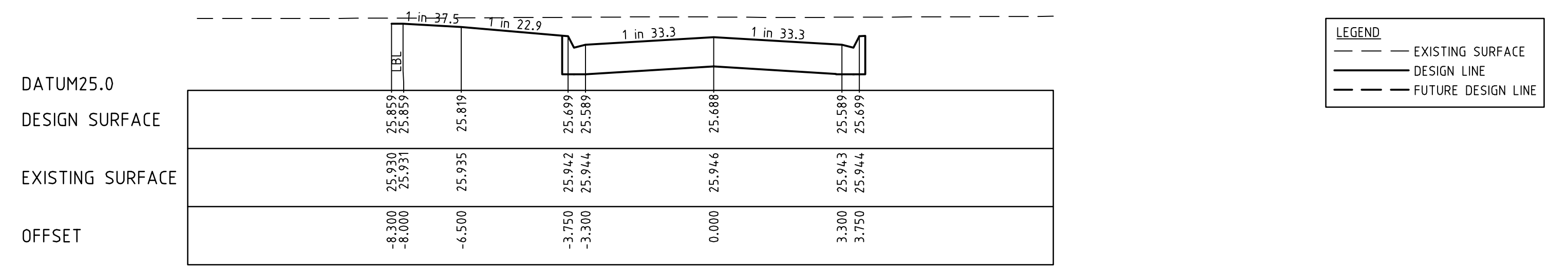
LTPCH 120.868



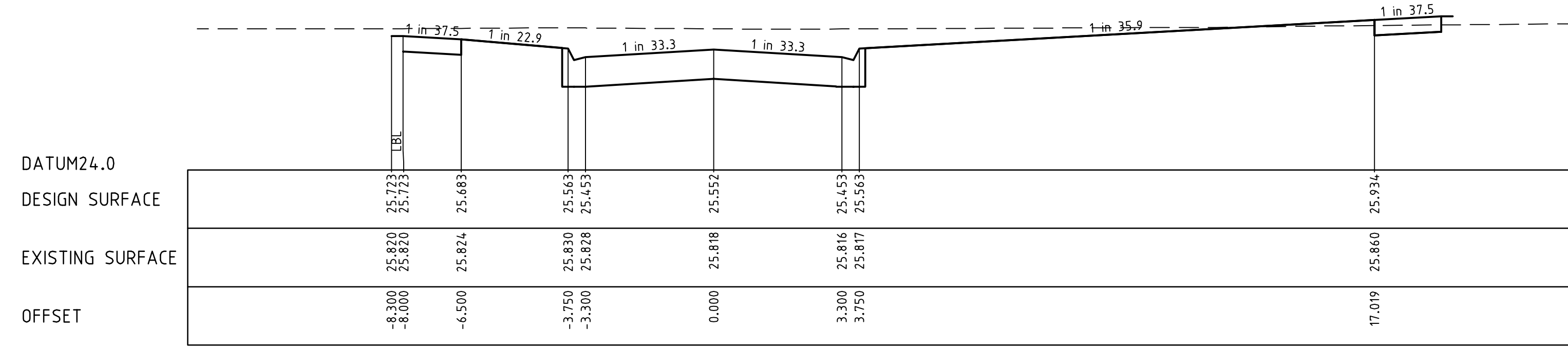
LTPCH 94.770



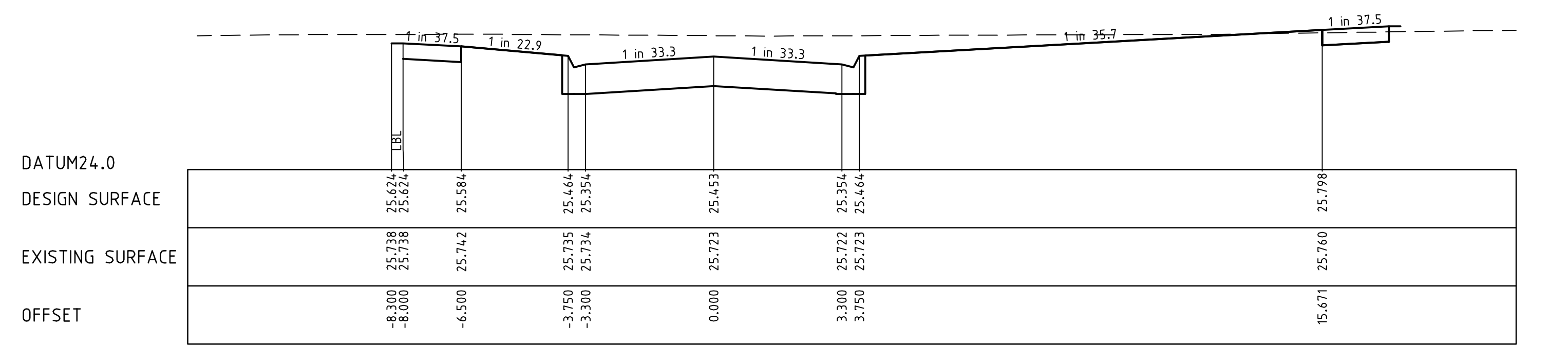
CH 82.499



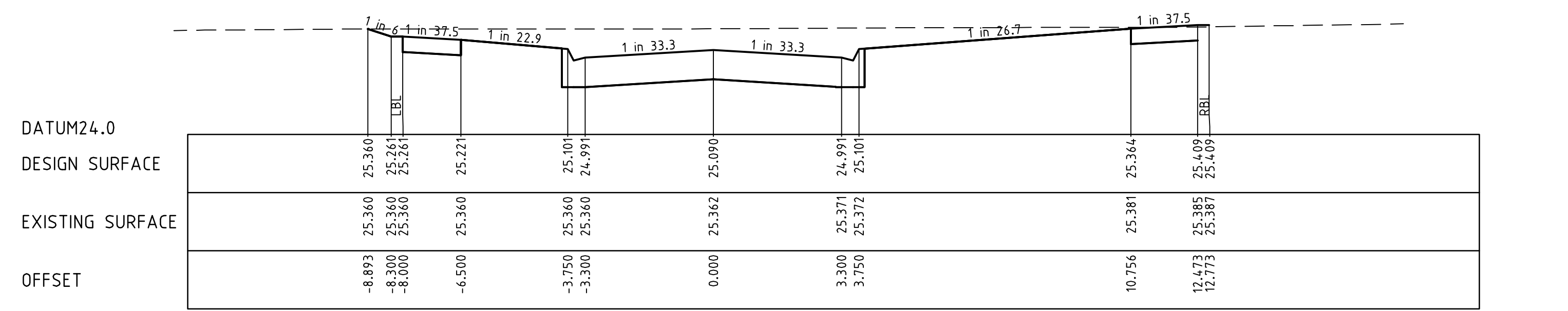
CH 164.369



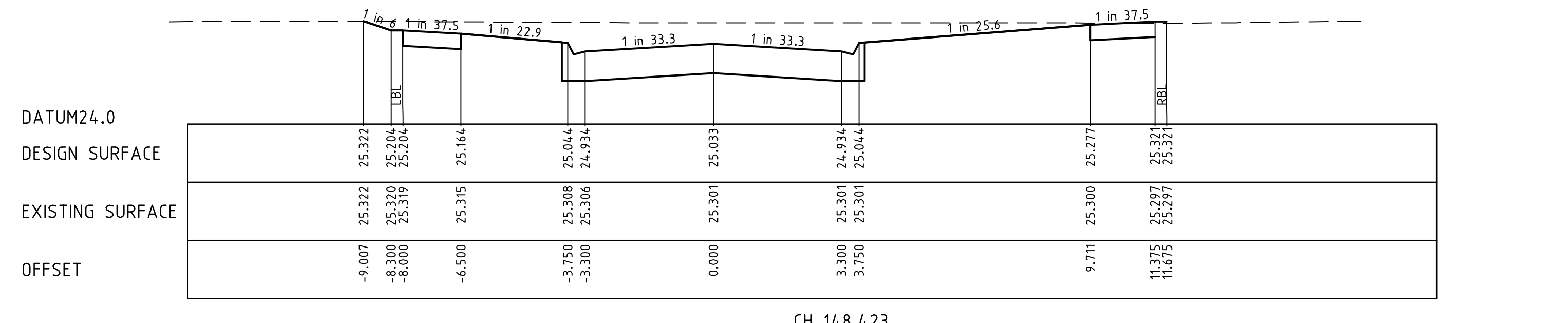
CH 161.081



CH 158.657



CH 149.821



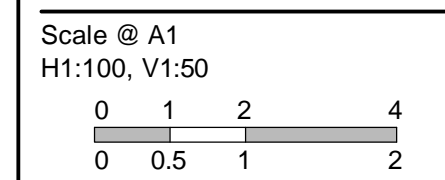
CH 148.423

LEGEND
 --- EXISTING SURFACE
 --- DESIGN LINE
 --- FUTURE DESIGN LINE

D	ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C	COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B	COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A	ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG
REVISION		DATE	DES/DF	APP/D

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
 A.Perkins
 Drawn
 A.Perkins
 Checked
 C. Birckett
 Authorised
 J. Golden
 Date
 January 2011



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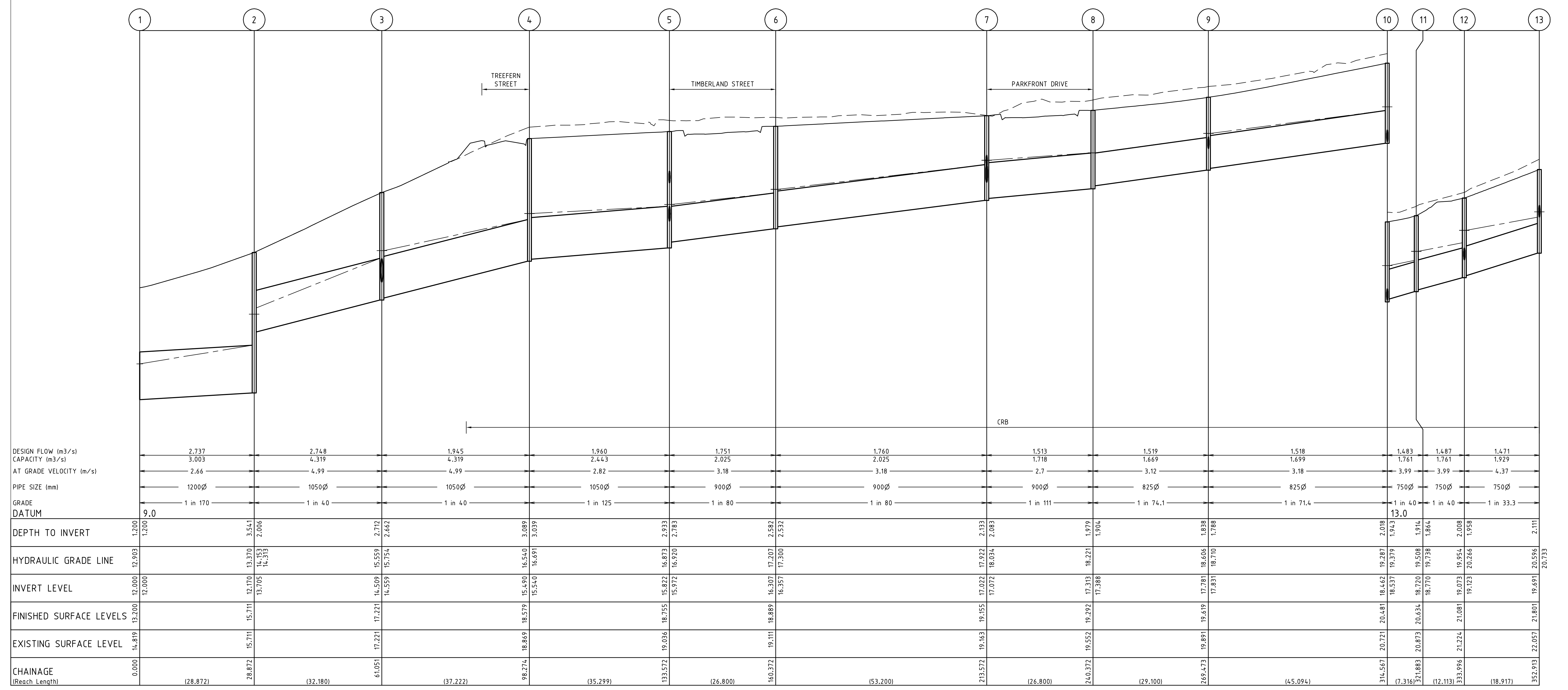
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Adelaide +61 8 8223 6455
 Brisbane +61 7 3831 8988
 Canberra +61 2 6126 1900
 Gold Coast +61 7 5578 0222
 Melbourne +61 3 9869 0800
 Trawalgon +61 3 5173 0100

Estuary
 Stage 7
 City Of Greater Geelong
 Roadworks and Drainage
 Cross Sections Parkfront Drive - 2
 Ch82.499 - Ch161.081
Drawing No. 0250EHL-07-30
 Sheet No. 30 of 42
Approved for Construction

Rev D

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE



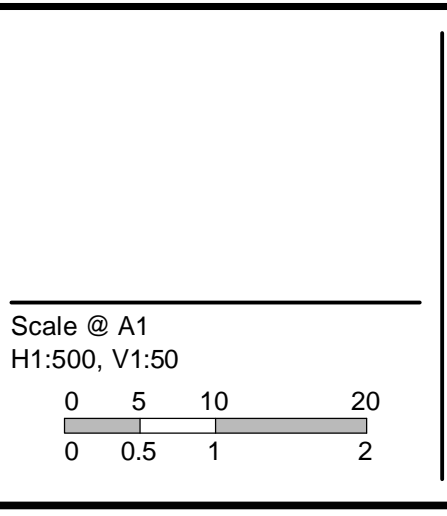
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REVISION	DATE	DESIGNER	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011

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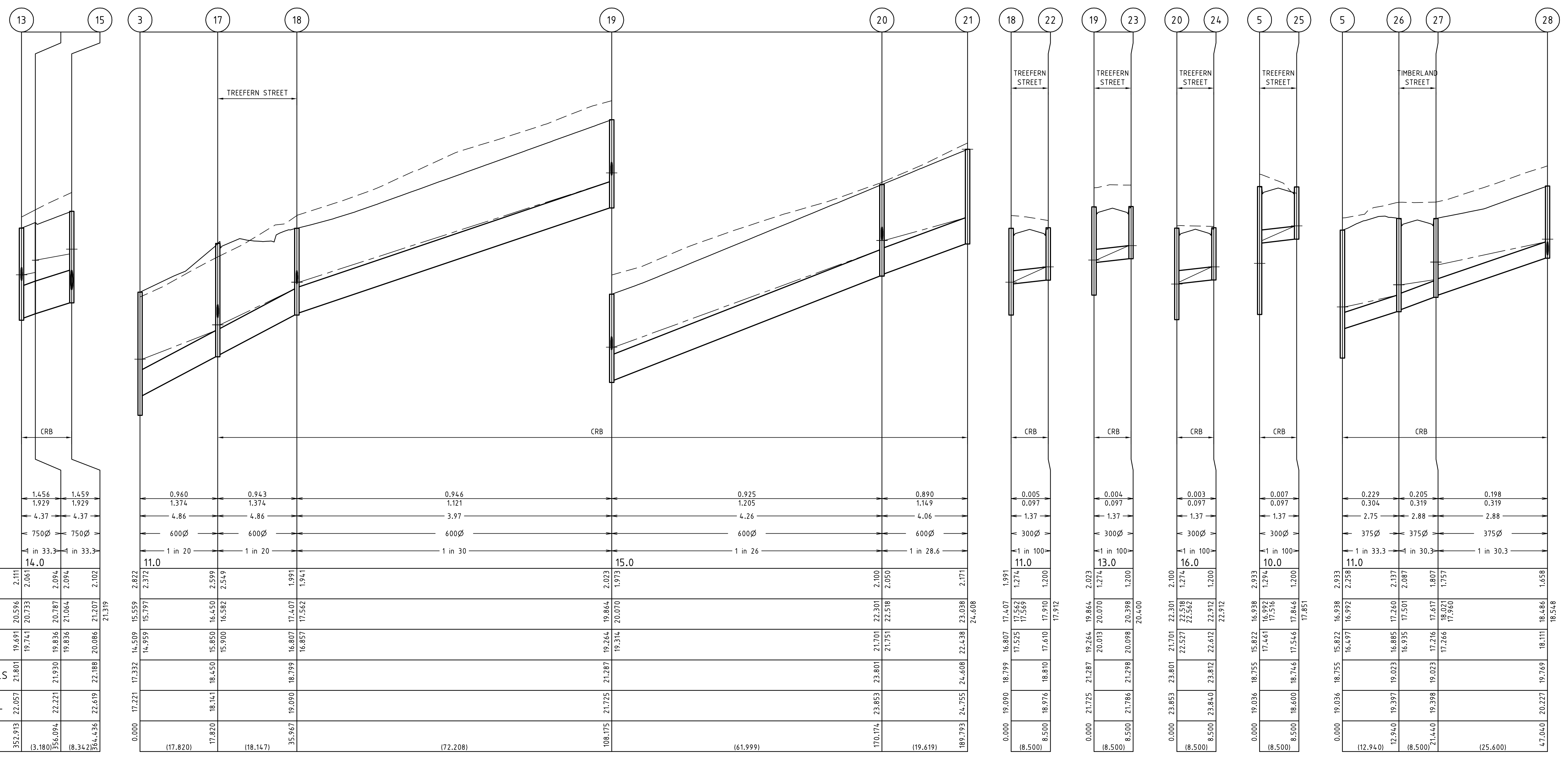
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 1

Drawing No. 0250EHL-07-31 **Rev D**
Sheet No. 31 of 42

Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE

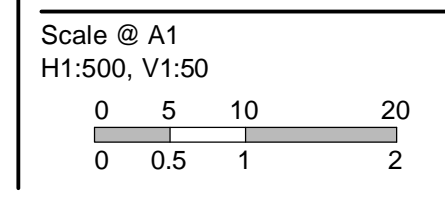


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REVISION	DATE	DES/DF	APP'D
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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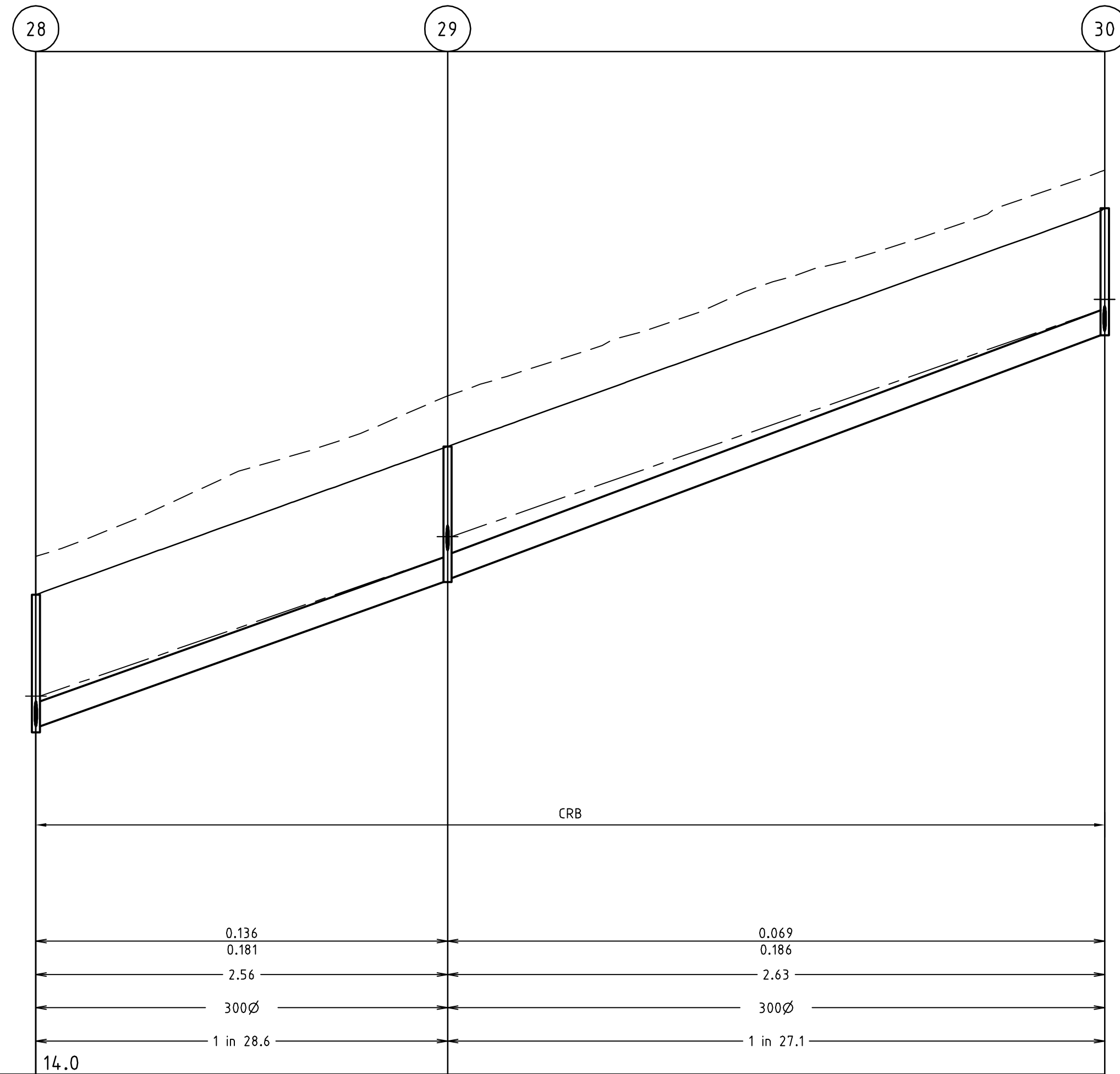
Adelaide +61 8 8223 6455 Gold Coast +61 7 5578 0222
Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Canberra +61 2 6126 1900 Trawalgon +61 3 5173 0100

Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 2

Drawing No. **0250EHL-07-32** Rev **D**
Sheet No. 32 of 42

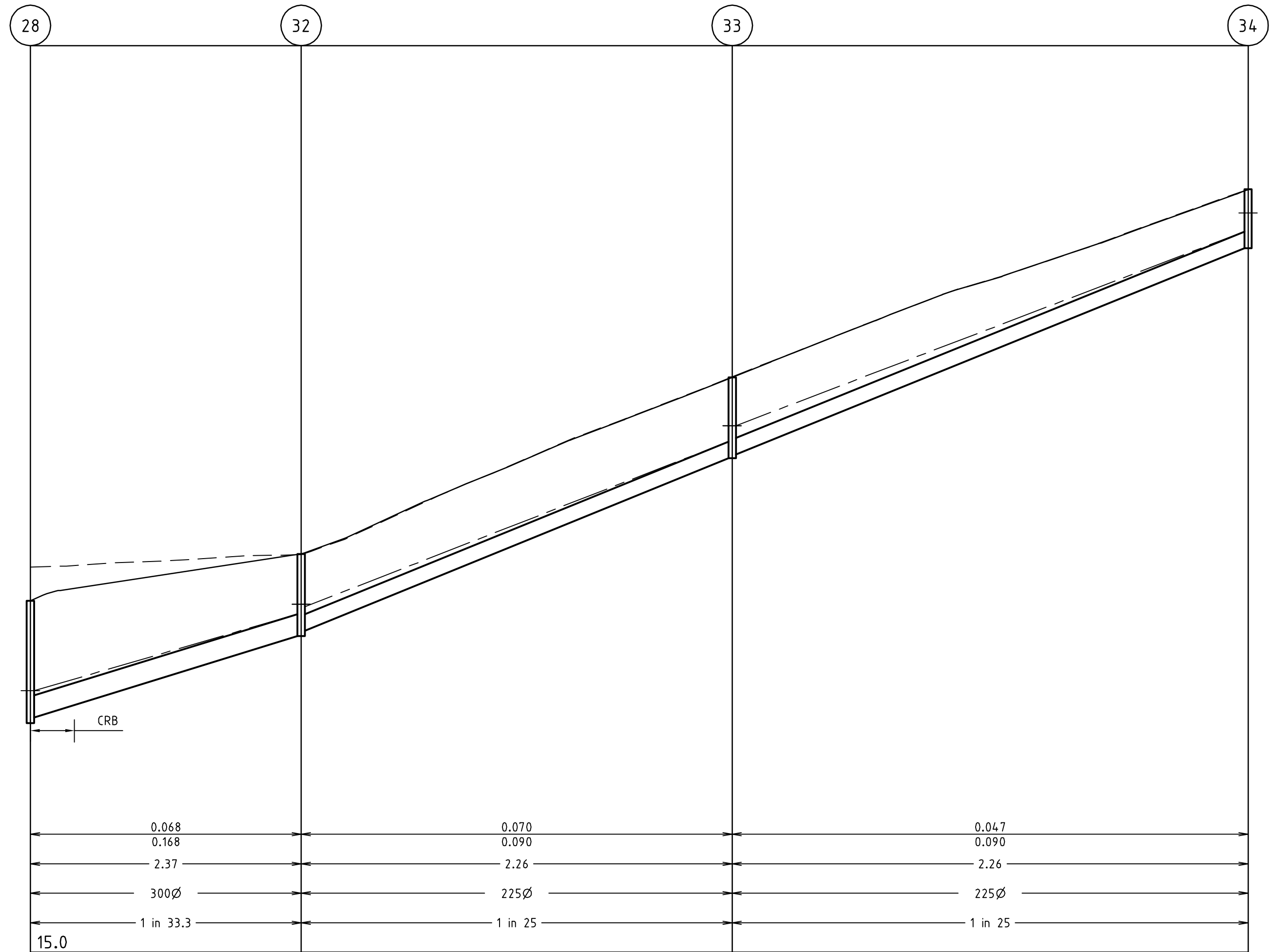
Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE



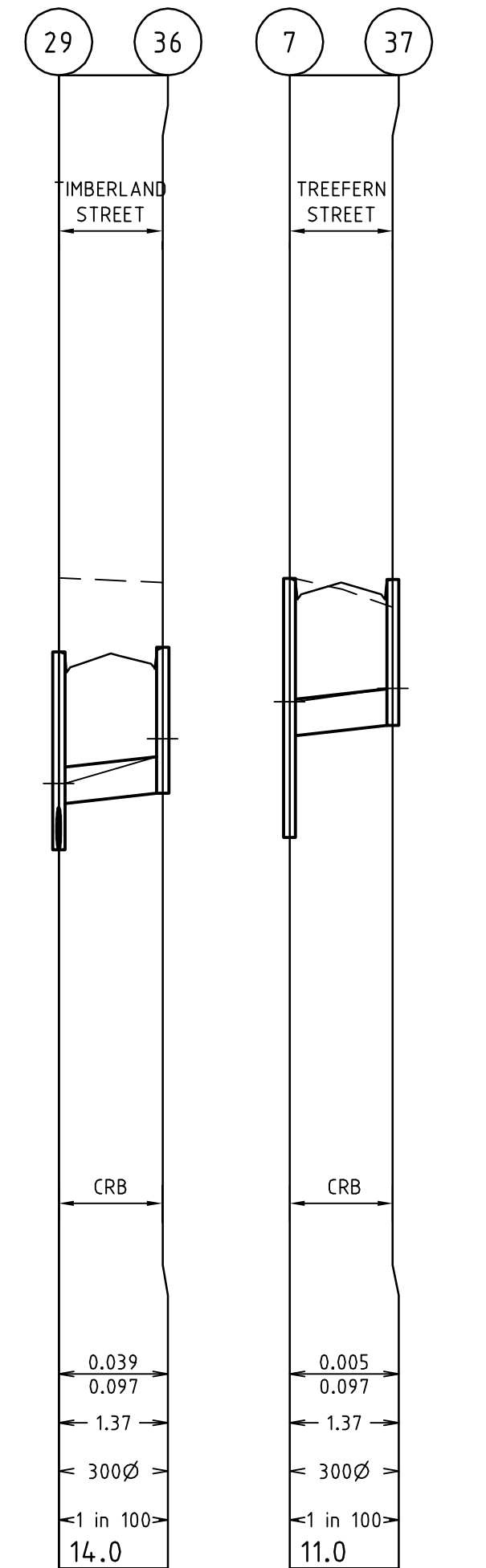
DESIGN FLOW (m3/s)	0.136	0.069
CAPACITY (m3/s)	0.181	0.186
AT GRADE VELOCITY (m/s)	2.56	2.63
PIPE SIZE (mm)	300Ø	300Ø
GRADE	1 in 28.6	1 in 27.1
DATUM	14.0	

DEPTH TO INVERT	1.659	1.594	1.633	1.583	1.526
HYDRAULIC GRADE LINE	18.486	18.548	20.218	20.467	23.189
INVERT LEVEL	18.111	18.186	19.918	20.151	22.889
FINISHED SURFACE LEVELS	19.769		21.551		24.415
EXISTING SURFACE LEVEL	20.227		22.159		24.875
CHAINAGE (Reach Length)	47.040	(49.499)	96.539		175.540



DESIGN FLOW (m3/s)	0.068	0.070	0.047
CAPACITY (m3/s)	0.168	0.090	0.090
AT GRADE VELOCITY (m/s)	2.37	2.26	2.26
PIPE SIZE (mm)	300Ø	225Ø	225Ø
GRADE	1 in 33.3	1 in 25	1 in 25
DATUM	15.0		

DEPTH TO INVERT	1.658	1.117	1.042	1.099	1.049	0.800
HYDRAULIC GRADE LINE	18.111	19.588	19.720	21.928	22.144	24.778
INVERT LEVEL	18.186	19.288	19.363	21.703	21.753	24.553
FINISHED SURFACE LEVELS	19.769	20.405	20.396	22.802	22.807	25.353
EXISTING SURFACE LEVEL	20.227	20.396	20.396	22.807	22.807	25.353
CHAINAGE (Reach Length)	0.000	36.750	36.750	95.249	95.249	165.250

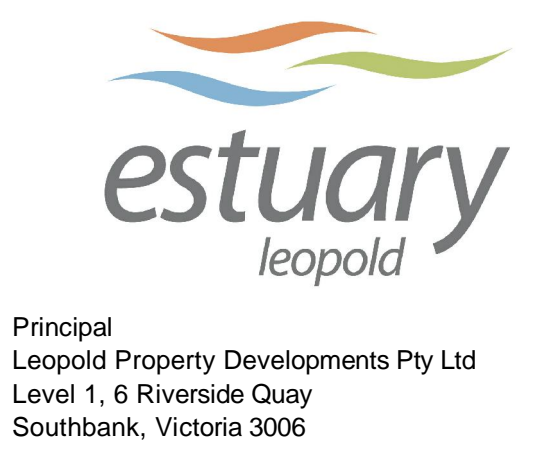


DESIGN FLOW (m3/s)	0.039	0.005
CAPACITY (m3/s)	0.097	0.097
AT GRADE VELOCITY (m/s)	1.37	1.37
PIPE SIZE (mm)	300Ø	300Ø
GRADE	1 in 100	1 in 100
DATUM	14.0	11.0

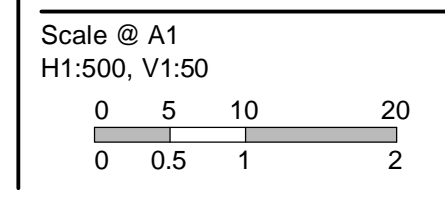
DEPTH TO INVERT	1.633	1.250	1.200	2.133	1.294	1.200
HYDRAULIC GRADE LINE	19.918	20.467	20.687	18.008	18.140	18.246
INVERT LEVEL	20.301	20.467	20.687	17.861	17.861	17.946
FINISHED SURFACE LEVELS	21.551	21.587	21.587	19.163	19.163	19.166
EXISTING SURFACE LEVEL	22.159	22.121	22.121	19.163	19.163	19.166
CHAINAGE (Reach Length)	0.000	8.559	8.559	0.000	8.500	8.500

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REVISION	DATE	DESIGN	APP'D
A	13.01.11	AP/AP	JG
B	16.02.11	AP/AP	JG
C	05.04.11	CB/CB	JG
D	20.07.11	CB/CB	JG
E	22.11.11	AH/AH	JG



Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



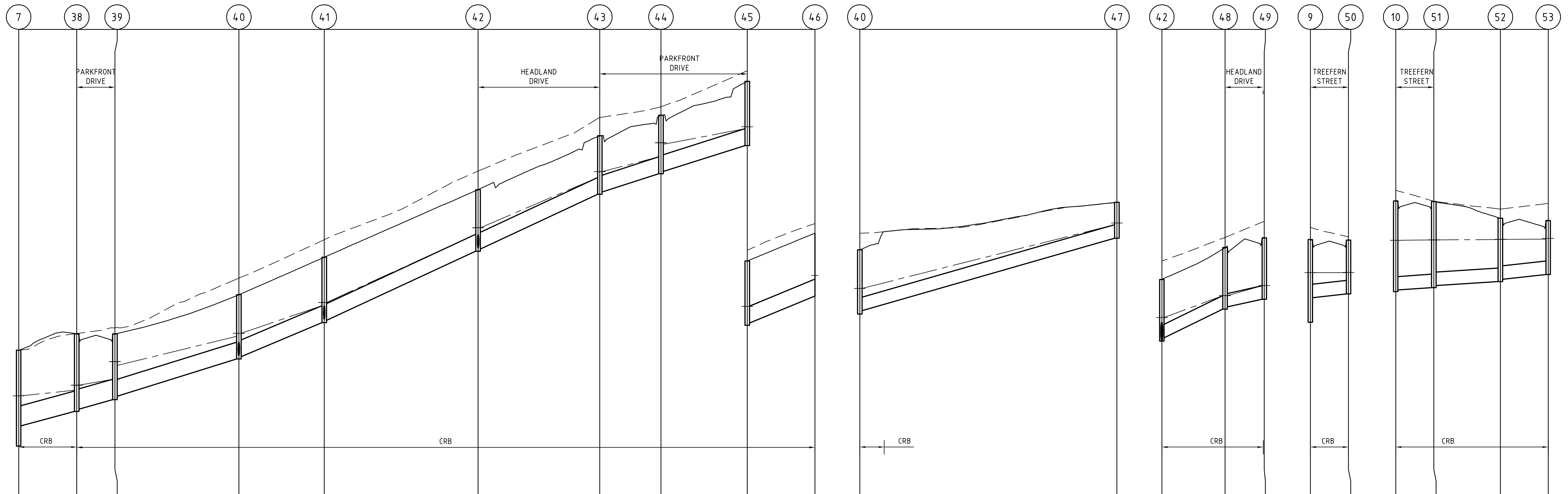
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 3

Drawing No. **0250EHL-07-33** Rev **E**
Sheet No. 33 of 42
Approved for Construction

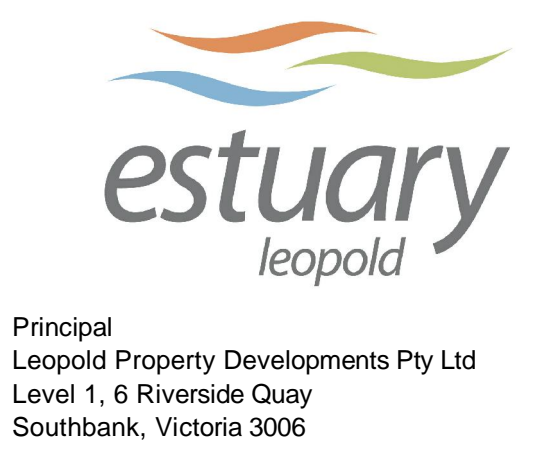
LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE



DESIGN FLOW (m3/s)	CAPACITY (m3/s)	AT GRADE VELOCITY (m/s)	PIPE SIZE (mm)	GRADE DATUM	DEPTH TO INVERT	HYDRAULIC GRADE LINE	INVERT LEVEL	FINISHED SURFACE LEVELS	EXISTING SURFACE LEVEL	CHAINAGE (Reach Length)
0.282	0.451	2.84	450Ø	1 in 4.0	2.133	18.008	17.022	19.155	19.163	0.000
0.277	0.451	2.84	450Ø	1 in 4.0	1.683	18.140	17.472	19.155	19.528	(12.94.0)
0.268	0.304	2.75	375Ø	1 in 33.3	1.727	18.266	17.796	19.523	19.523	(8.500)
0.247	0.351	3.18	375Ø	1 in 25	1.465	18.508	18.058	19.523	19.655	(27.600)
0.238	0.372	3.37	375Ø	1 in 22.2	1.381	19.534	19.011	20.392	20.763	4.9.04.0
0.211	0.372	3.37	375Ø	1 in 22.2	1.456	20.146	19.771	21.227	21.616	(19.000)
0.203	0.304	2.75	375Ø	1 in 33.3	1.606	20.719	19.821	22.271	23.143	68.04.0
0.199	0.304	2.75	375Ø	1 in 33.3	1.368	21.738	21.363	22.731	23.143	102.310
0.198	0.351	3.18	375Ø	1 in 25	1.318	21.889	21.413	23.932	25.143	(27.098)
0.198	0.351	3.18	375Ø	1 in 25	1.396	24.740	23.712	25.761	25.975	129.408
0.023	0.163	2.3	300Ø	1 in 35.4	1.431	19.466	19.036	20.392	20.763	(13.612)
0.008	0.206	2.91	300Ø	1 in 22.1	1.356	19.533	19.036	21.448	21.448	(19.214)
0.007	0.135	1.91	300Ø	1 in 51.6	0.799	20.952	20.652	21.448	21.448	(15.065)
0.004	0.097	1.37	300Ø	1 in 100	20.991	20.952	20.652	21.448	21.448	162.234
0.022	0.075	1.06	300Ø	1 in 167	2.018	21.884	21.433	22.731	23.143	(57.250)
0.022	0.075	1.06	300Ø	1 in 167	1.367	22.596	22.071	23.441	23.667	(14.069)
0.019	0.097	1.37	300Ø	1 in 100	1.200	22.596	22.121	24.028	24.028	(8.743)
0.004	0.097	1.37	300Ø	1 in 100	1.838	18.762	18.325	19.619	19.619	(8.500)
0.022	0.075	1.06	300Ø	1 in 167	1.200	18.885	18.440	19.610	19.610	(8.500)
0.022	0.075	1.06	300Ø	1 in 167	1.887	18.885	18.440	19.610	19.610	(8.500)
0.019	0.097	1.37	300Ø	1 in 100	2.018	19.606	19.171	20.481	20.481	(8.500)
0.022	0.075	1.06	300Ø	1 in 167	1.983	19.606	19.171	20.481	20.481	(8.500)
0.019	0.097	1.37	300Ø	1 in 100	1.200	19.625	19.180	20.096	20.096	(14.817)
0.019	0.097	1.37	300Ø	1 in 100	1.200	19.629	19.180	20.096	20.096	(10.642)
0.019	0.097	1.37	300Ø	1 in 100	1.200	19.629	19.180	20.096	20.096	(10.642)

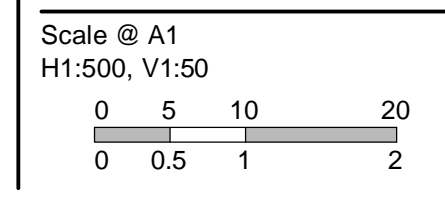
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REVISION	DATE	DESIGNER	APP'D
F ROAD NAMES AMENDED	22.11.11	AH/AH	JG
E MINOR AMENDMENTS	20.07.11	CB/CB	JG
D MINOR AMENDMENTS	09.06.11	CB/CB	JG
C COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
B COUNCIL AMENDMENTS	16.02.11	AP/AP	JG
A ISSUED TO COUNCIL FOR APPROVAL	13.01.11	AP/AP	JG



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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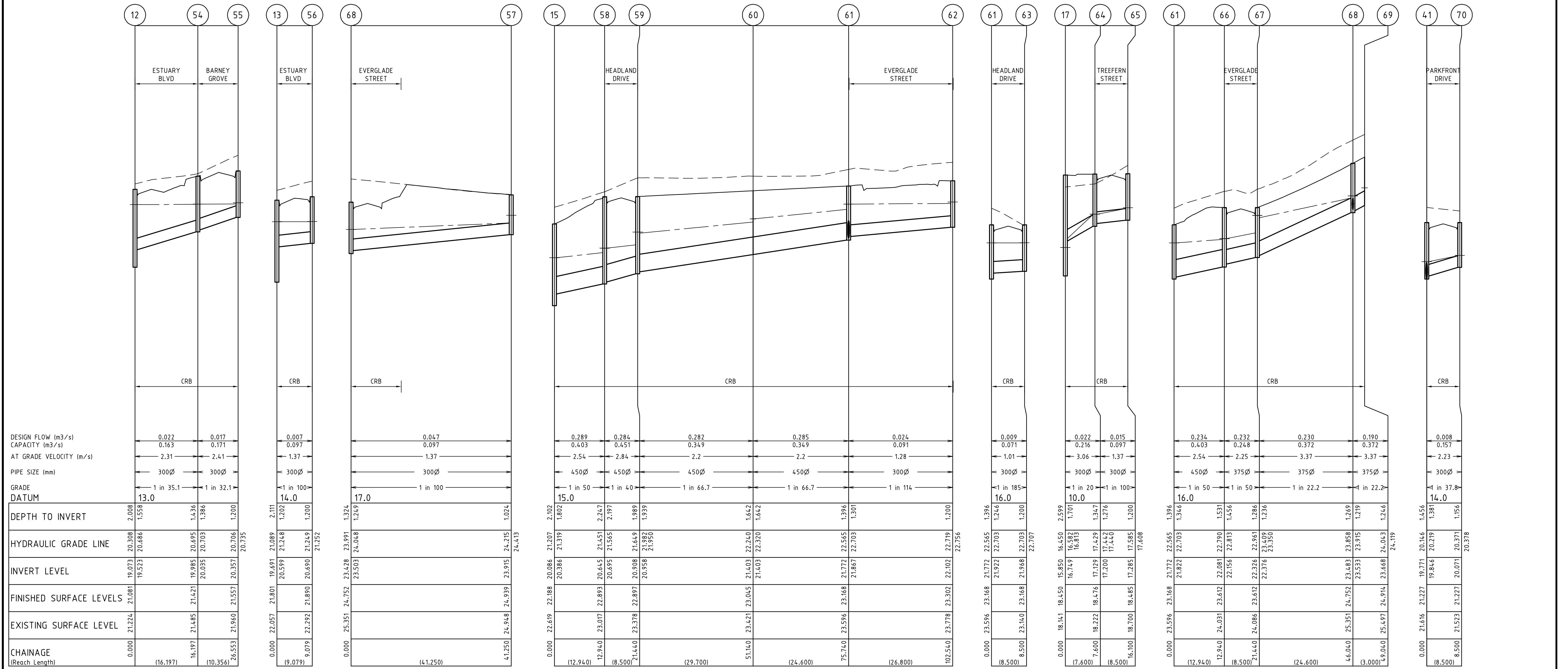
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Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 4

Drawing No. 0250EHL-07-34 **Rev F**
Sheet No. 34 of 42

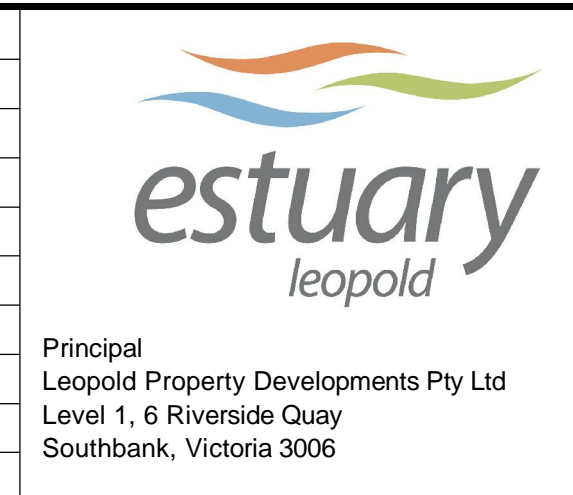
Approved for Construction

LEGEND	
	EXISTING SURFACE
	DESIGN SURFACE
	DRAINAGE PIPE/PIT
	EXISTING DRAINAGE PIPE/PIT
	HYDRAULIC GRADE LINE



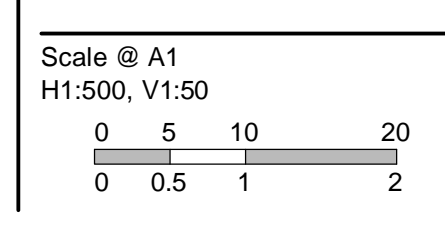
DESIGN FLOW (m ³ /s)	CAPACITY (m ³ /s)	AT GRADE VELOCITY (m/s)	PIPE SIZE (mm)	GRADE	DATUM	DEPTH TO INVERT	HYDRAULIC GRADE LINE	INVERT LEVEL	FINISHED SURFACE LEVELS	EXISTING SURFACE LEVEL	CHAINAGE (Reach Length)
0.022	0.163	2.31	300Ø	1 in 35.1	13.0	2.008	20.308	19.073	21.081	21.224	0.000
0.017	0.171	2.41	300Ø	1 in 32.1		1.558	20.686	19.523	21.421	21.960	16.197
0.007	0.097	1.37	300Ø	1 in 100	14.0	2.111	21.248	20.599	21.801	22.292	26.553
0.047	0.097	1.37	300Ø	1 in 100	17.0	1.324	23.428	23.503	24.048	24.939	9.079
0.289	0.403	2.54	450Ø	1 in 50	15.0	2.102	20.866	20.866	22.888	23.619	0.000
0.284	0.451	2.84	450Ø	1 in 40		1.802	21.319	20.386	23.017	23.421	12.940
0.282	0.349	2.2	450Ø	1 in 66.7		2.247	20.645	20.695	22.893	23.045	51.140
0.285	0.349	2.2	450Ø	1 in 66.7		2.197	21.565	20.695	22.897	23.045	75.740
0.024	0.091	1.28	300Ø	1 in 114		1.396	21.712	21.712	23.596	23.168	102.540
0.009	0.071	1.01	300Ø	1 in 185	16.0	1.200	22.703	21.867	23.302	23.778	0.000
0.022	0.216	3.06	300Ø	1 in 20	10.0	2.599	16.450	16.449	18.450	18.700	8.500
0.015	0.097	1.37	300Ø	1 in 100		1.701	16.813	16.749	18.476	18.485	16.100
0.234	0.403	2.54	450Ø	1 in 50	16.0	1.396	21.712	21.822	24.031	24.086	0.000
0.232	0.248	2.25	375Ø	1 in 50		1.346	22.703	22.081	23.612	24.086	12.940
0.230	0.372	3.37	375Ø	1 in 22.2		1.531	22.813	22.056	23.612	24.086	46.040
0.190	0.372	3.37	375Ø	1 in 22.2		1.456	22.961	22.376	24.971	24.914	49.040
0.008	0.157	2.23	300Ø	1 in 37.8	14.0	1.246	23.409	23.533	25.351	25.497	0.000
0.008	0.157	2.23	300Ø	1 in 37.8		1.381	23.915	23.533	25.351	25.497	8.500
0.008	0.157	2.23	300Ø	1 in 37.8		1.156	24.043	23.668	24.914	24.914	16.100

REVISION	DATE	DES/DT	APP'D
A	13.01.11	AP/AP	JG
B		AP/AP	JG
C	05.04.11	CB/CB	JG
D	20.07.11	CB/CB	JG
D	22.11.11	AH/AH	JG



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birckett
Authorised
J. Golden
Date
January 2011



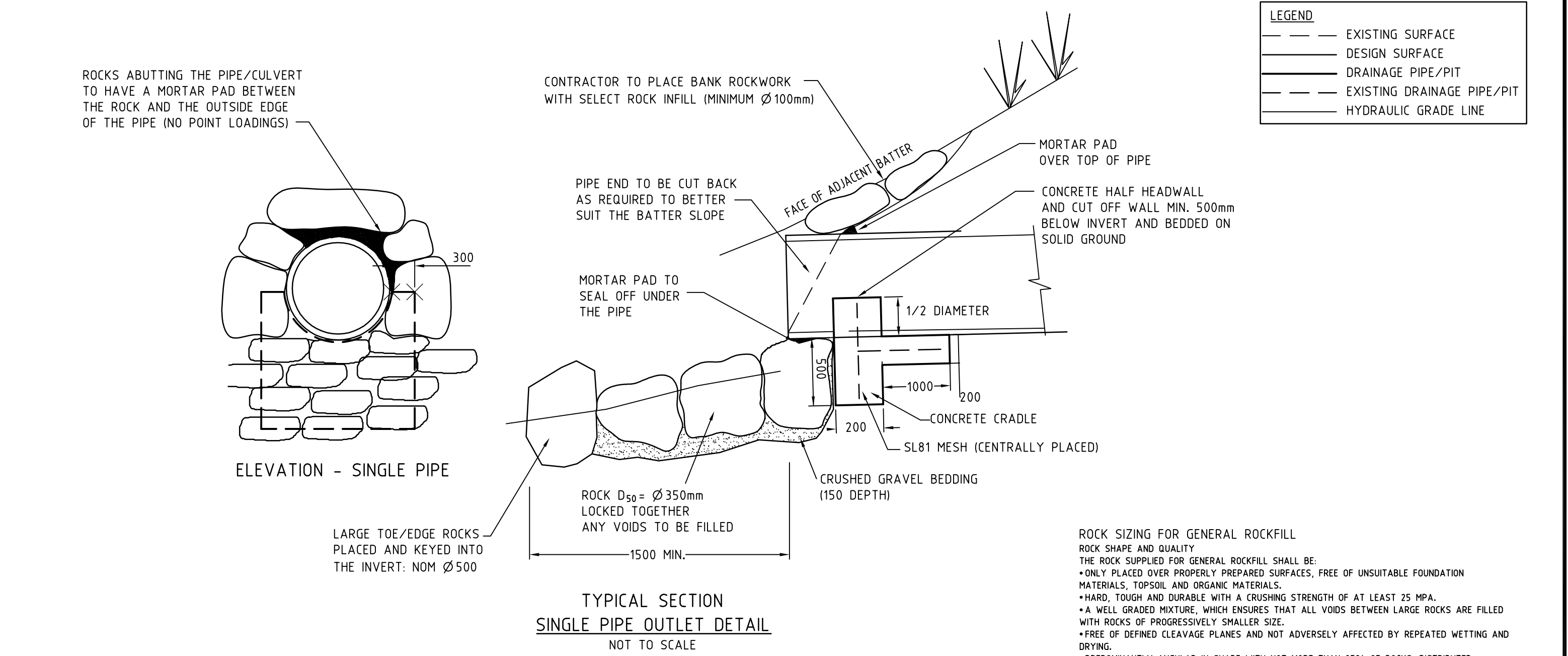
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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Drainage Longitudinal Sections - 5
Drawing No. 0250EHL-07-35 **Rev E**
Sheet No. 35 of 42
Approved for Construction

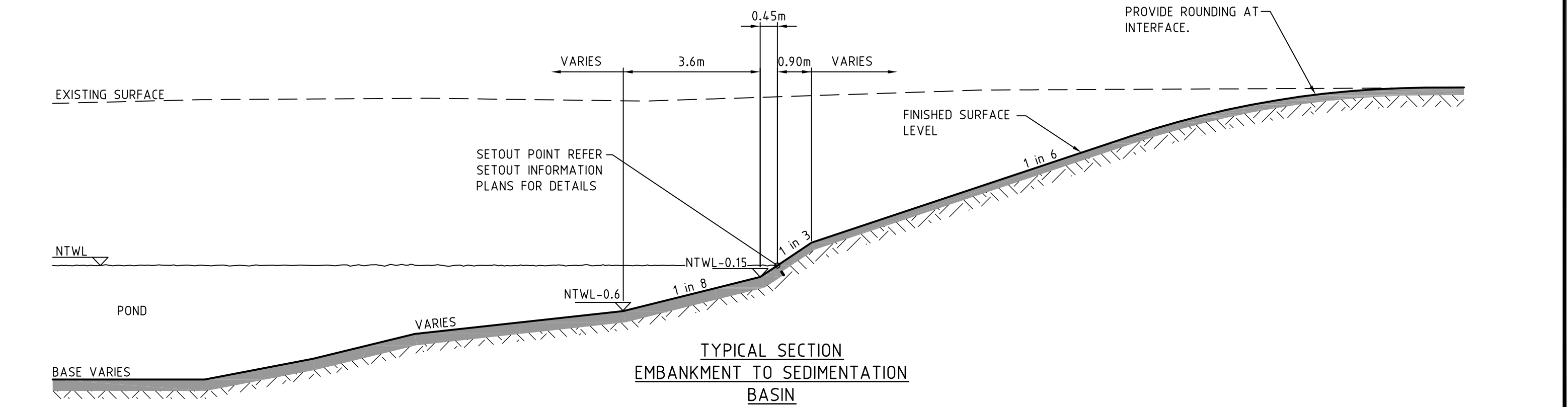
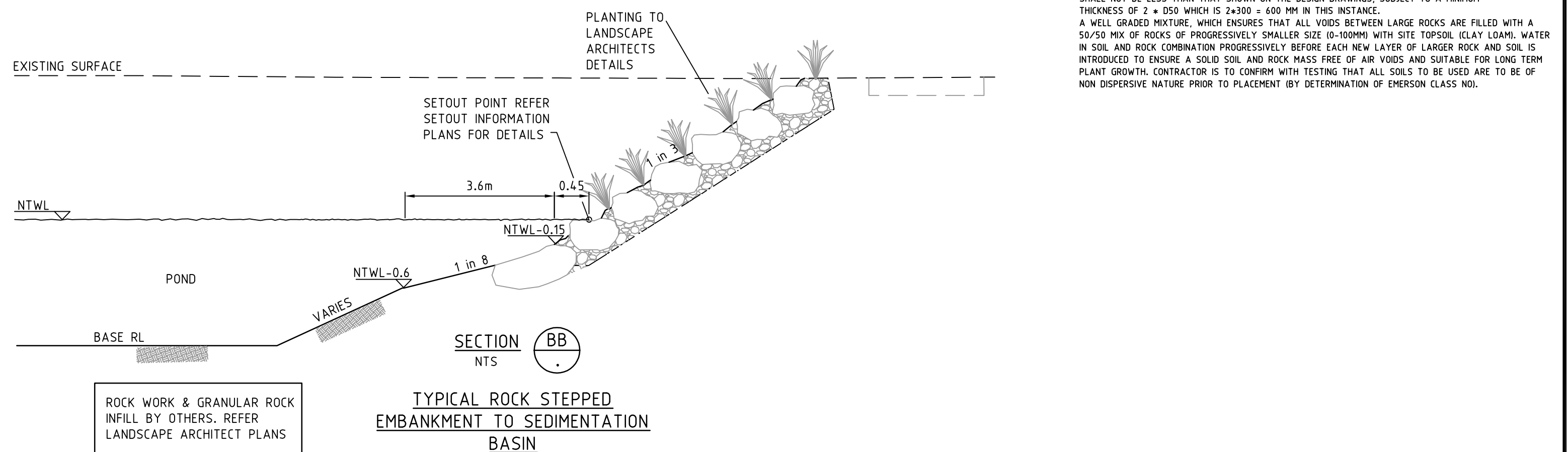
PIT NAME	TYPE	INTERNAL WIDTH	LENGTH	INLET DIA	INVERT LEVEL	OUTLET DIA	INVERT LEVEL	PIT COVER RL	DEPTH	STD DWG	REMARKS
1	ENDWALL			1200	12.000			13.200	1.200		REFER SINGLE OUTLET PIPE DETAIL ON THIS SHEET
2	JP	1500	900	1050	13.705	1200	12.170	15.770	3.600	SD 425	
3	JP	1500	1800	1050	14.559	1050	14.509	17.332	2.822	SD 425	
4	JP	1500	1800	1050	15.540	1050	15.490	18.579	3.089	SD 420	
5	JP	1500	1200	900	15.972	1050	15.822	18.755	2.933	SD 420	
6	SEP	1200	900	900	16.357	900	16.307	18.889	2.582	SD 496	
7	SEP	1200	1200	900	17.072	900	17.022	19.155	2.133	SD 496	
8	SEP	1200	900	825	17.388	900	17.313	19.292	1.979	SD 496	
9	SEP	1200	900	825	17.831	825	17.781	19.619	1.838	SD 496	
10	SEP	1200	900	750	18.325	825	18.462	20.481	2.018	SD 496	
11	JP	1200	1200	750	18.770	750	18.720	20.634	1.914	SD 420	
12	SEP	1200	1200	750	19.123	750	19.073	21.081	2.008	SD 496	
13	SEP	900	900	750	19.523	750	19.471	21.801	2.111	SD 496	
15	SEP	900	900	600	19.968	600	19.918	21.551	1.633	SD 496	
17	JP	900	900	600	20.301	600	20.251	22.001	1.700	SD 496	
18	SEP	900	900	600	20.634	600	20.584	22.451	1.767	SD 496	
19	SEP	900	900	600	20.967	600	20.917	22.901	1.834	SD 496	
20	SEP	900	900	600	21.300	600	21.250	23.351	1.901	SD 496	
21	JP	900	900	600	21.633	600	21.583	23.801	1.968	SD 420	
22	SEP	600	900	600	21.966	600	21.916	24.251	2.035	SD 430	
23	SEP	600	900	600	22.299	600	22.249	24.701	2.102	SD 430	
24	SEP	600	900	600	22.632	600	22.582	25.151	2.169	SD 430	
25	SEP	600	900	600	22.965	600	22.915	25.601	2.236	SD 430	
26	SEP	900	900	375	23.298	375	23.248	26.051	2.303	SD 496	
27	SEP	900	900	375	23.631	375	23.581	26.501	2.370	SD 496	
28	JP	900	900	300	23.964	375	23.914	26.951	2.437	SD 420	
29	SEP	900	900	300	24.297	300	24.247	27.401	2.504	SD 496	
30	SEP	900	900	300	24.630	300	24.580	27.851	2.571	SD 496	
32	JP	600	600	225	24.963	300	24.913	28.301	2.638	SD 425	
33	JP	600	600	225	25.296	225	25.246	28.751	2.705	SD 425	
34	JP	600	600	225	25.629	225	25.579	29.201	2.772	SD 425	
36	SEP	600	900	300	25.962	300	25.912	29.651	2.839	SD 430	
37	SEP	600	900	300	26.295	300	26.245	30.101	2.906	SD 430	
38	SEP	900	900	450	26.628	450	26.578	30.551	2.973	SD 496	
39	SEP	900	900	375	26.961	450	26.911	31.001	3.040	SD 496	
40	JP	900	900	375	27.294	375	27.244	31.451	3.107	SD 420	
41	SEP	900	900	375	27.627	375	27.577	31.901	3.174	SD 496	
42	SEP	900	900	375	27.960	375	27.910	32.351	3.241	SD 496	
43	JP	900	900	375	28.293	375	28.243	32.801	3.308	SD 420	
44	SEP	900	900	375	28.626	375	28.576	33.251	3.375	SD 496	
45	SEP	600	900	375	28.959	375	28.909	33.701	3.442	SD 496	
46	ENDPIPE										BLANK OFF ENDDPIPE
47	JP	600	600	300	29.292	300	29.242	34.151	3.509	SD 425	
48	SEP	900	900	300	29.625	300	29.575	34.601	3.576	SD 496	
49	SEP	600	900	300	29.958	300	29.908	35.051	3.643	SD 430	
50	SEP	600	900	300	30.291	300	30.241	35.501	3.710	SD 430	
51	SEP	900	900	300	30.624	300	30.574	35.951	3.777	SD 496	
52	SEP	900	900	300	30.957	300	30.907	36.401	3.844	SD 496	
53	SEP	600	900	300	31.290	300	31.240	36.851	3.911	SD 430	
54	SEP	900	900	300	31.623	300	31.573	37.301	3.978	SD 496	
55	DSEP	600	1900	300	31.956	300	31.906	37.751	4.045	SD 430	
56	SEP	600	900	300	32.289	300	32.239	38.201	4.112	SD 430	
57	JP	600	600	300	32.622	300	32.572	38.651	4.179	SD 425	
58	SEP	600	900	450	32.955	450	32.905	39.101	4.246	SD 496	
59	SEP	600	900	450	33.288	450	33.238	39.551	4.313	SD 496	
60	SEP	600	900	450	33.621	450	33.571	40.001	4.380	SD 496	
61	SEP	900	900	300	33.954	450	33.904	40.451	4.447	SD 496	
62	SEP	600	900	450	34.287	450	34.237	40.901	4.514	SD 430	
63	SEP	600	900	450	34.620	450	34.570	41.351	4.581	SD 430	
64	DSEP	600	1900	300	34.953	300	34.903	41.801	4.648	SD 496	
65	DSEP	600	1900	300	35.286	300	35.236	42.251	4.715	SD 430	
66	SEP	600	900	375	35.619	450	35.569	42.701	4.782	SD 496	
67	SEP	600	900	375	35.952	375	35.902	43.151	4.849	SD 496	
68	SEP	600	900	375	36.285	375	36.235	43.601	4.916	SD 496	
69	ENDPIPE										BLANK OFF ENDDPIPE
70	SEP	600	900	300	36.618	300	36.568	44.051	4.983	SD 430	
80	ENDWALL			1050	9.000			10.000	1.000		REFER SINGLE OUTLET PIPE DETAIL ON THIS SHEET
81	JP	1500	1800	1050	9.235	1050	9.160	12.886	3.726		
82	JP	1500	1800	1050	9.552	1050	9.477	12.847	3.370		
83	JP	1800	2100	1350	10.300	1050	9.809	12.315	2.506		
84	GRATED PIT	1200	2000			1350	10.900	12.315	1.415		REFER DETAIL ON SHEET 40
85	ENDWALL			900	9.000			10.000	1.000		REFER SINGLE OUTLET PIPE DETAIL ON THIS SHEET
87	GRATED PIT	900	900	300	11.823	300	11.793	12.942	1.148	SD 455	SURFACE LEVEL INDICATED IS DEPRESSED GRATE LEVEL
88	GRATED PIT	900	900	300	12.234	300	12.204	13.171	0.938	SD 455	SURFACE LEVEL INDICATED IS DEPRESSED GRATE LEVEL
89	GRATED PIT	900	900	300	12.601	300	12.571	13.220	1.118	SD 455	SURFACE LEVEL INDICATED IS DEPRESSED GRATE LEVEL



LEGEND

- EXISTING SURFACE
- DESIGN SURFACE
- DRAINAGE PIPE/PIT
- EXISTING DRAINAGE PIPE/PIT
- HYDRAULIC GRADE LINE

ROCK SIZING FOR GENERAL ROCKFILL
 ROCK SHAPE AND QUALITY
 THE ROCK SUPPLIED FOR GENERAL ROCKFILL SHALL BE:
 • ONLY PLACED OVER PROPERLY PREPARED SURFACES, FREE OF UNSUITABLE FOUNDATION MATERIALS, TOPSOIL AND ORGANIC MATERIALS.
 • HARD, TOUGH AND DURABLE WITH A CRUSHING STRENGTH OF AT LEAST 25 MPA.
 • A WELL GRADED MIXTURE, WHICH ENSURES THAT ALL VOIDS BETWEEN LARGE ROCKS ARE FILLED WITH ROCKS OF PROGRESSIVELY SMALLER SIZE.
 • FREE OF DEFINED CLEAVAGE PLANES AND NOT ADVERSELY AFFECTED BY REPEATED WETTING AND DRYING.
 • PREDOMINANTLY ANGULAR IN SHAPE WITH NOT MORE THAN 25% OF ROCKS, DISTRIBUTED THROUGH THE GRADATION, HAVING A LENGTH MORE THAN TWICE THE BREADTH OR THICKNESS. NO ROCK SHOULD HAVE A LENGTH EXCEEDING 2.5 TIMES ITS BREADTH OR THICKNESS.
 • MATCHED AS CLOSELY AS POSSIBLE, TO THE COLORATION OF MATERIALS IN THE PARTICULAR STREAM SETTING.
 ROCK GRADING
 EXCEPT IN PERIPHERAL AREAS WHICH ARE TO TAPER OUT, THE THICKNESS OF ANY ROCKFILL LAYER SHALL NOT BE LESS THAN THAT SHOWN ON THE DESIGN DRAWINGS. SUBJECT TO A MINIMUM THICKNESS OF 2 x D50 WHICH IS 2 x 300 = 600 MM IN THIS INSTANCE.
 A WELL GRADED MIXTURE, WHICH ENSURES THAT ALL VOIDS BETWEEN LARGE ROCKS ARE FILLED WITH A 50/50 MIX OF ROCKS OF PROGRESSIVELY SMALLER SIZE (0-100MM) WITH SITE TOPSOIL (CLAY LOAM). WATER IN SOIL AND ROCK COMBINATION PROGRESSIVELY BEFORE EACH NEW LAYER OF LARGER ROCK AND SOIL IS INTRODUCED TO ENSURE A SOLID SOIL AND ROCK MASS FREE OF AIR VOIDS AND SUITABLE FOR LONG TERM PLANT GROWTH. CONTRACTOR IS TO CONFIRM WITH TESTING THAT ALL SOILS TO BE USED ARE TO BE OF NON DISPERSIVE NATURE PRIOR TO PLACEMENT (BY DETERMINATION OF EMERSON CLASS NO).



REVISION	DATE	DES/DFT	APPD
H	23.03.12	CB/CB	JG
G	28.07.11	CB/CB	JG
F	20.07.11	CB/CB	JG
E	05.07.11	CB/CB	JG
D	09.06.11	CB/CB	JG
C	05.04.11	CB/CB	JG
B		AP/AP	JG
A	13.01.11	AP/AP	JG

estuary leopold

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

Designed
A.Perkins

Drawn
A.Perkins

Checked
C. Birkett

Authorised
J. Golden

Date
January 2011

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Scale @ A1
 H:1:500, V:1:50

0 5 10 20
 0 0.5 1 2

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SmeC Urban
 Level 1, 47 Pakington Street, Geelong West, VIC, 3218
 p +61 3 5228 3100 | f +61 3 5228 3199 | www.smu.com.au

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 Brisbane +61 7 3831 8988
 Canberra +61 2 6126 1900

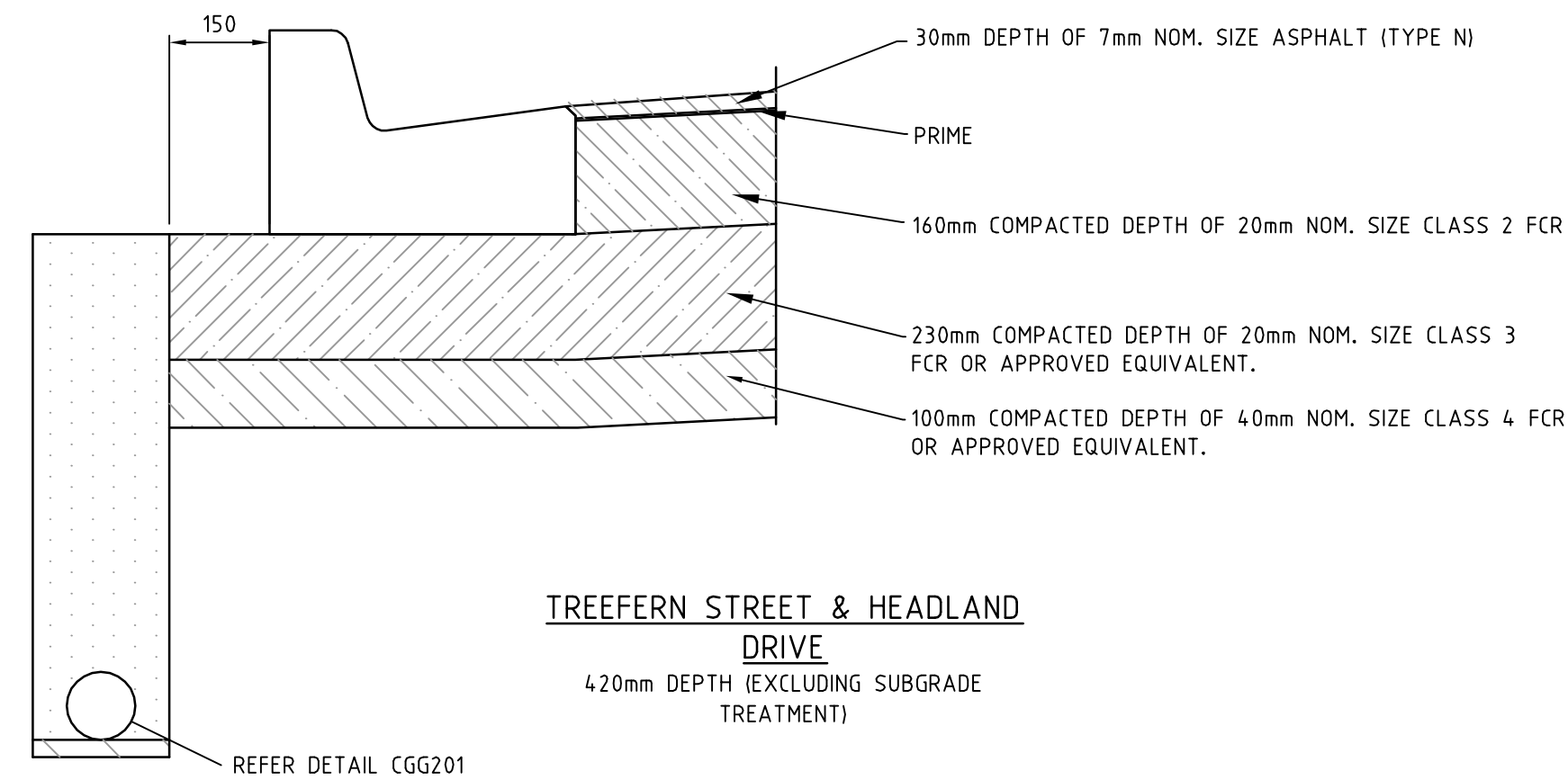
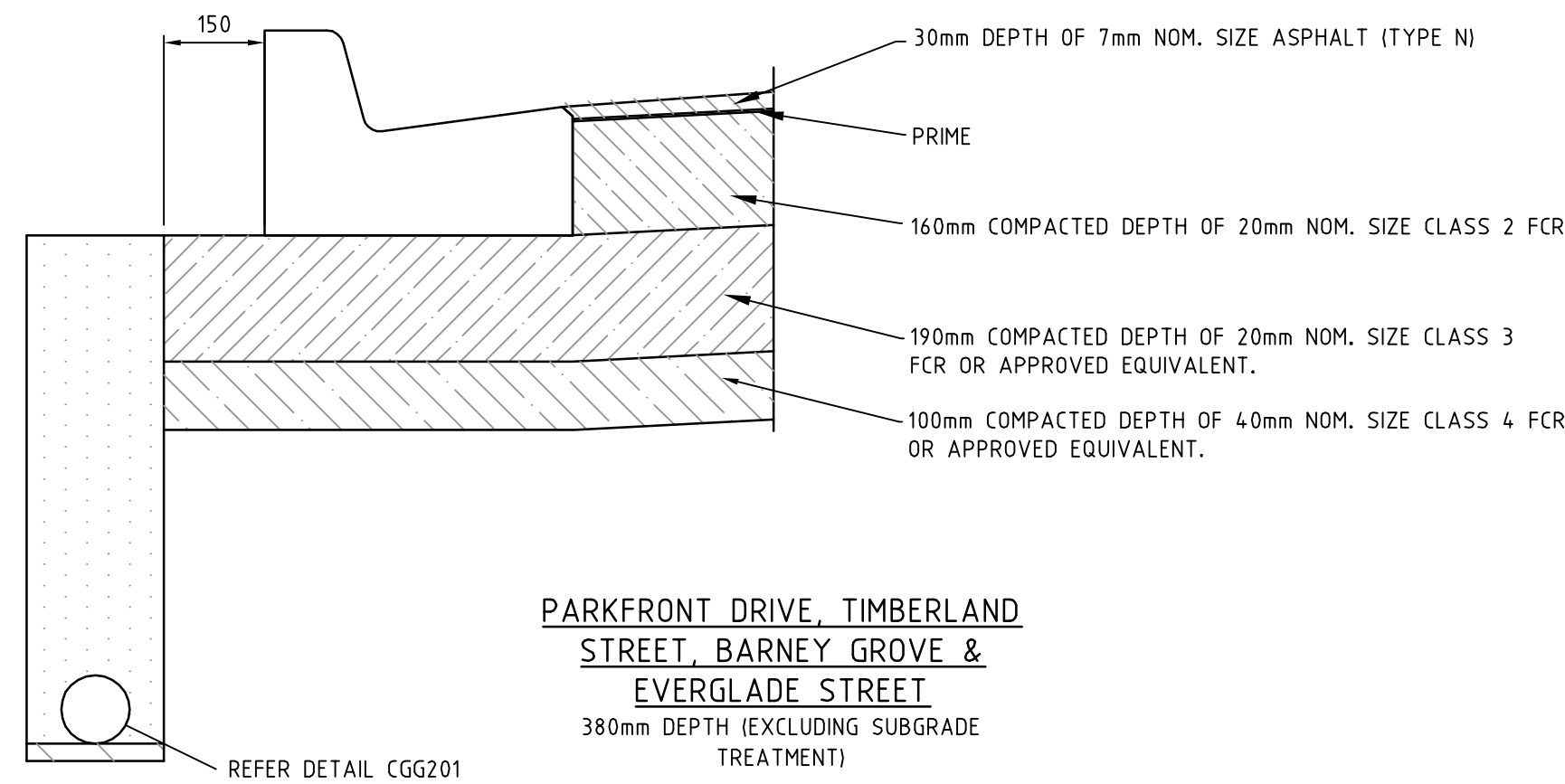
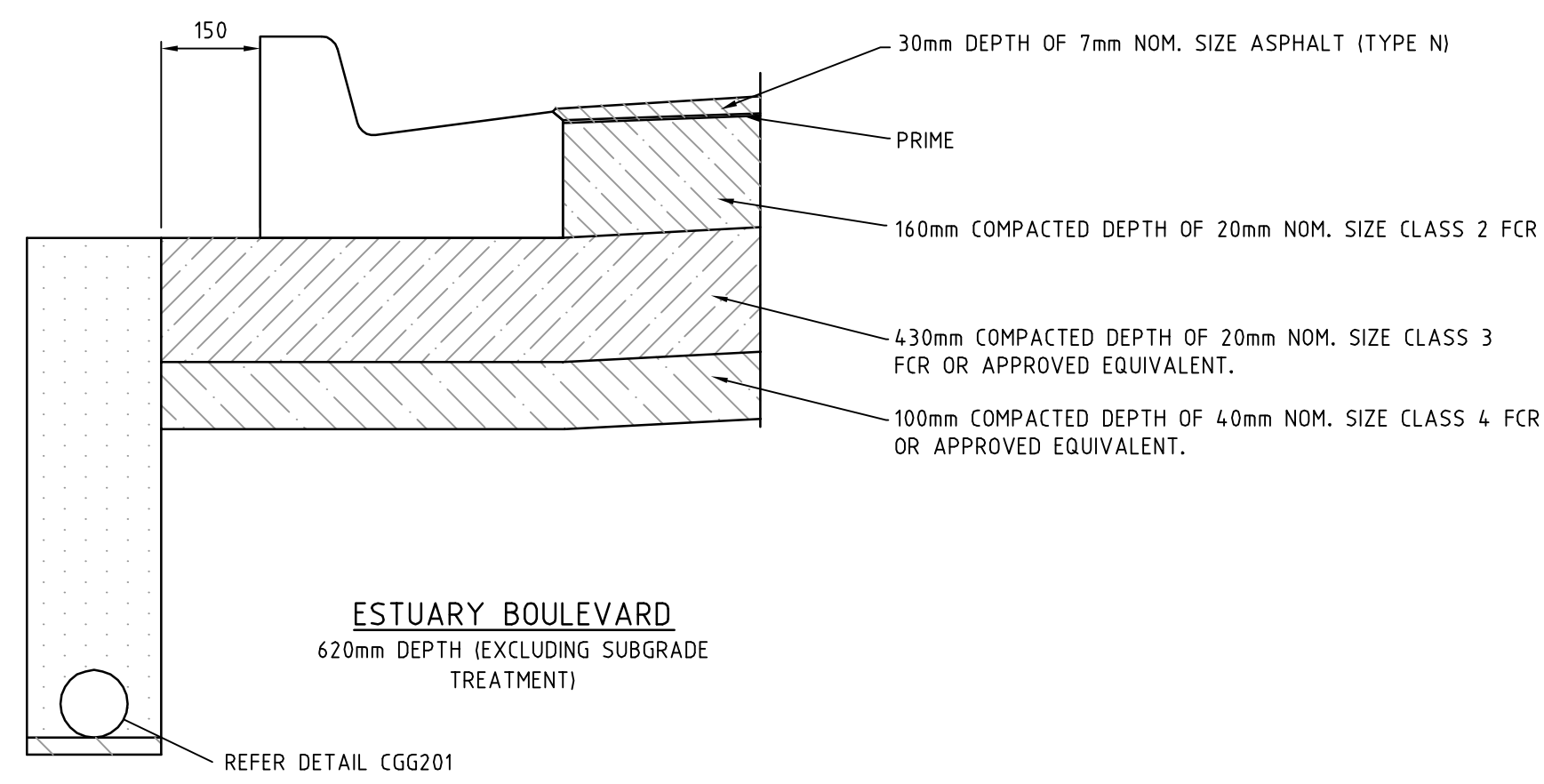
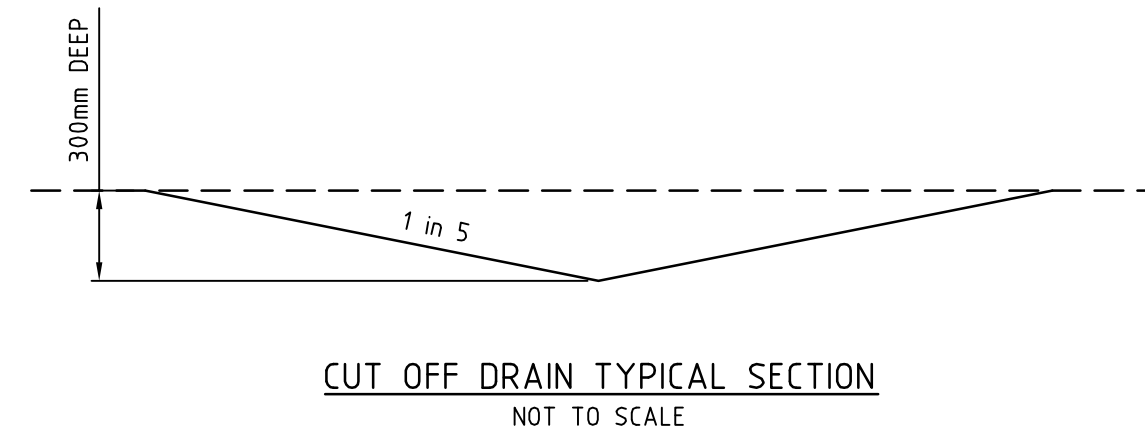
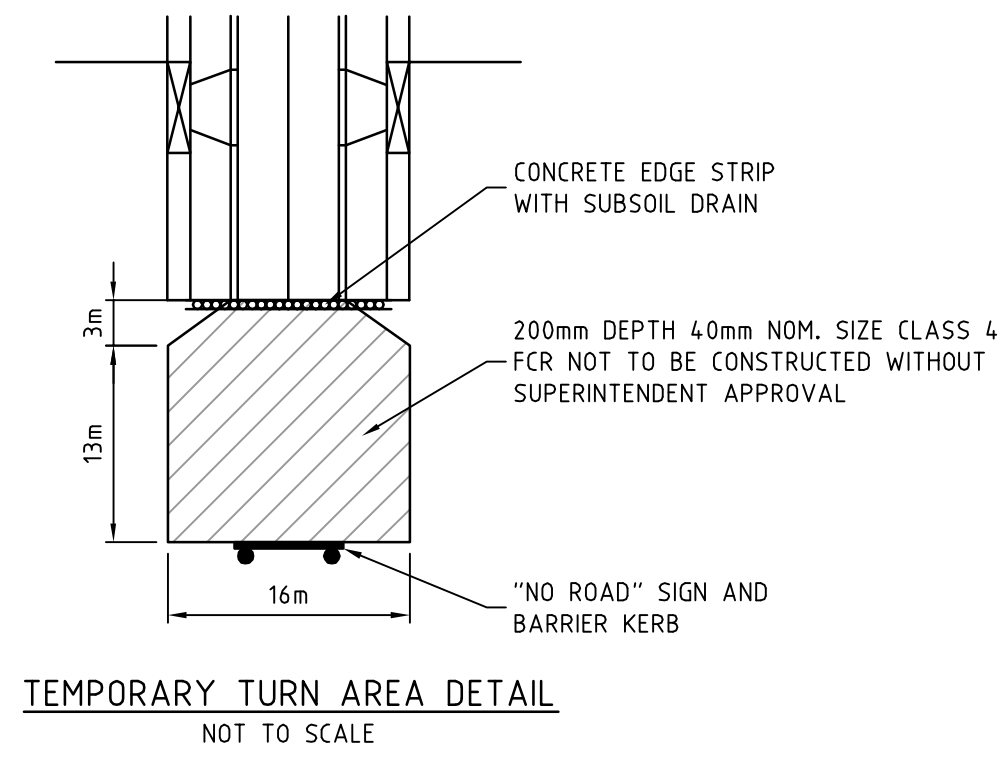
Gold Coast +61 7 5578 0222
 Melbourne +61 3 9869 0800
 Taranaki +61 3 5173 0190

Estuary
 Stage 7
 City of Greater Geelong
 Roadworks and Drainage
 Drainage Pit Schedule

Drawing No. 0250EHL-07-36 **Rev H**
 Sheet No. 36 of 43

Approved for Construction

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REVISION	DATE	DES/DT	APP'D
D	22.11.11	AH/AH	JG
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011

Scale @ A1
As Shown

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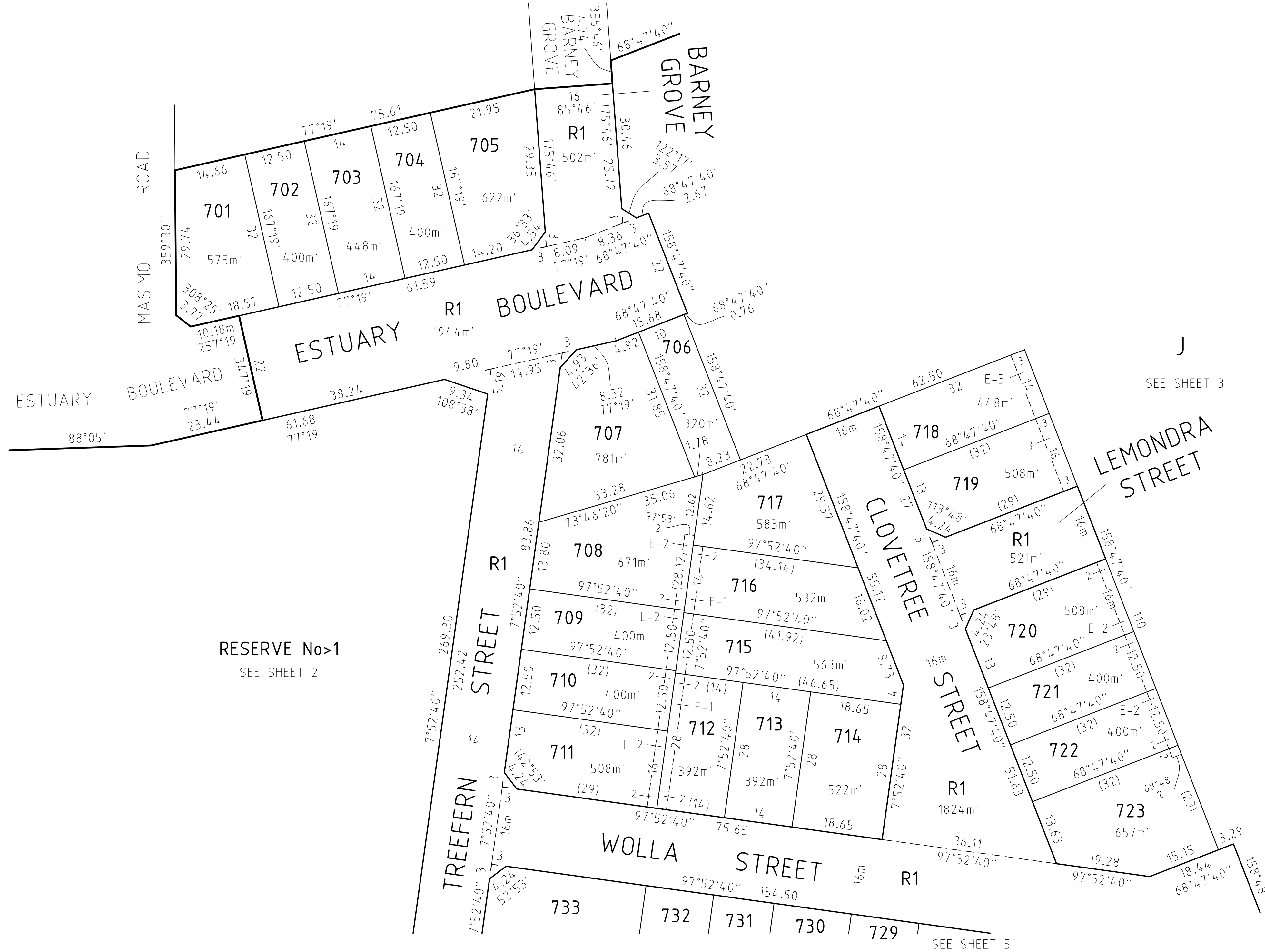
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Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Canberra +61 2 6126 1900 Trawalgon +61 3 5173 0100

Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Details

Drawing No. 0250EHL-07-37 Rev D
Sheet No. 37 of 42

Approved for Construction

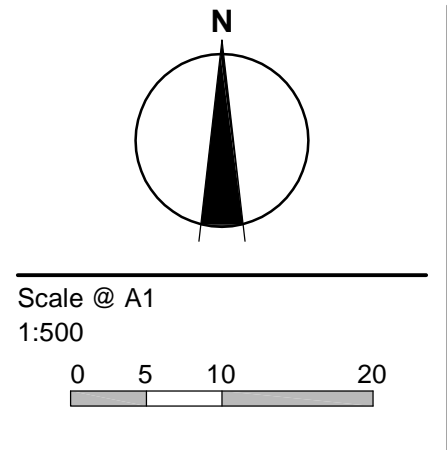


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REVISION	DATE	DES/DF	APPD
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J.Golden
Date
January 2011



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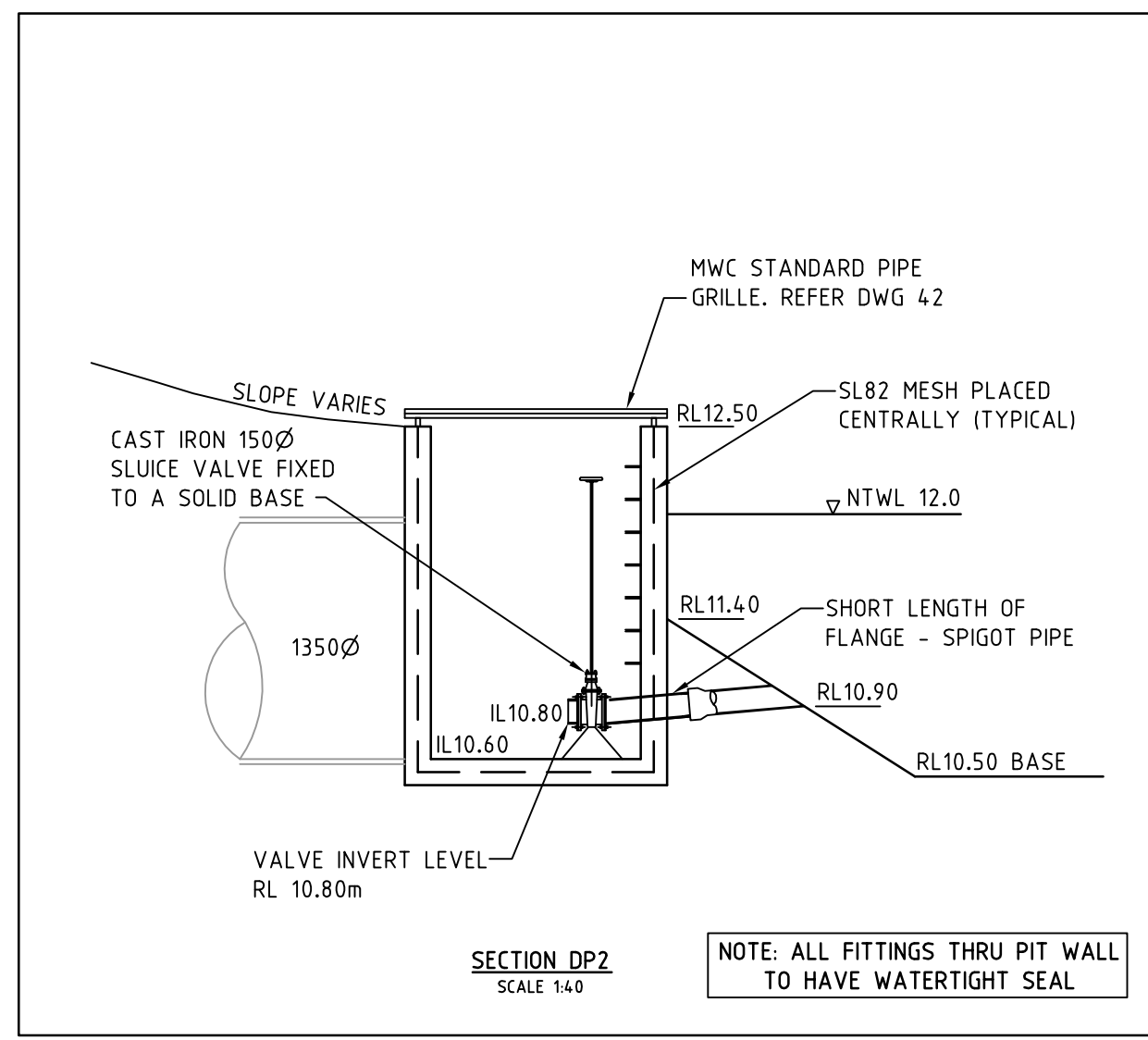
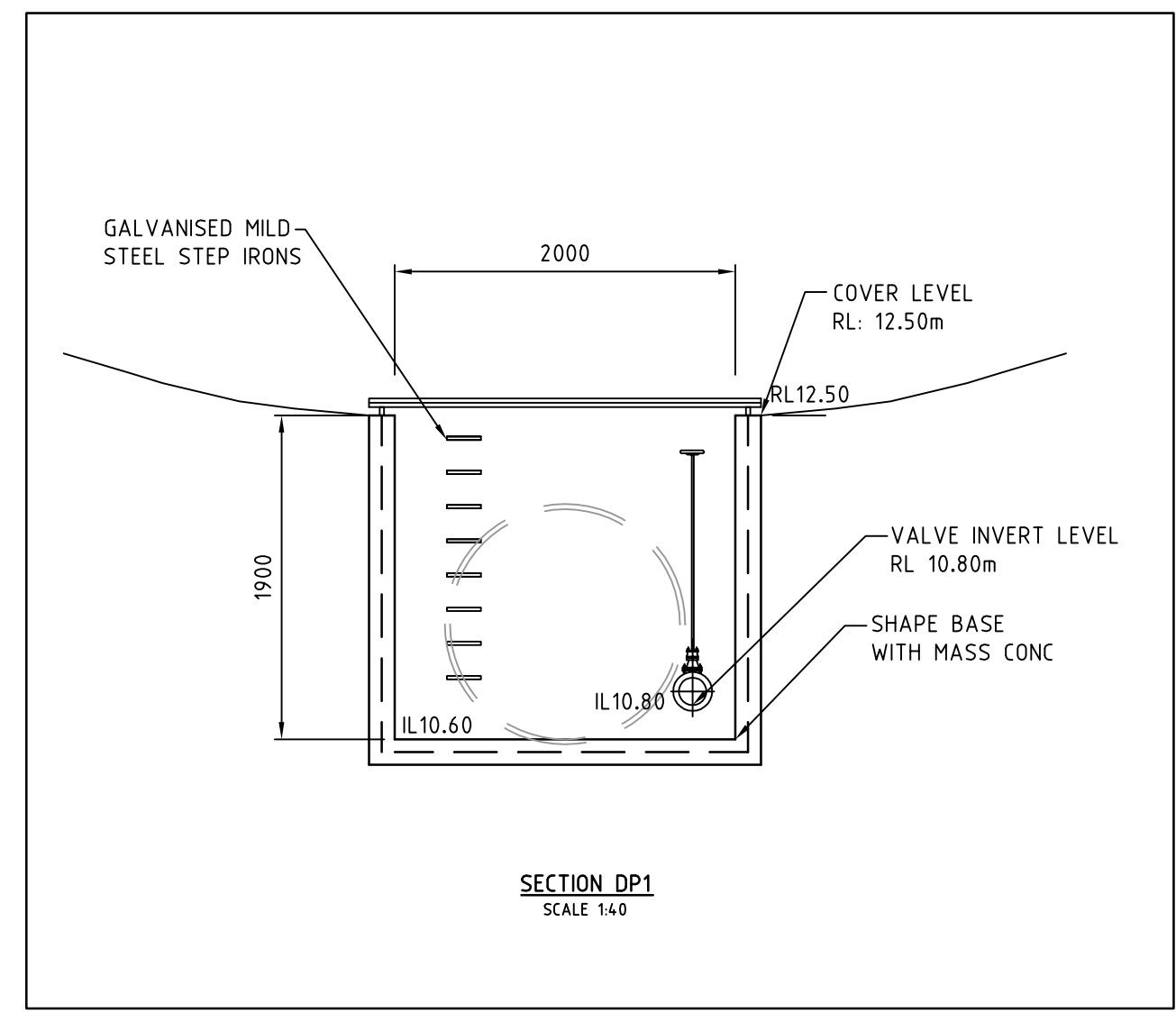
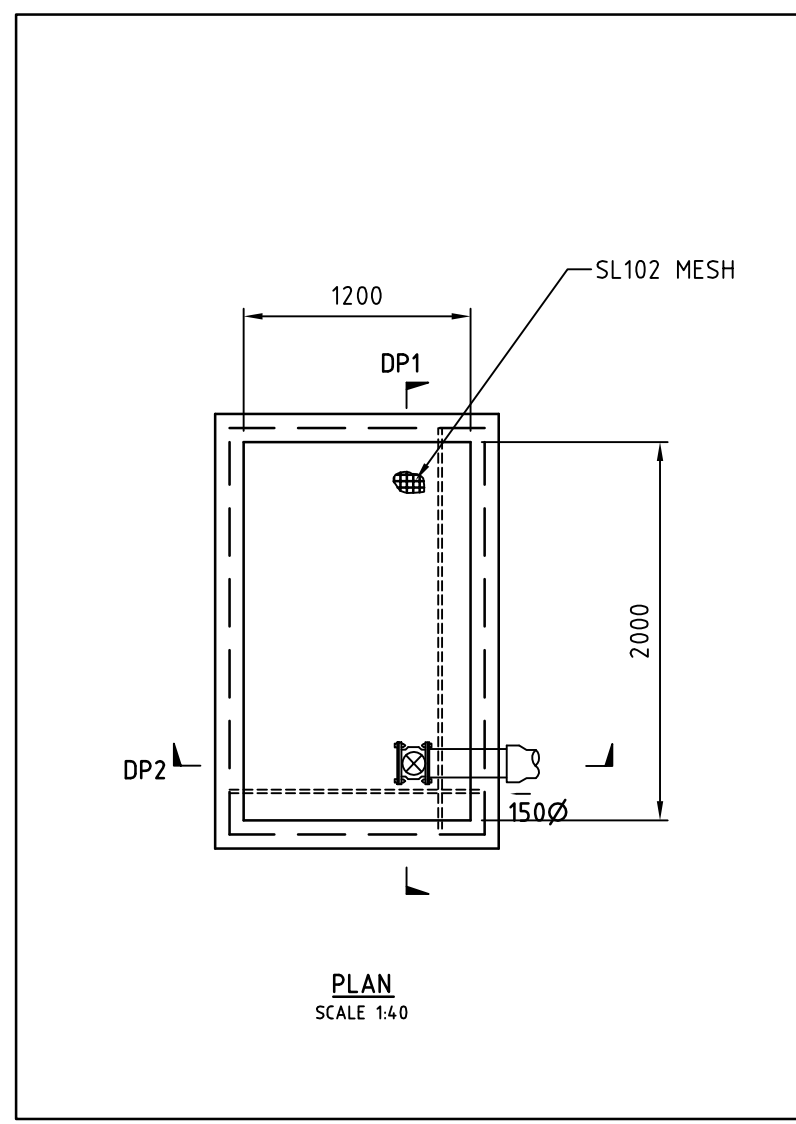
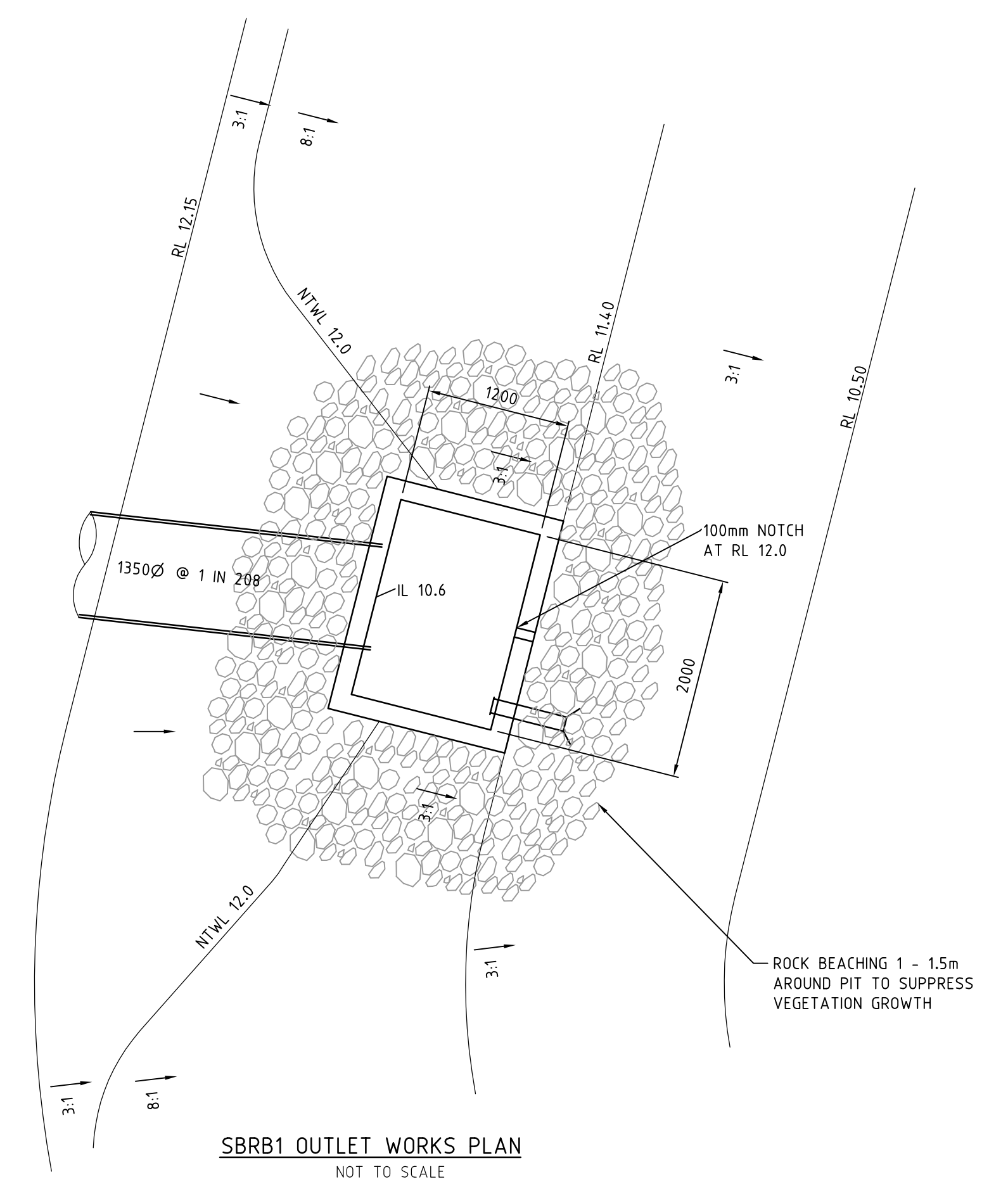
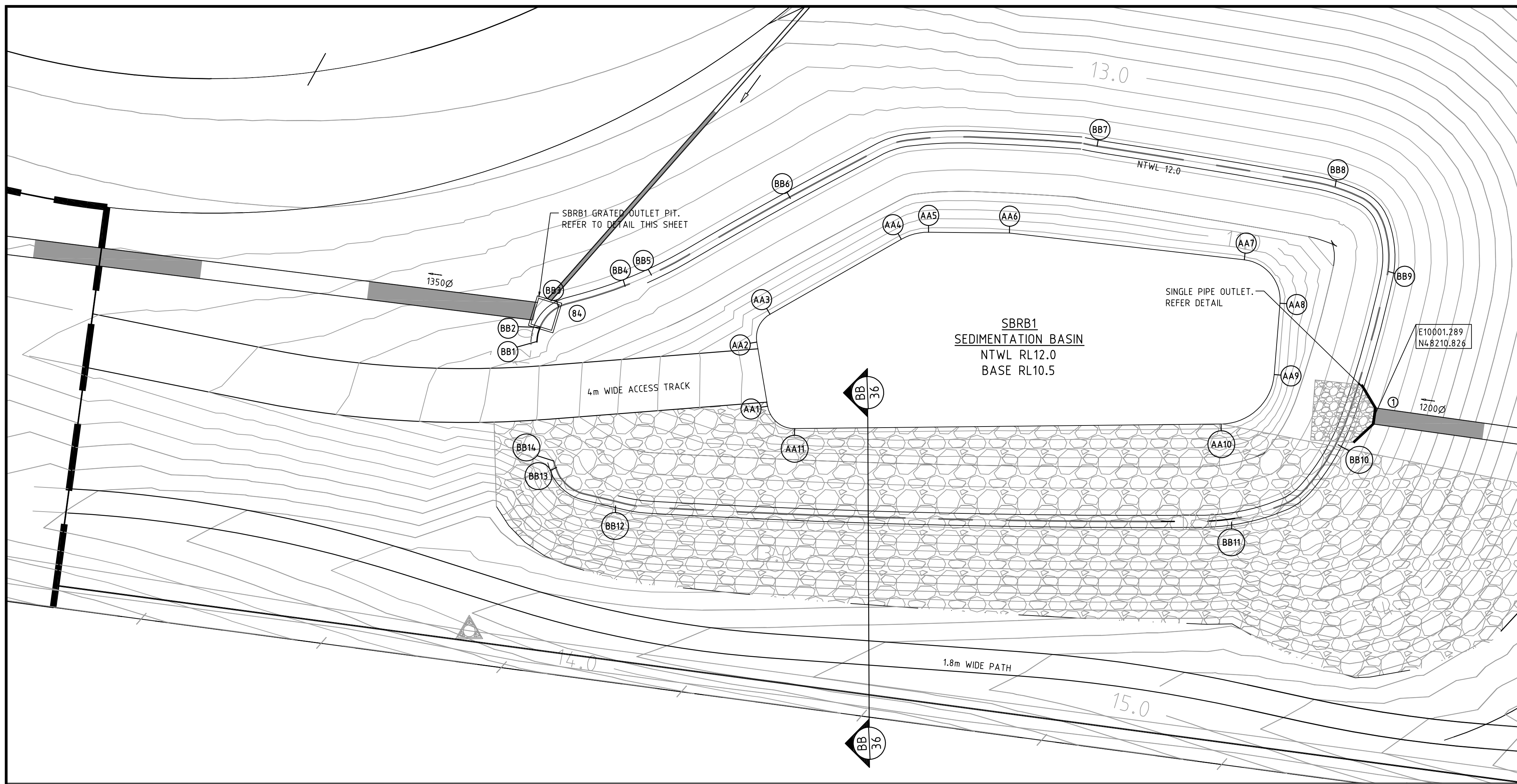
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Brisbane +61 7 3831 8988
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Gold Coast +61 7 5578 0222
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Perth +61 8 9477 0100

Estuary
Stage 7
City of Greater Geelong
Roadworks and Drainage
Subdivision Setout Plan - 1

Drawing No. 0250EHL-07-38 **Rev C**

Sheet No. 38 of 42

Approved for Construction



DRAW-DOWN VALVE PIT
SCALE 1:40

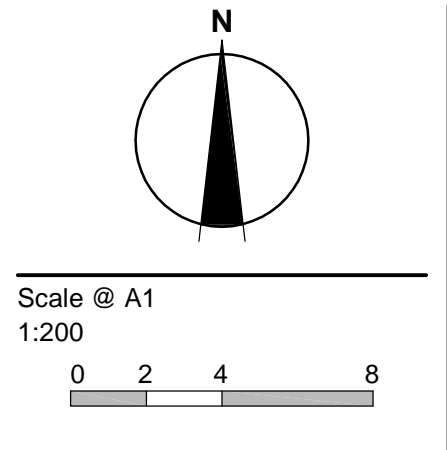
WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site.
No guarantee is given that all existing services are shown. Locate all underground services before commencement of works.
DIAL 1100 BEFORE YOU DIG
www.1100.com.au

REVISION	DATE	DES/DFT	APPD
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

COUNCIL AMENDMENTS
COUNCIL AMENDMENTS
ISSUED TO COUNCIL FOR APPROVAL

estuary leopard
Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J.Golden
Date
December 2010

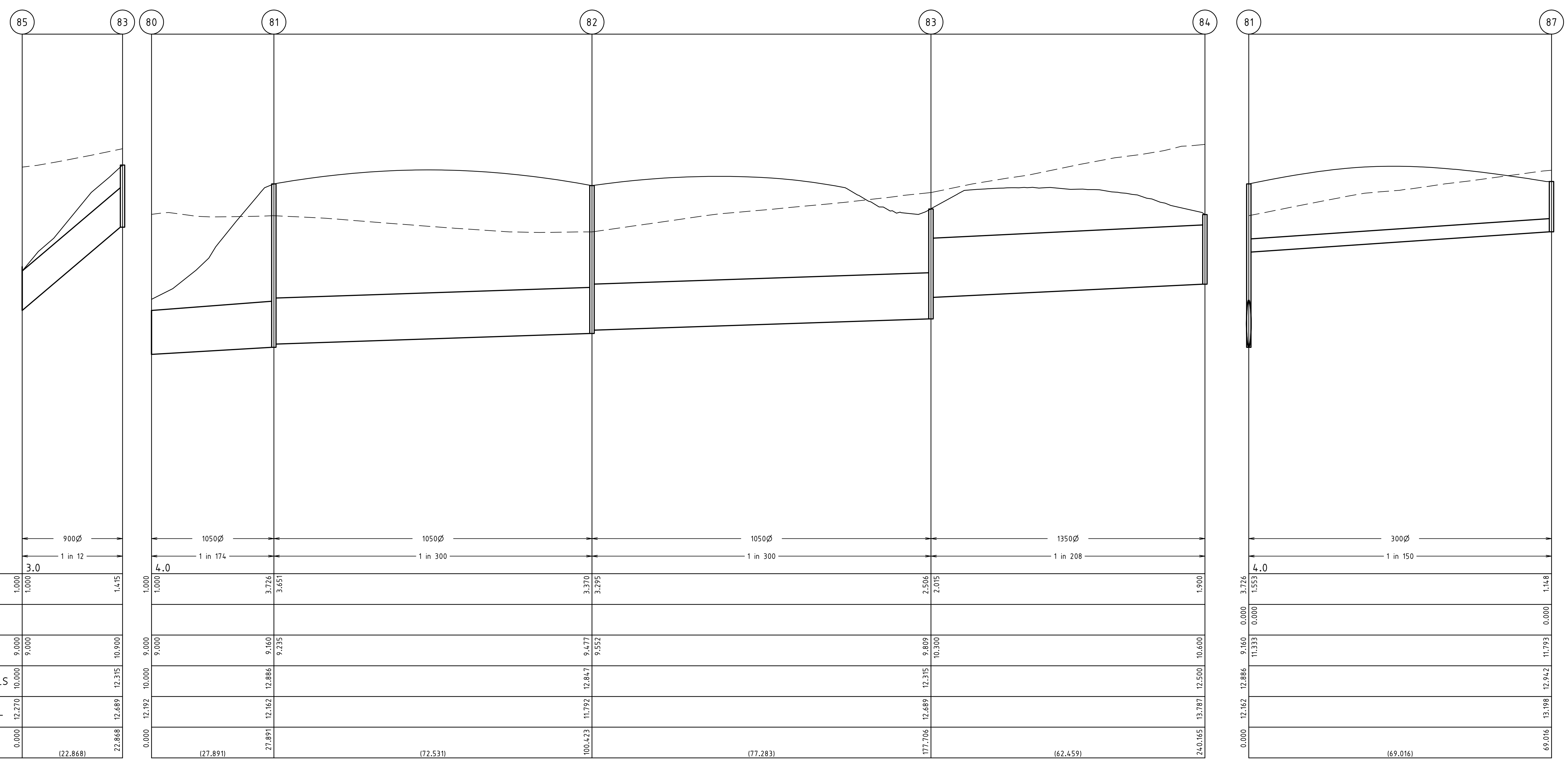


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smec urban
consulting group
Smec Urban
Level 1, 47 Pakington Street, Geelong West, VIC, 3218
p +61 3 5228 3100 | f +61 3 5228 3199 | www.smu.com.au
Adelaide +61 8 8223 6455 Gold Coast +61 7 5578 0222
Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Cairns +61 2 6126 1900 Darwin +61 3 5173 0100

Estuary
Stage 7
City of Greater Geelong
Roadworks and Drainage
Sedimentation Basin Layout Plan
& Outlet Details
Drawing No. 0250EHL-07-40 Rev C
Sheet No. 40 of 42
Approved for Construction

LEGEND	
---	EXISTING SURFACE
—	DESIGN SURFACE
—	DRAINAGE PIPE/PIT
---	EXISTING DRAINAGE PIPE/PIT
—	HYDRAULIC GRADE LINE



PIPE SIZE (mm)	GRADE DATUM	DEPTH TO INVERT	HYDRAULIC GRADE LINE	INVERT LEVEL	FINISHED SURFACE LEVELS	EXISTING SURFACE LEVEL	CHAINAGE (Reach Length)
900 \varnothing	3.0	1.000		9.000	10.000	12.270	0.000 (22.868)
1050 \varnothing	4.0	1.000		9.000	10.000	12.162	0.000 (27.891)
1050 \varnothing	1 in 174	3.726		9.160	12.886	12.162	27.891 (72.531)
1050 \varnothing	1 in 300	3.651		9.235			
1050 \varnothing	1 in 300	3.370		9.477	12.847	11.792	100.423 (77.283)
1050 \varnothing	1 in 300	3.295		9.552			
1350 \varnothing	1 in 208	2.506		9.609	12.315	12.689	177.706 (62.459)
1350 \varnothing	1 in 208	2.015		10.300			
1350 \varnothing	1 in 208	1.900		10.600	12.500	13.187	240.165
300 \varnothing	4.0	1.900		11.333	12.886	12.886	0.000 (69.016)
300 \varnothing	1 in 150	1.553		11.553			
300 \varnothing	1 in 150	1.148		11.793	12.542	13.198	69.016

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REVISION	DATE	DES/DFT	APPD
E	23.03.12	CB/CB	JG
D	05.07.11	CB/CB	JG
C	05.04.11	CB/CB	JG
B	16.02.11	AP/AP	JG
A	13.01.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
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Authorised
J. Golden
Date
January 2011

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ABN 99 124 206 819

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Scale @ A1
H1:500, V1:50

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Melbourne +61 3 9869 0800
Traralgon +61 3 5173 0100

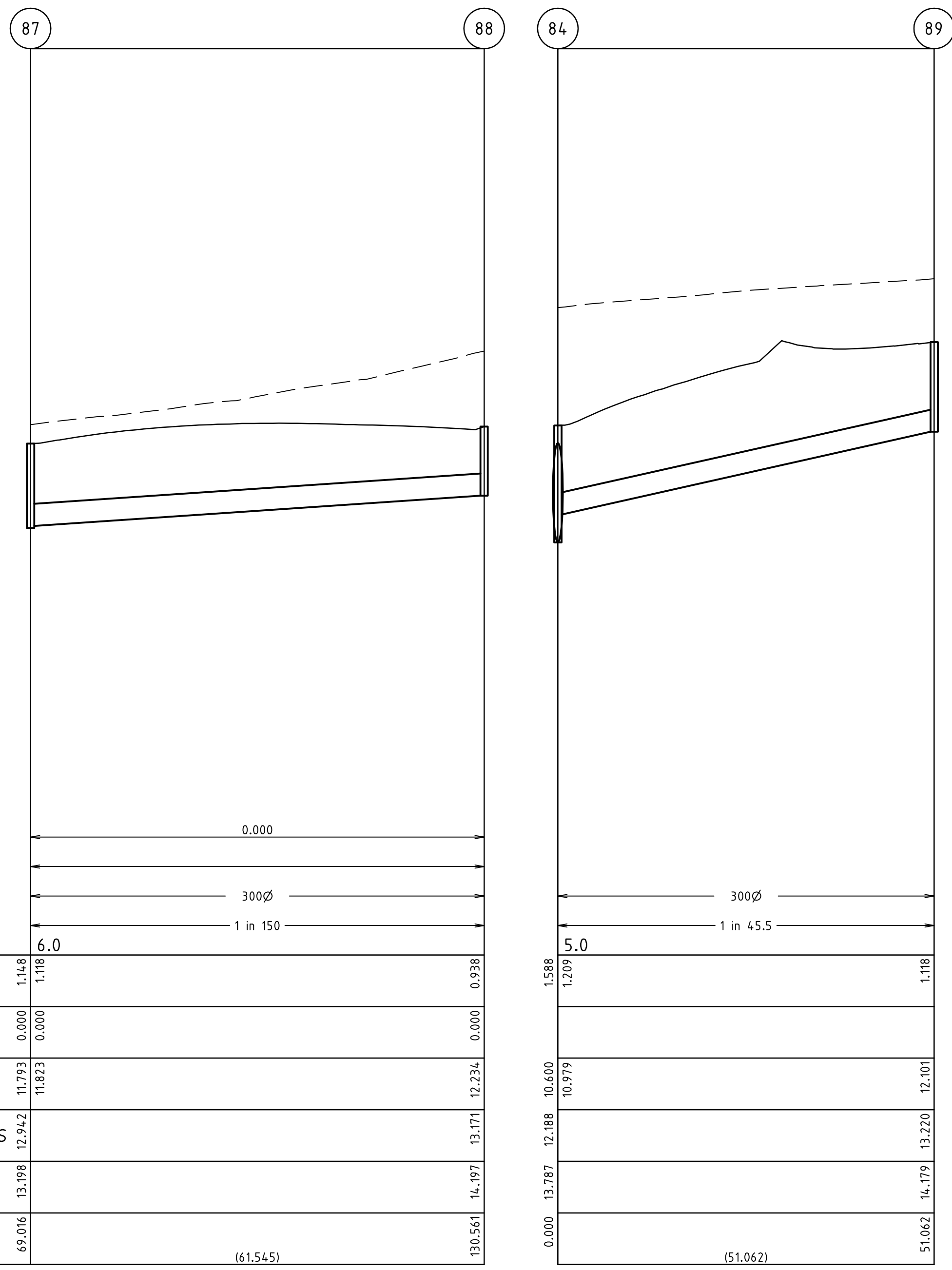
Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Outfall Drainage Longitudinal Sections

Drawing No. 0250EHL-07-41 **Rev E**

Sheet No. 41 of 43

Approved for Construction

LEGEND	
---	EXISTING SURFACE
—	DESIGN SURFACE
—	DRAINAGE PIPE/PIT
---	EXISTING DRAINAGE PIPE/PIT
—	HYDRAULIC GRADE LINE



DESIGN FLOW (m ³ /s)	0.000	
CAPACITY (m ³ /s)		
AT GRADE VELOCITY (m/s)		
PIPE SIZE (mm)	300Ø	
GRADE	1 in 150	
DATUM	6.0	
DEPTH TO INVERT	1.148 1.118	0.938
HYDRAULIC GRADE LINE	0.000 0.000	0.000
INVERT LEVEL	11.793 11.823	12.234
FINISHED SURFACE LEVELS	12.942	13.171 12.234
EXISTING SURFACE LEVEL	13.198	14.197
CHAINAGE (Reach Length)	65.016 (61.545)	130.561

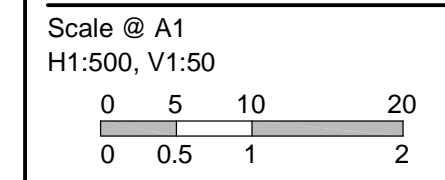
DESIGN FLOW (m ³ /s)	0.000	
CAPACITY (m ³ /s)		
AT GRADE VELOCITY (m/s)		
PIPE SIZE (mm)	300Ø	
GRADE	1 in 45.5	
DATUM	6.0	
DEPTH TO INVERT	1.588 1.205	1.118
HYDRAULIC GRADE LINE	10.600 10.979	12.101
INVERT LEVEL	12.188 10.600	12.101
FINISHED SURFACE LEVELS	12.188	13.220
EXISTING SURFACE LEVEL	13.787	14.179
CHAINAGE (Reach Length)	0.000 (51.062)	51.062

I:\work\eng\0250EHL - horizons\leopard\0250EHL - 7\dwg\0250EHL-07-42

REVISION	DATE	DES/DFT	APPD
B	23.03.12	CB/CB	JG
A	05.07.11	CB/CB	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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Estuary
Stage 7
City Of Greater Geelong
Roadworks and Drainage
Outfall Drainage Longitudinal Sections

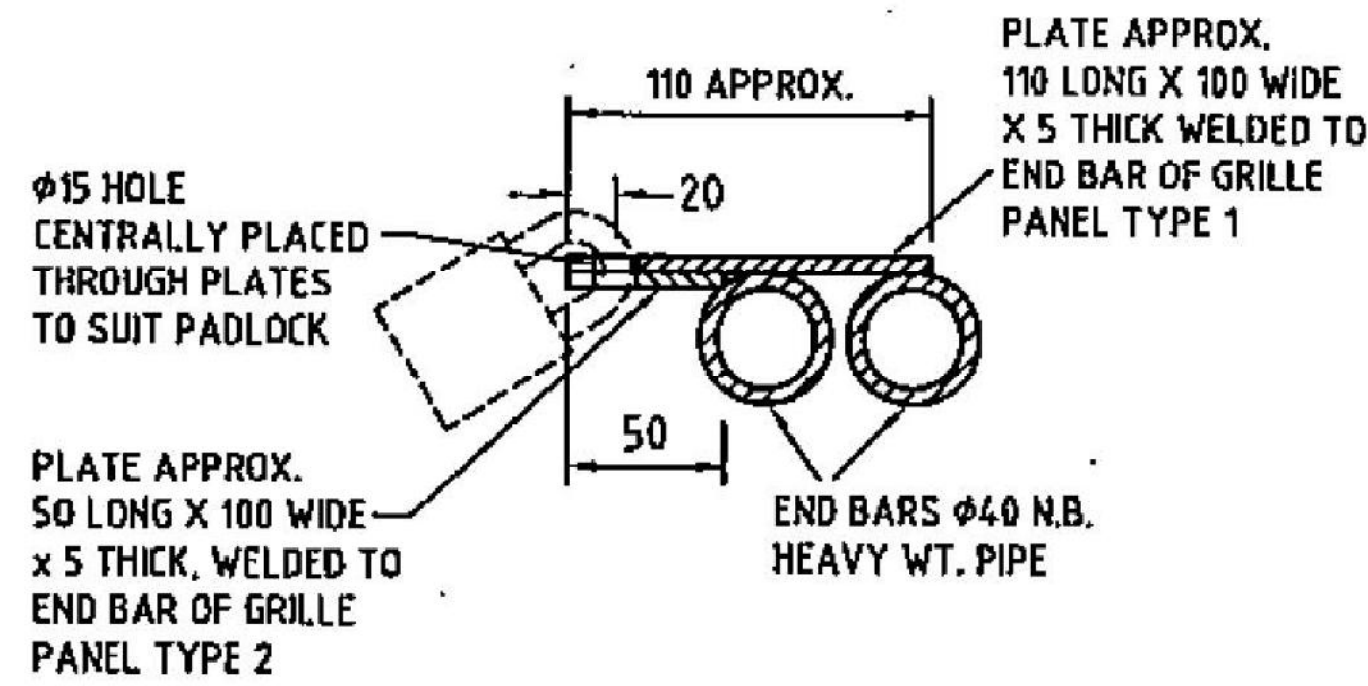
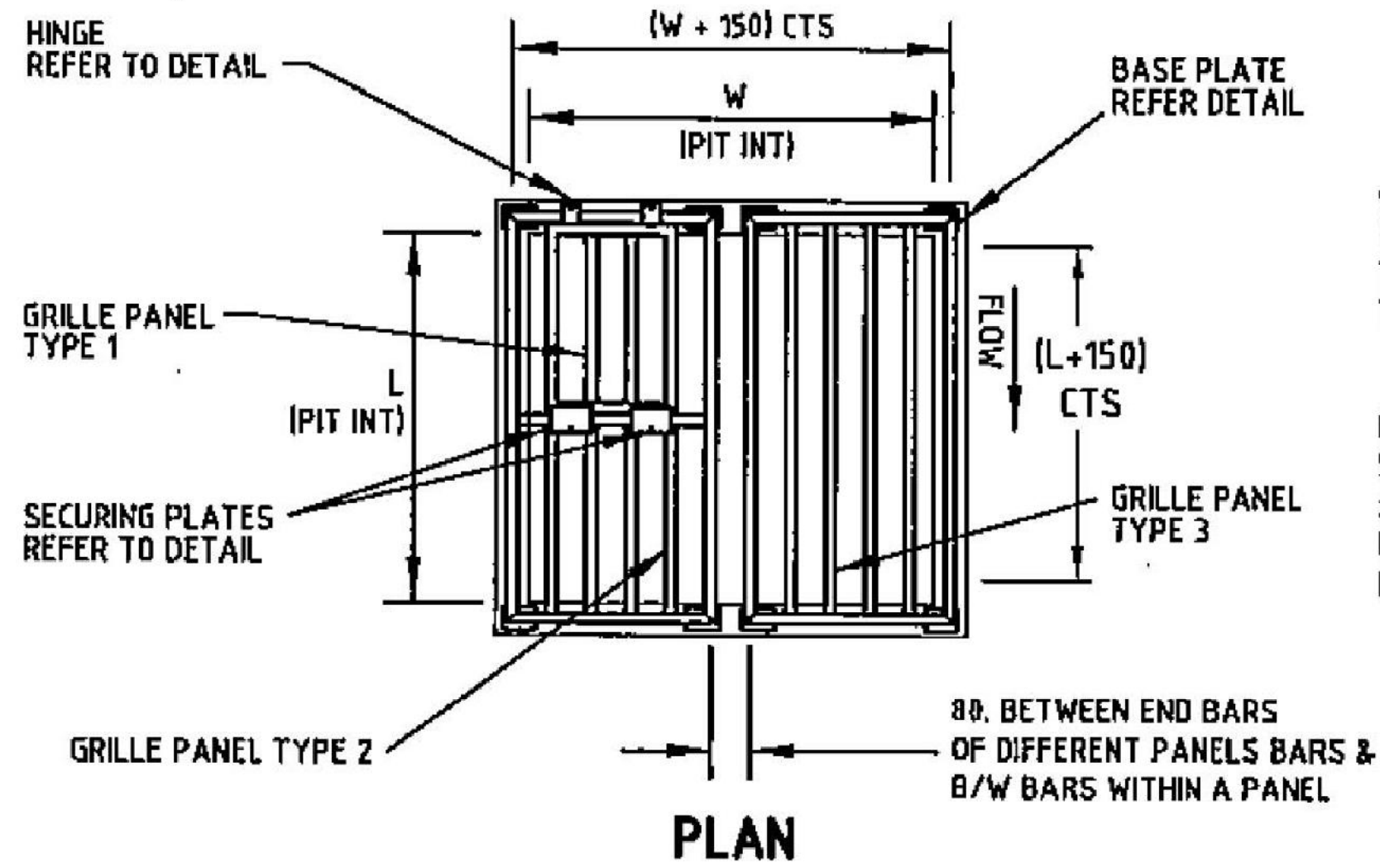
Drawing No. 0250EHL-07-42 **Rev B**
Sheet No. 42 of 43

Approved for Construction

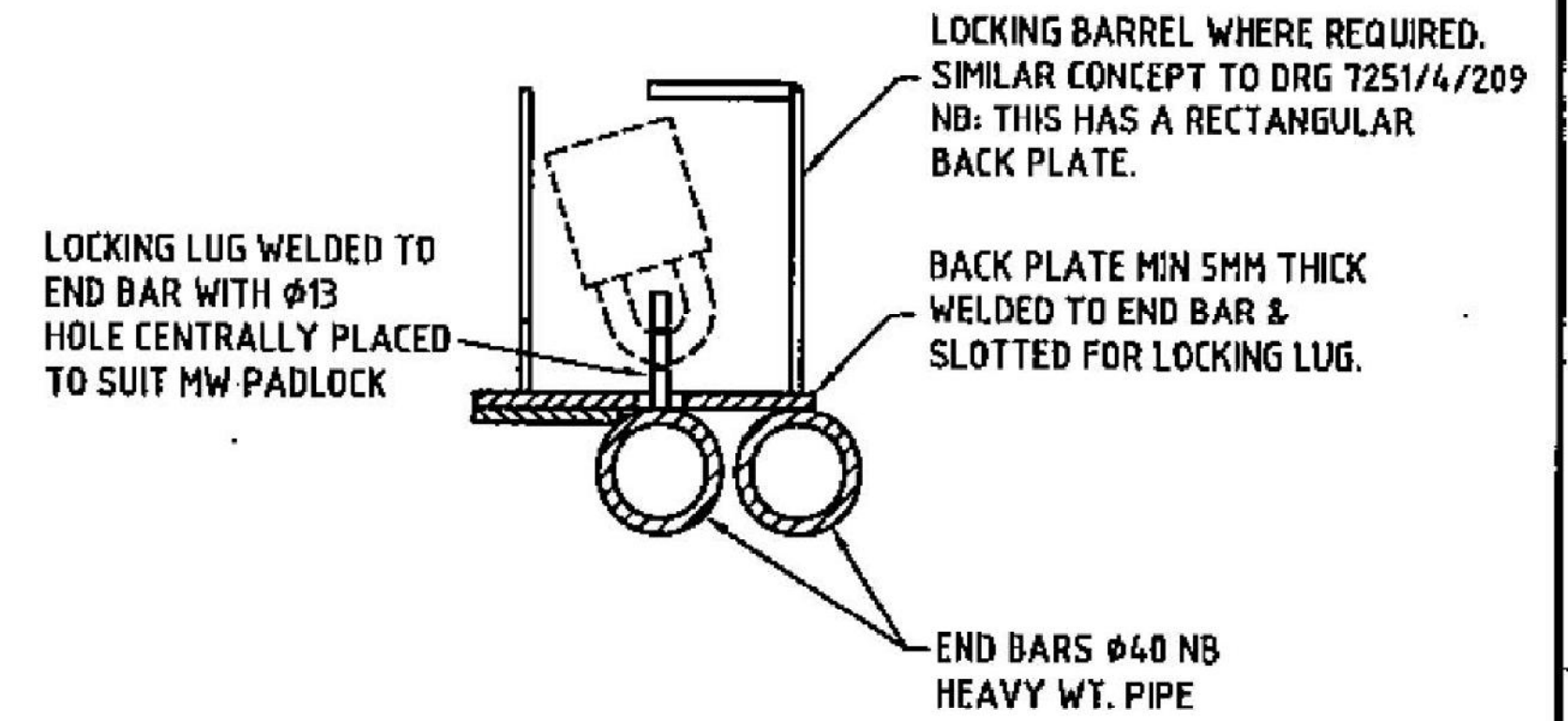
REV	A	Developed for LDM 2007
NOTE		
DATE	08.07	

Melbourne Water

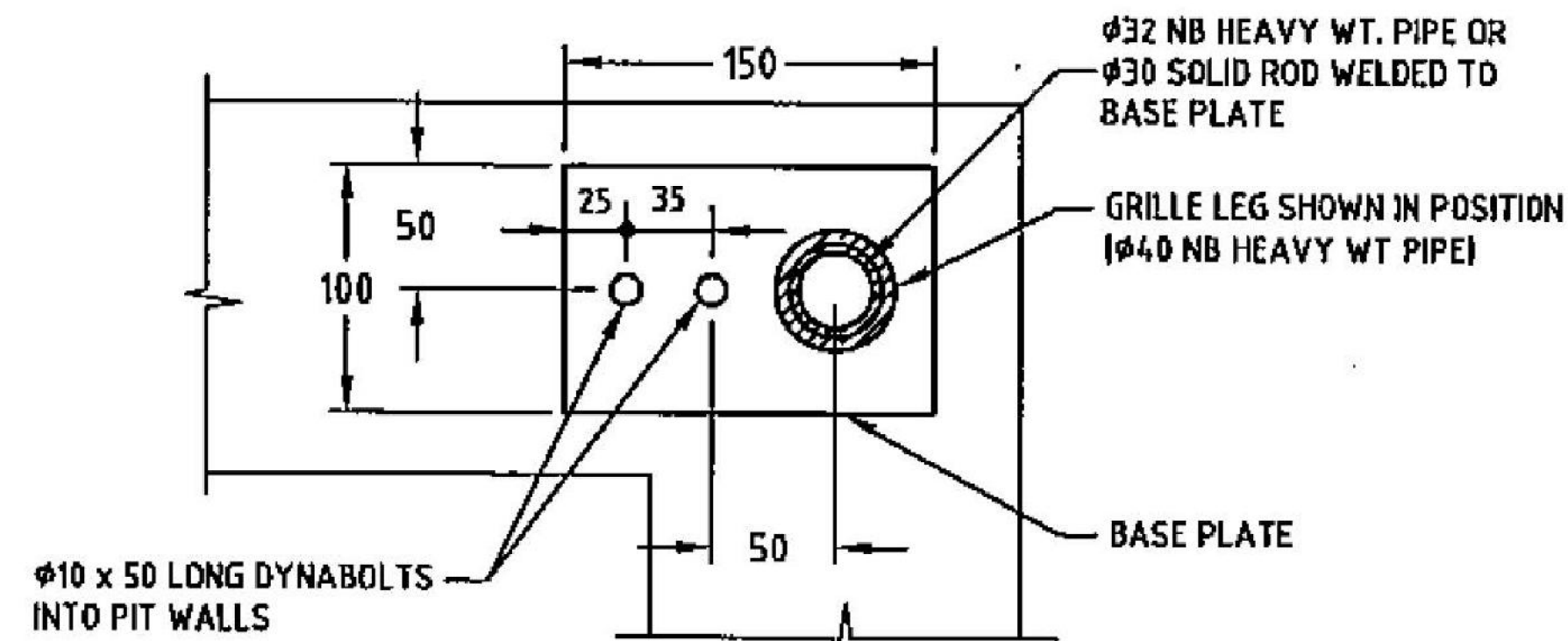
**DRAINAGE STANDARD DRAWING
PIPE GRILLE TYPE 3
(FOR PIT OPENING GREATER
THAN 900 x 900)
DRG NO. 7251/8/320
Scale N.T.S.**



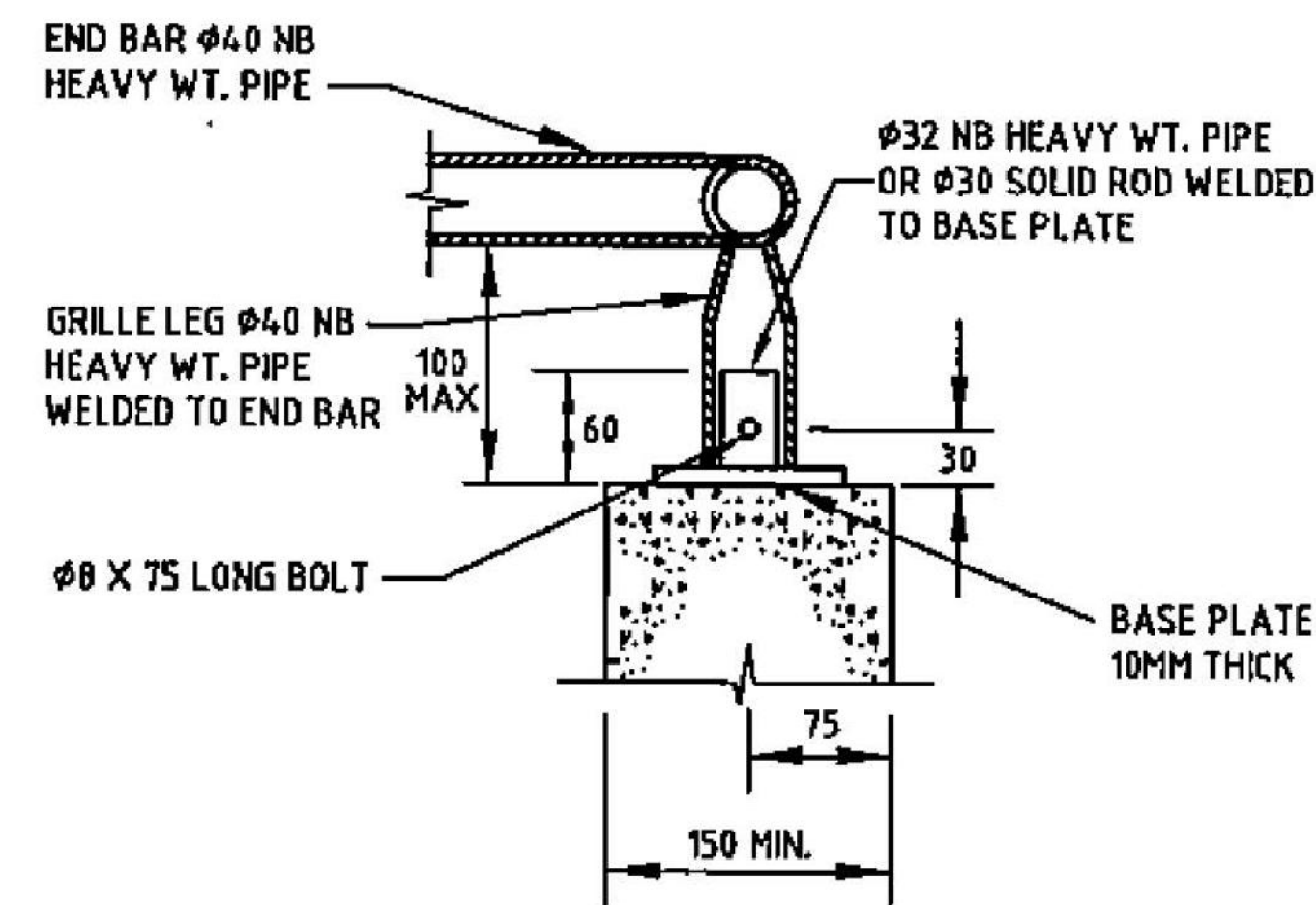
SECURING PLATE DETAIL



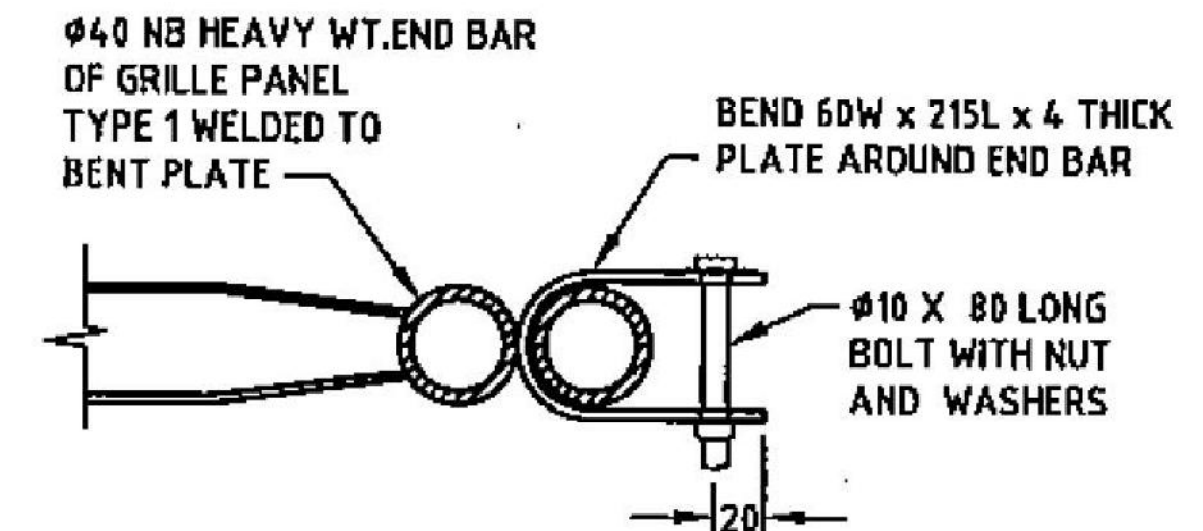
**LOCKING BARREL DETAIL
(ALTERNATIVE TO SECURING PLATE, WHERE REQUIRED)**



FIXING DETAIL - PLAN



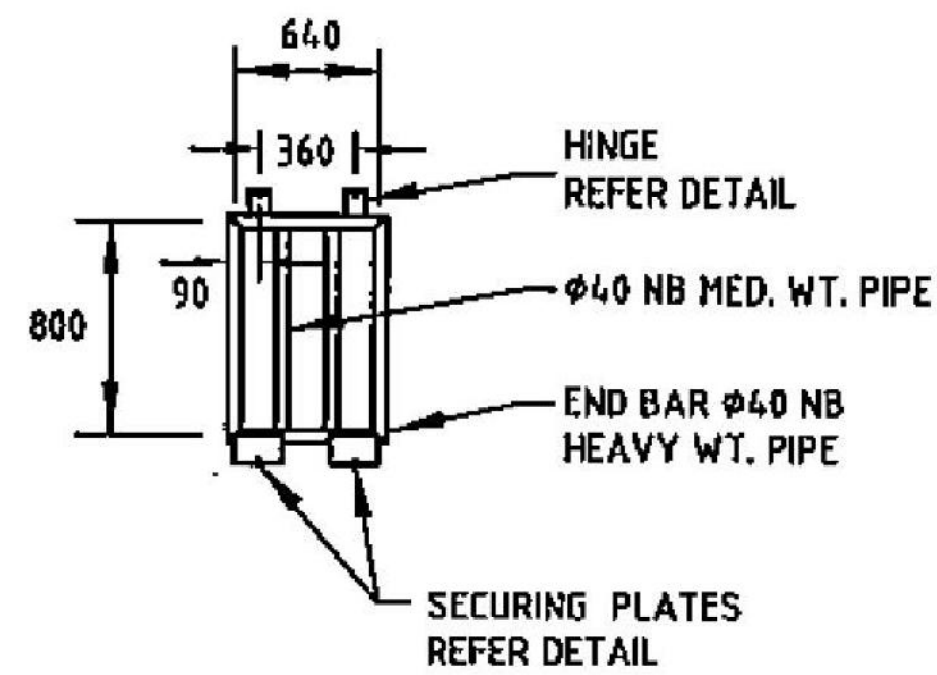
FIXING DETAIL - ELEVATION



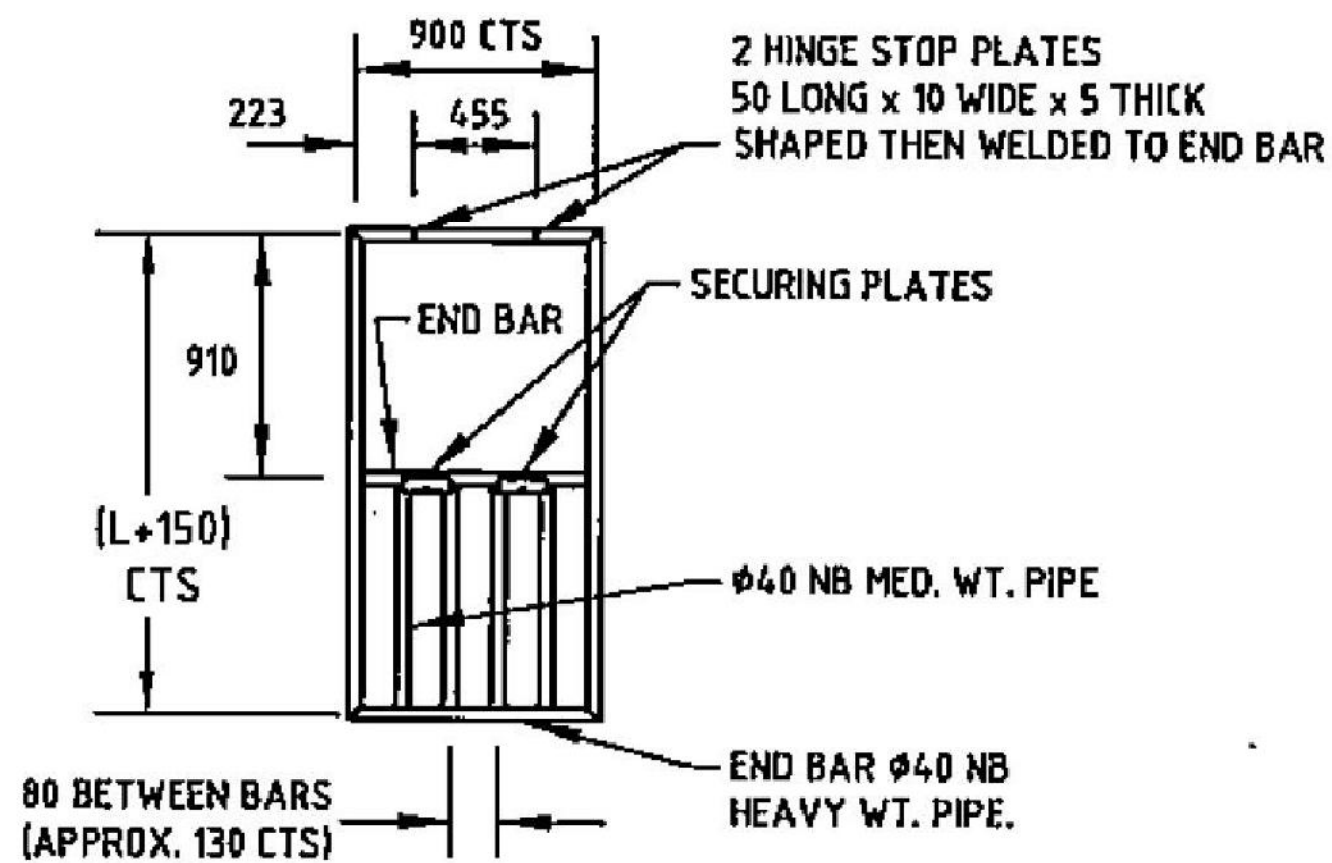
HINGE DETAIL

NOTES:

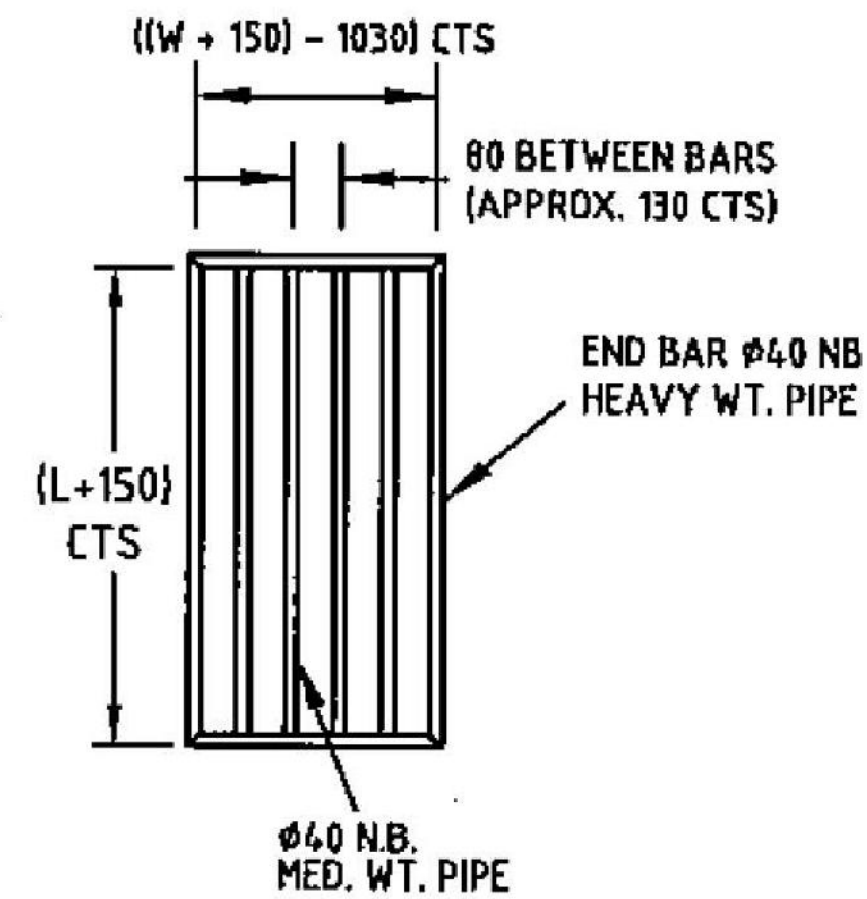
- PIPE GRILLES ARE REQUIRED IN SITUATIONS WHERE FLOOD DEBRIS BUILD-UP IS LIKELY. IF THIS IS NOT THE CASE, A GRATED COVER WHICH SITS FLUSH WITH THE TOP OF THE PIT & CAN BE SECURED DOWN MAY BE ACCEPTABLE, PROVIDED THE DESIGN INTENT IS NOT COMPROMISED.
- THIS CONCEPT PLAN IS FOR DESIGN PURPOSES ONLY. GRILLE DIMENSIONS L & W WILL VARY ACCORDING TO THE PIT DIMENSIONS.
- ALL WELDS TO BE 6MM FILLET UNLESS SHOWN OTHERWISE.
- AFTER FABRICATION, GRILLE AND ASSOCIATED FITTINGS TO BE HOT-DIPPED GALVANISED ACCORDING TO RELEVANT AUSTRALIAN STANDARDS (E.G. AS/NZ 4680). ALL HOLES THROUGH STEELWORK TO BE DRILLED PRIOR TO GALVANISING.
- ALL NUTS, BOLTS AND WASHERS TO BE GALVANISED TO RELEVANT AUSTRALIAN STANDARDS.
- NB STANDS FOR NOMINAL BDRE.



PANEL - TYPE 1



PANEL - TYPE 2



PANEL - TYPE 3

REVISION	DATE	DESIGN	APPD
C DRAWING NUMBER CHANGE	05.07.11	CB/CB	JG
B COUNCIL AMENDMENTS	05.04.11	CB/CB	JG
A ISSUED TO COUNCIL FOR APPROVAL	03.03.11	AP/AP	JG

estuary leopold
Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

Designed
A.Perkins
Drawn
A.Perkins
Checked
C.Birkett
Authorised
J.Golden
Date
March 2011

Scale @ A1
As Shown

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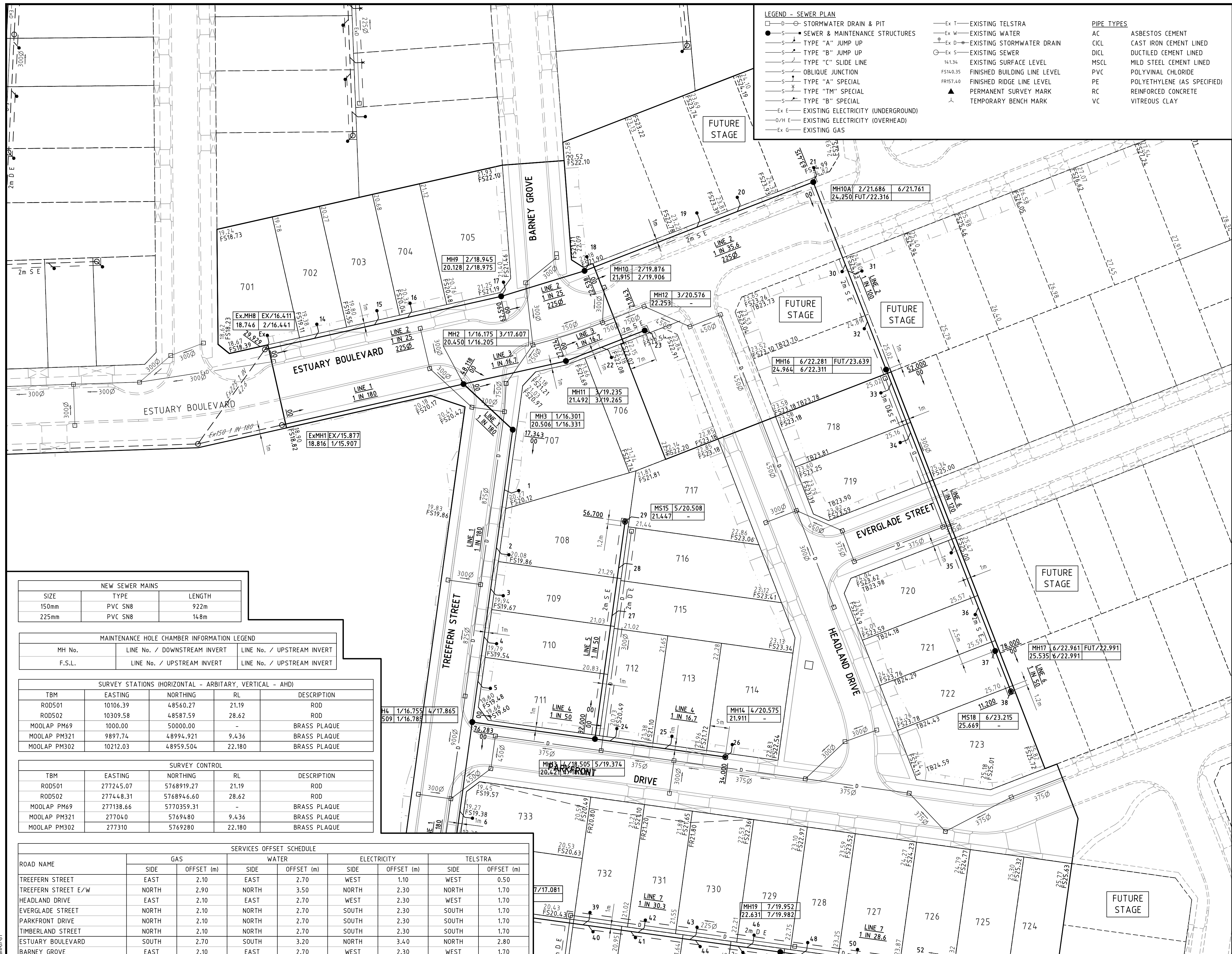
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Estuary
Stage 7
City of Greater Geelong
Roadworks and Drainage
Pipe Grille Detail

Drawing No. 0250EHL-07-43
Sheet No. 43 of 43

Rev C

Approved for Construction



LEGEND - SEWER PLAN

- S — SEWER & MAINTENANCE STRUCTURES
- S — TYPE "A" JUMP UP
- S — TYPE "B" JUMP UP
- S — TYPE "C" SLIDE LINE
- S — OBLIQUE JUNCTION
- S — TYPE "A" SPECIAL
- S — TYPE "TM" SPECIAL
- S — TYPE "B" SPECIAL
- Ex E — EXISTING ELECTRICITY (UNDERGROUND)
- O/H E — EXISTING ELECTRICITY (OVERHEAD)
- Ex G — EXISTING GAS

PIPE TYPES

- AC ASBESTOS CEMENT
- CICL CAST IRON CEMENT LINED
- DICL DUCTILE CEMENT LINED
- MSCL MILD STEEL CEMENT LINED
- PVC POLYVINYL CHLORIDE
- PE POLYETHYLENE (AS SPECIFIED)
- RC REINFORCED CONCRETE
- VC VITREOUS CLAY

- NOTES**
- GENERAL**
- SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION OF AUSTRALIA STANDARD CODES (WSA 02-2002 - WSA 03-2002) IN CONJUNCTION WITH BARWON WATERS SUPPLEMENTS TO THE CODES.
 - BARWON WATER AND THE PROJECT MANAGER TO BE NOTIFIED 7 CLEAR WORKING DAYS NOTICE PRIOR TO COMMENCEMENT OF WORKS.
 - THE CONTRACTOR SHALL COMPLY WITH SAFETY REQUIREMENTS OF THE MINES ACT, GENERAL REGULATIONS AND STATUTORY RULES, AND THE MINES (TRENCHES) REGULATIONS 1982.
 - NOTIFY THE DEPARTMENT OF LABOUR OF HIS INTENTION TO COMMENCE TRENCHING OPERATIONS WHERE TRENCHES ARE 1.5 METRES OR DEEPER.
 - INSURE THAT THE MINE MANAGER OR HIS DEPUTY AS REQUIRED BY THE REGULATIONS IS IN ATTENDANCE WHEN TRENCHING OPERATIONS ARE IN PROGRESS.
 - THE CONTRACTOR SHALL MAKE ALL WORKS AVAILABLE FOR THE INSPECTOR/SURVEYOR TO CARRY OUT THE NECESSARY INSPECTIONS AND SURVEYING BEFORE BACKFILLING IS COMMENCED.
 - SERVICES ARE APPROXIMATE ONLY. ALL RELEVANT SERVICE AUTHORITY'S ARE TO BE CONTACTED PRIOR TO THE COMMENCEMENT OF EXCAVATION TO ESTABLISH THEIR EXACT LOCATION.
 - CONTACT PRIOR TO COMMENCEMENT OF WORKS:
 - CITY OF GREATER GEELONG
 - POWERCOR
 - TELSTRA
 - TRU
 - VICTORIAN WORKCOVER AUTHORITY
 - ALL SERVICES ARE TO BE LOCATED ON SITE PRIOR TO ANY EXCAVATION.
 - INVERT LEVELS OF EXISTING SEWERS AND WATERMANS TO BE CHECKED PRIOR TO THE COMMENCEMENT OF WORKS.
 - CLASS 2 BACKFILL TO BE USED UNDER DRIVEWAYS FOR WATER AND SEWER RETICULATION. PROPERTY OWNERS ARE TO BE NOTIFIED IN WRITING BY THE CONSULTANT 14 CLEAR DAYS PRIOR TO COMMENCEMENT OF WORKS.
 - COPY OF CADASTRAL MAP GRID (MGA) CONNECTION & COPY OF AUSTRALIAN HEIGHT DATUM (AHD) CONNECTION IS TO BE PROVIDED BY CONTRACTOR.
 - WORKS SHALL BE EFFECTED BETWEEN THE HOURS OF 8:00am AND 5:00pm MONDAY - FRIDAY. IN THE EVENT THAT WORKS ARE TO BE EFFECTED OUTSIDE THESE WORKING HOURS, A LETTER REQUESTING APPROVAL FOR SUCH OUT OF HOURS WORK SHALL BE LODGED TO THE SENIOR QUALITY AUDITOR.
 - THE CONTRACTOR SHALL COMPLY WITH SAFETY REQUIREMENTS RELATING TO WORKING NEAR POWER LINES AS SET BY THE CHIEF ELECTRICAL INSPECTOR WHERE NECESSARY AN ACCREDITED TRAINED SPOTTER IS TO BE PROVIDED.
 - WATER RESTRICTIONS ARE TO APPLY FROM MIDNIGHT JUNE 30th 2006, IN ACCORDANCE WITH BY-LAW NO. 187. ONLY TRIGGER HOSES (MAXIMUM SIZE 25mm) MAY BE USED FOR CONSTRUCTION WORK NOT INCLUDING TRENCHING, UNLESS OTHERWISE EXEMPTED BY THE AUTHORITY IN WRITING. MECHANICAL COMPACTION IS TO BE USED IN ACCORDANCE WITH MRWA SPECIFICATION 04-03 FOR TRENCH WORKS UNTIL FURTHER NOTICE. ANY WATER USED TO FLUSH WATER MAINS IS TO BE RECLAIMED AND USED FOR CONSTRUCTION PURPOSES.

- SEWER**
- THE CONTRACTOR SHALL CORE CUT ALL HOLES INTO EXISTING PRECAST SEWER MAINTENANCE HOLES.
 - ALL FSL'S SHOWN IN MAINTENANCE HOLES INFORMATION BOX ARE TOP OF MANHOLE LEVELS.
 - ALL END OF LINES NOMINATED AS TMS ARE TO HAVE A TERMINAL MAINTENANCE SHAFT AS PER BARWON WATER STANDARD DRAWING 70095.
 - WHERE FUTURE SEWER MAINS ARE INDICATED A 150mm ACCESS COUPLING AND CAP ARE TO BE PLACED OUT OF THE MANHOLE.
 - WARNING: ENTRY INTO ANY MAINTENANCE HOLE IS CONTROLLED BY CONFINED SPACE REGULATIONS BEING "OCCUPATIONAL HEALTH & SAFETY (CONFINED SPACES) REGULATIONS 1996, STATUTORY RULE NO 148/1996 AND A.S. 2865 - 1995 SAFE WORKING IN CONFINED SPACES". PERSONS REQUIRING ACCESS TO ANY BARWON WATER MANHOLE AS PART OF THE DEVELOPER WORKS PROCESS MUST CONTACT THE SENIOR QUALITY AUDITOR PH (03) 5226 9204 FOR ANY REQUIREMENTS. DURING THE CONSTRUCTION OF WORKS TO GAIN ACCESS TO A BARWON WATER MANHOLE THE PROCEDURE AS OUTLINED IN THE ATTACHED FLOWCHART IS TO BE FOLLOWED, AND "THE CONFINED SPACE ENTRY PERMIT APPLICATION FORM" (ALSO ATTACHED) IS TO BE COMPLETED AND LODGED WITH THE SENIOR QUALITY AUDITOR 3 (THREE) CLEAR WORKING DAYS PRIOR TO ENTRY.
 - ALL SEWERS ARE TO BE PVC-SN8
 - DETECTOR TAPE TO BE PLACED OVER SEWERS AT ALL ROAD CROSSINGS AND ALL CURVED SEWER MAINS.
 - BORED SECTIONS OF SEWER TO BE CCTV INSPECTED IN ACCORDANCE WITH BARWON WATER'S LAND DEVELOPMENT MANUAL AND SUBMITTED TO BARWON WATER FOR ACCEPTANCE.
 - ALL MANHOLE JOINTS, INCLUDING DROPS TO BE SEALED WITH FERROPRE OR APPROVED EQUIVALENT.
 - ALL EXCAVATIONS AROUND A NEWLY CONSTRUCTED MANHOLE TO BE BACKFILLED WITH 3% CEMENT STABILISED SAND.

- SPECIAL**
- TRENCH COMPACTION RESULTS TO BE SUBMITTED BY CONSULTANT WITH 'AS CONSTRUCTED' NOTES.

WARNING
BEWARE OF UNDERGROUND SERVICES
 The locations of underground services are approximate only and their exact position should be proven on site.
 No guarantee is given that all existing services are shown.
 Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
 www.1100.com.au

BARWON WATER APPROVED CONTRACTOR TO CONNECT TO EXISTING ACCESS CHAMBER AT CONTRACTORS COST. 7 CLEAR DAYS NOTICE PRIOR TO THE COMMENCEMENT OF WORKS MUST BE GIVEN TO THE SUPERINTENDENT AND BARWON WATER SENIOR QUALITY AUDITOR.

WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

NEW SEWER MAINS

SIZE	TYPE	LENGTH
150mm	PVC SN8	922m
225mm	PVC SN8	148m

MAINTENANCE HOLE CHAMBER INFORMATION LEGEND

MH No.	LINE No. / DOWNSTREAM INVERT	LINE No. / UPSTREAM INVERT
F.S.L.	LINE No. / UPSTREAM INVERT	LINE No. / UPSTREAM INVERT

SURVEY STATIONS (HORIZONTAL - ARBITRARY, VERTICAL - AHD)

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	10106.39	48560.27	21.19	ROD
ROD502	10309.58	48587.59	28.62	ROD
MOOLAP PM69	1000.00	50000.00	-	BRASS PLAQUE
MOOLAP PM321	9897.74	48994.921	9.436	BRASS PLAQUE
MOOLAP PM302	10212.03	48959.504	22.180	BRASS PLAQUE

SURVEY CONTROL

TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	27724.57	5768919.27	21.19	ROD
ROD502	27744.83	5768946.60	28.62	ROD
MOOLAP PM69	277138.66	5770359.31	-	BRASS PLAQUE
MOOLAP PM321	27704.0	5769480	9.436	BRASS PLAQUE
MOOLAP PM302	277310	5769280	22.180	BRASS PLAQUE

SERVICES OFFSET SCHEDULE

ROAD NAME	GAS		WATER		ELECTRICITY		TELSTRA	
	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)	SIDE	OFFSET (m)
TREEFERN STREET	EAST	2.10	EAST	2.70	WEST	1.10	WEST	0.50
TREEFERN STREET E/W	NORTH	2.90	NORTH	3.50	NORTH	2.30	NORTH	1.70
HEADLAND DRIVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70
EVERGLADE STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
PARKFRONT DRIVE	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
TIMBERLAND STREET	NORTH	2.10	NORTH	2.70	SOUTH	2.30	SOUTH	1.70
ESTUARY BOULEVARD	SOUTH	2.70	SOUTH	3.20	NORTH	3.40	NORTH	2.80
BARNEY GROVE	EAST	2.10	EAST	2.70	WEST	2.30	WEST	1.70

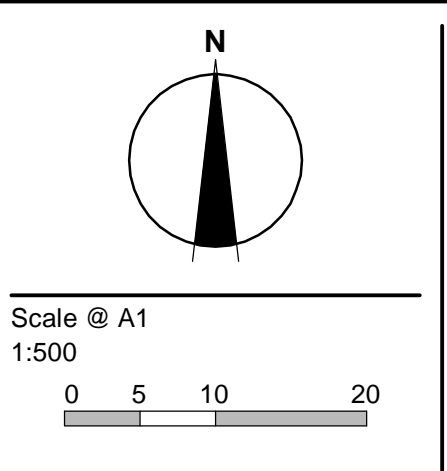
REVISION	DATE	DESIGN	APPD
E ROAD NAMES AMENDED	22.11.11	AH/AH	JG
D MINOR AMENDMENTS	30.08.11	CB/CB	JG
C MINOR AMENDMENTS	05.05.11	CB/CB	JG
B BARWON WATER AMENDMENTS	28.04.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	28.02.11	AP/AP	JG

estuary leopard

Principal
 Leopold Property Developments Pty Ltd
 Level 1, 6 Riverside Quay
 Southbank, Victoria 3006

- Construction Notes**
- Construction of the sewer and water mains is to be in accordance with the Barwon Water standard specifications "Construction of gravity sewers and rising mains" and "Construction of water mains".
 - Every endeavour to ensure the location of all existing services on the plan are correct. However actual locations are to be checked on site prior to commencement of excavations.
 - Nominal size of water mains indicated in millimetres & offsets are indicated in metres.
 - All sewer pipes are 1500mm unless otherwise shown.

Designed
 A. Perkins
 Drawn
 A. Perkins
 Checked
 C. Birkett
 Authorised
 J. Golden
 Date
 February 2011



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smec urban
 consulting group

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Barwon Region Water Corporation
 Barwon Water No. L006761
 Estuary Stage No.7
 Sewer Detail Plan

Drawing No. 0250EHL-07-51 **Rev E**
 Sheet No. 1 of 6

Approved for Construction



WARNING
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Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
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BARWON WATER APPROVED CONTRACTOR TO CONNECT TO EXISTING ACCESS CHAMBER AT CONTRACTORS COST. 7 CLEAR DAYS NOTICE PRIOR TO THE COMMENCEMENT OF WORKS MUST BE GIVEN TO THE SUPERINTENDENT AND BARWON WATER SENIOR QUALITY AUDITOR.

WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

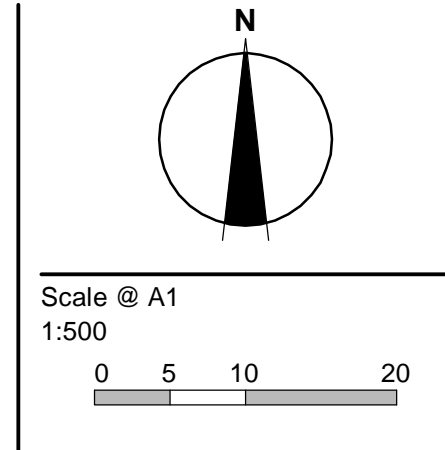
ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

REVISION	DATE	DES/DT	APPD
D ROAD NAMES AMENDED	22.11.11	AH/AH	JG
C MINOR AMENDMENTS	01.07.11	CB/CB	JG
B COUNCIL AMENDMENTS	28.04.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	28.02.11	AP/AP	JG

estuary leopard
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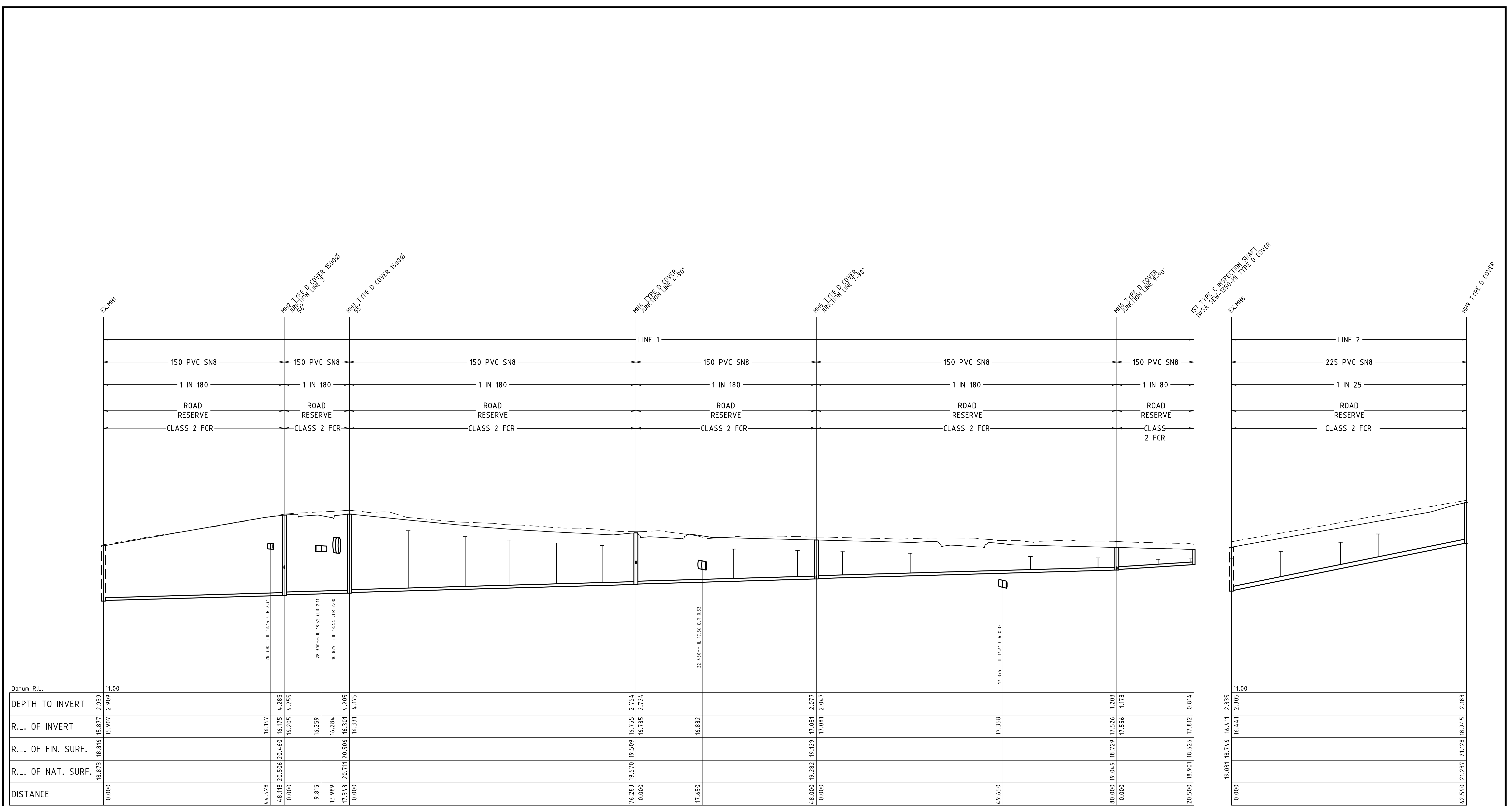
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Barwon Region Water Corporation
Barwon Water No. L006761
Estuary
Stage No.7
Sewer Detail Plan

Drawing No. **0250EHL-07-52** Rev D
Sheet No. 2 of 6

Approved for Construction

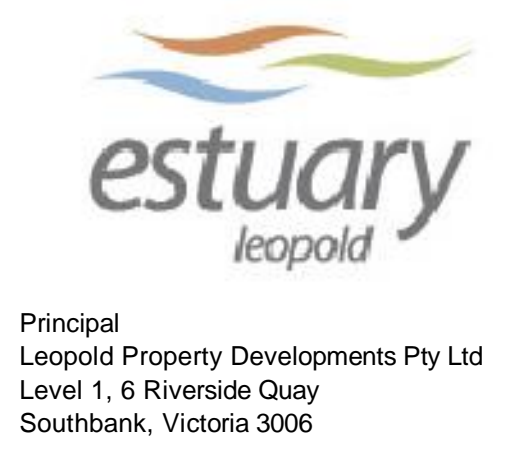
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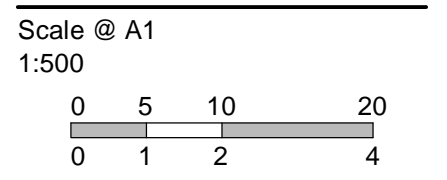
ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

REVISION	DATE	DES/DFI	APPD
B BARWON WATER AMENDMENTS	28.04.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	28.02.11	AP/AP	JG



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 - All sewer pipes are 150mm unless otherwise shown.

Designed
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Drawn
A. Perkins
Checked
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Authorised
J. Golden
Date
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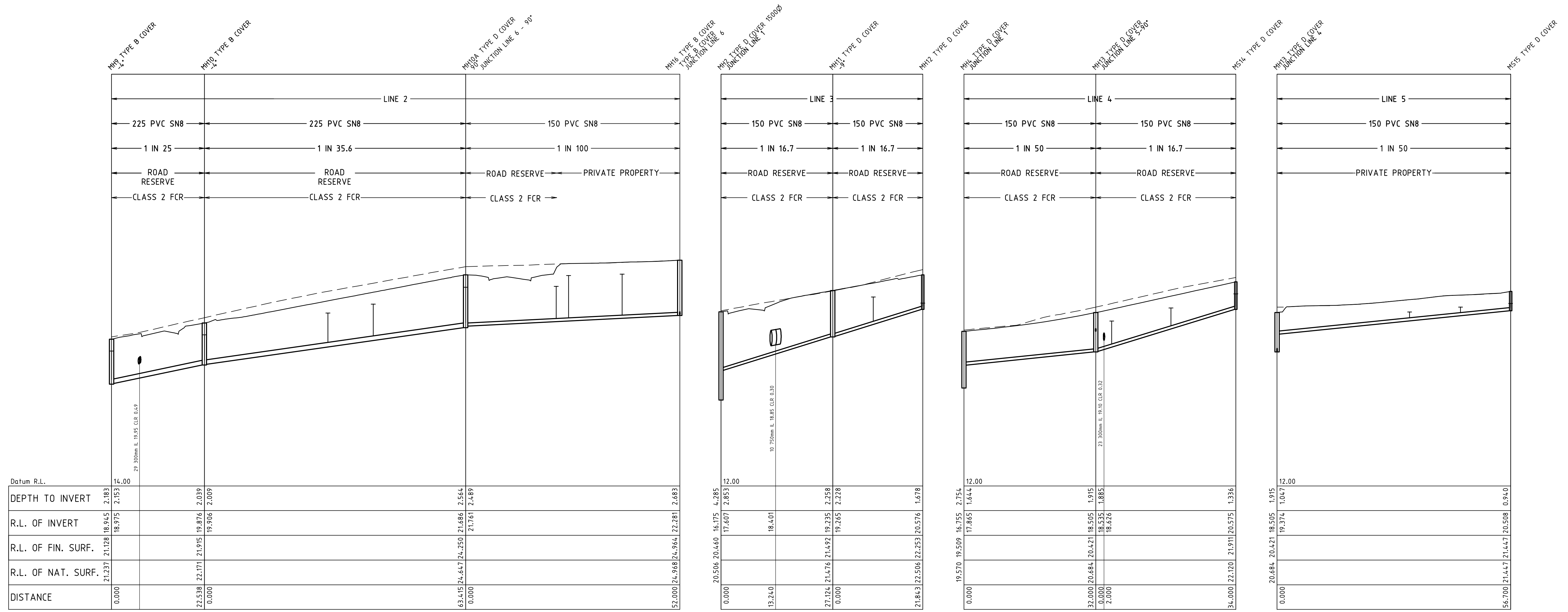
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Barwon Region Water Corporation
Barwon Water No. L006761
Estuary
Stage No. 7
Sewer Longitudinal Sections - 1

Drawing No. 0250EHL-07-53 Rev B
Sheet No. 3 of 6

Approved for Construction



WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

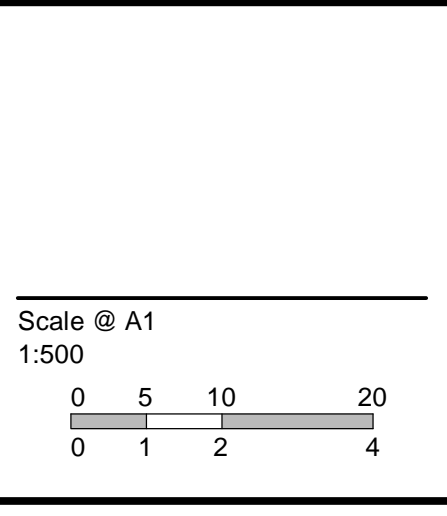
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REVISION	DATE	DES/DF	APPD
B	28.04.11	CB/CB	JG
A	28.02.11	AP/AP	JG

Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

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 - Every endeavour to ensure the location of all existing services on the plan are correct. However actual locations are to be checked on site prior to commencement of excavations.
 - Nominal size of water mains indicated in millimetres & offsets are indicated in metres.
 - All sewer pipes are 1500mm unless otherwise shown.

Designed
A. Perkins
Drawn
A. Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
February 2011



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ABN 99 124 206 819

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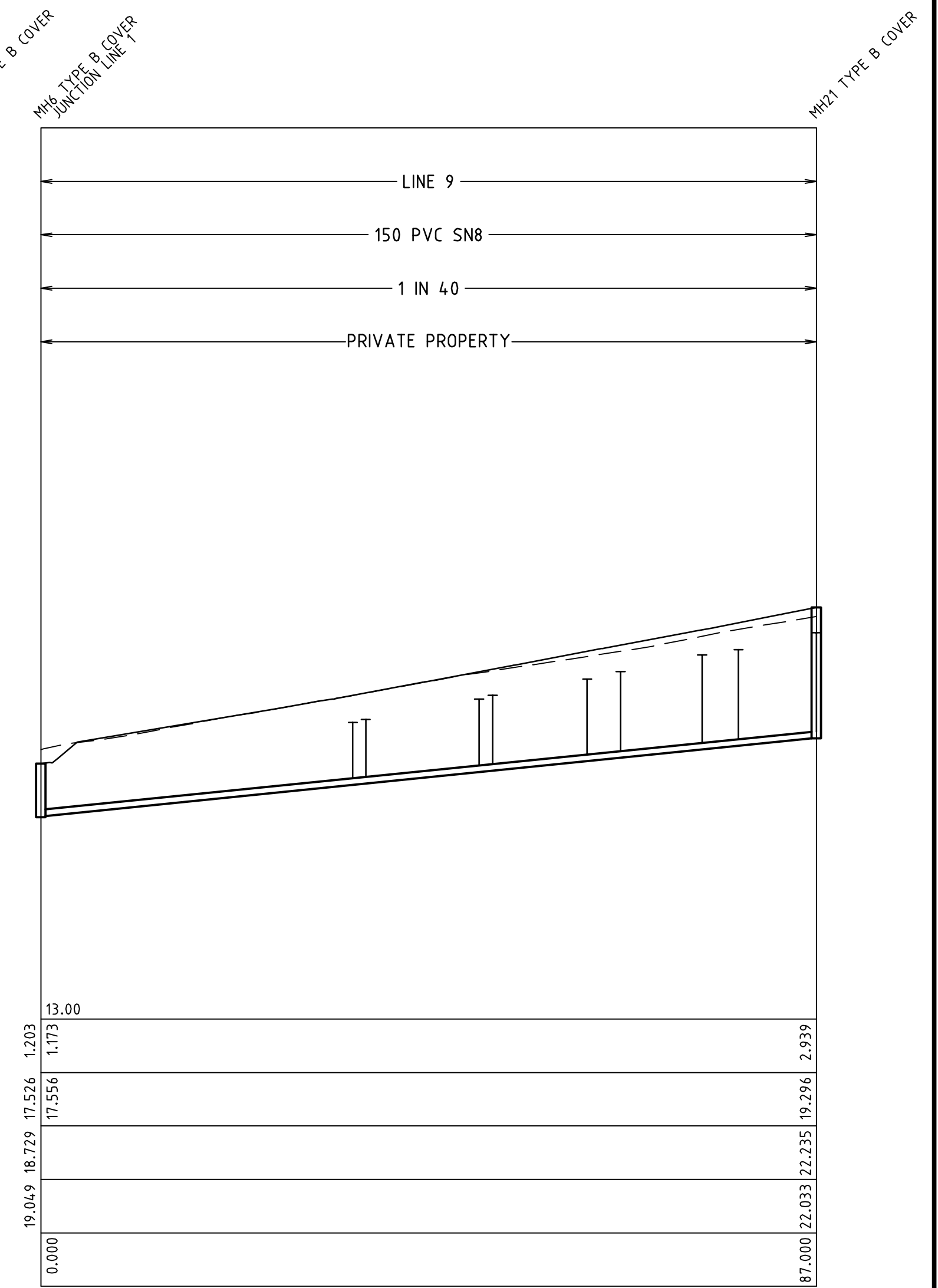
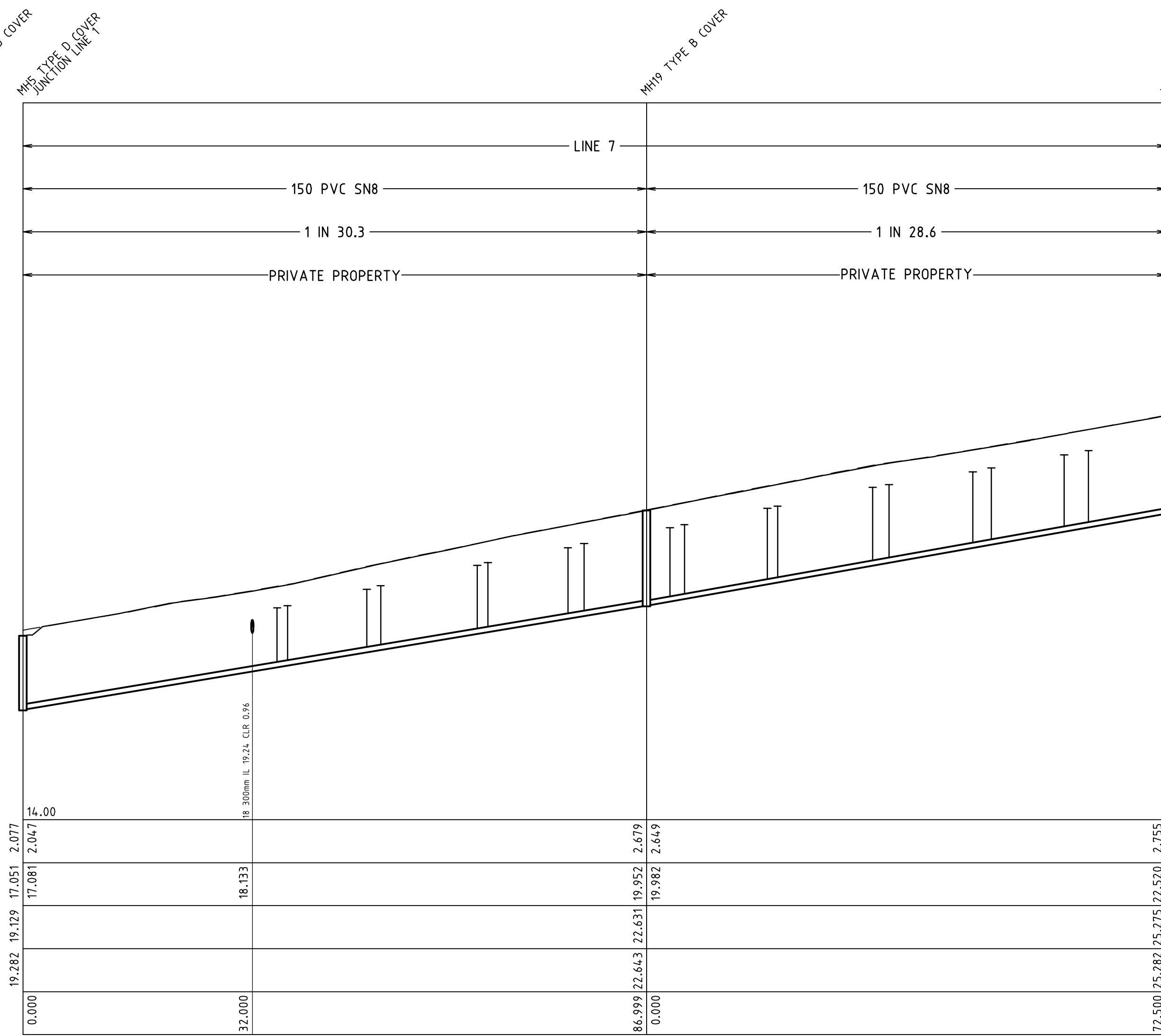
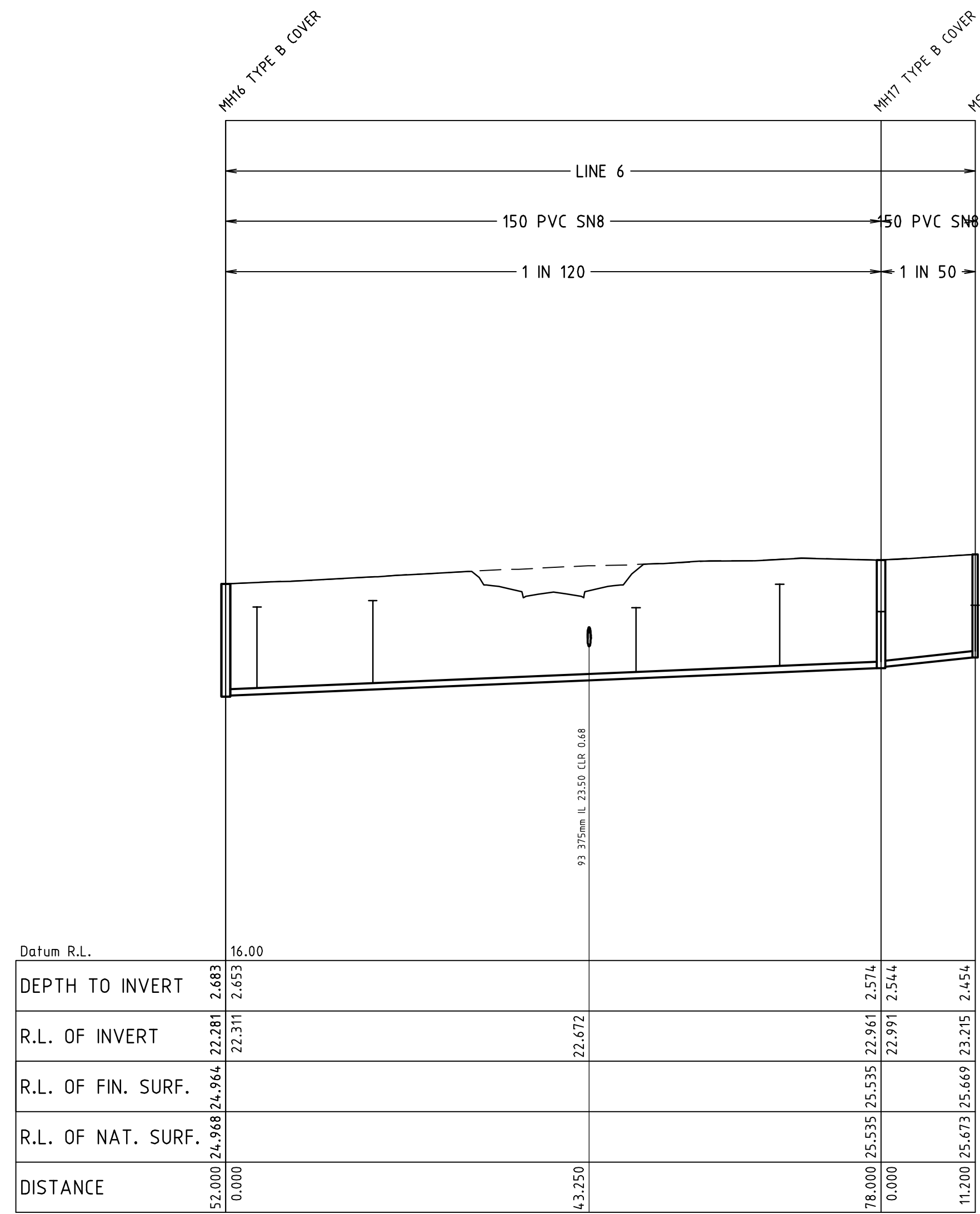
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Barwon Region Water Corporation
Barwon Water No. L006761
Estuary
Stage No. 7
Sewer Longitudinal Sections - 2

Drawing No. 0250EHL-07-54 Rev B
Sheet No. 4 of 6

Approved for Construction



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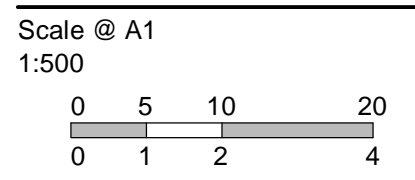
ACCEPTED BY BARWON WATER
DEVELOPMENT SERVICES
CO-ORDINATOR
DEVELOPMENT & CONSERVATION



Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

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Designed
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Barwon Region Water Corporation
Barwon Water No. L006761
Estuary
Stage No. 7
Sewer Longitudinal Sections - 3

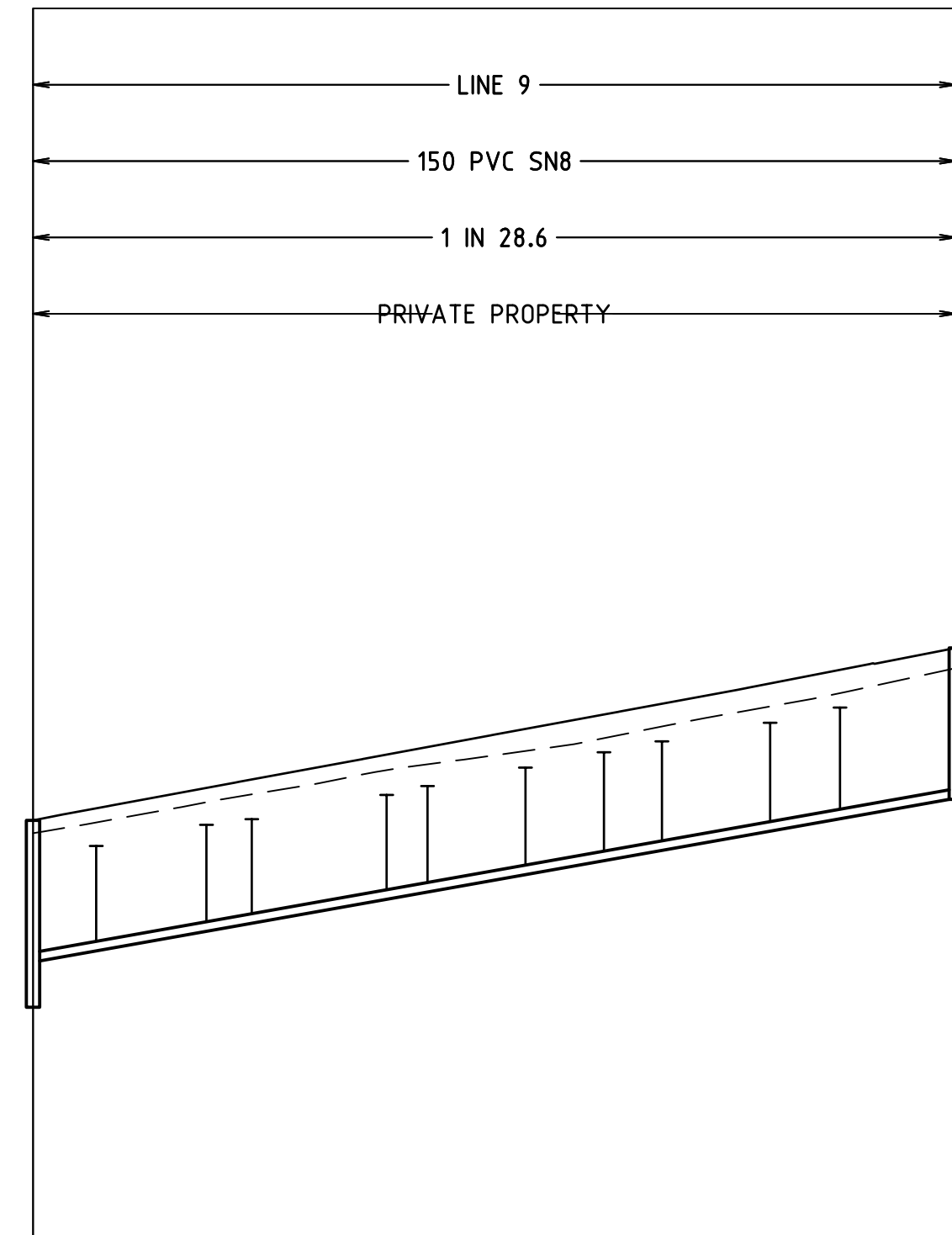
Drawing No. **0250EHL-07-55** Rev B
Sheet No. 5 of 6

Approved for Construction

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MH21 TYPE B COVER

MH22 TYPE B COVER



LINE NO.	MANHOLE NO.	HC NO.	LOT NAME	CONNECTION TYPE	CHAINAGE	IL SEWER	IL BRANCH	BRANCH DEPTH
1	MH3	1	Lot 707	A Special	15.67	16.42	19.61	3.20
1	MH3	2	Lot 708	A Special	30.82	16.50	19.31	2.81
1	MH3	3	Lot 709	A Special	42.49	16.57	19.13	2.56
1	MH3	4	Lot 710	A Special	55.16	16.64	18.96	2.32
1	MH3	5	Lot 711	A Special	67.28	16.71	18.83	2.12
1	MH4	6	Lot 733	A Special	26.00	16.93	18.65	1.72
1	MH4	7	Lot 734	A Special	43.00	17.03	18.57	1.55
1	MH5	8	Lot 735	A Special	7.00	17.12	18.50	1.38
1	MH5	9	Lot 736	A Special	25.00	17.22	18.42	1.20
1	MH5	10	Lot 755	A Special	57.00	17.40	18.25	0.85
1	MH5	11	Lot 756	A Special	75.00	17.50	18.17	0.67
1	MH6	12	Lot 757	A Special	11.00	17.69	18.10	0.41
1	MH6	13	Lot 758	C	20.00	17.81		
2	Ex. MH8	14	Lot 702	A Special	13.13	16.95	18.53	1.58
2	Ex. MH8	15	Lot 703	A Special	29.05	17.60	19.01	1.41
2	Ex. MH8	16	Lot 704	A Special	39.03	18.01	19.45	1.44
2	MH9	17	Lot 705	A Special	0.00	18.94	20.55	1.60
2	MH10	18	Lot 601	A Special	0.00	19.88	21.34	1.46
2	MH10	19	Fut Lot 1	A Special	30.00	20.75	22.39	1.65
2	MH10	20	Fut Lot 2	A Special	41.00	21.06	22.83	1.76
2	MH10A	21	Fut Lot 3	A Special	0.00	21.69	23.65	1.97
3	MH11	22	Lot 706	A Special	9.84	19.85	21.18	1.33
3	MH12	23	Fut Lot	C	0.00	20.58		
4	MH13	24	Lot 712	A Special	3.87	18.74	20.01	1.27
4	MH13	25	Lot 713	A Special	18.25	19.63	20.64	1.02
4	MH14	26	Lot 714	A Special	0.00	20.58	21.33	0.75
5	MH13	27	Lot 715	C	32.18	20.02		
5	MH13	28	Lot 716	C	44.54	20.27		
5	MS15	29	Lot 717	C	0.00	20.51		
2	MH10A	30	Fut Lot 4	B	22.00	21.98		
2	MH10A	31	Fut Lot 5	A Special	25.00	22.01	23.69	1.71
2	MH10A	32	Fut Lot 6	B	38.00	22.14	24.29	2.15
6	MH16	33	Lot 718	A Special	3.72	22.34	24.42	2.08
6	MH16	34	Lot 719	A Special	17.49	22.45	24.57	2.12
6	MH16	35	Lot 720	B	48.82	22.72	24.40	1.68
6	MH16	36	Lot 721	B	65.95	22.86	24.96	2.10
6	MH17	37	Lot 722	OB	0.00	22.96		
6	MS18	38	Lot 723	OB	0.00	23.22		
7	MH5	39	Lot 732	A Special	35.46	18.25	19.91	1.66
7	MH5	40	Lot 737	B	36.91	18.30	19.97	1.67
7	MH5	41	Lot 738	B	47.98	18.67	20.42	1.76
7	MH5	42	Lot 731	A Special	49.91	18.73	20.53	1.80
7	MH5	43	Lot 730	A Special	63.39	19.18	21.10	1.92
7	MH5	44	Lot 739	B	64.87	19.23	21.17	1.94
7	MH5	45	Lot 740	B	76.02	19.60	21.58	1.98
7	MH5	46	Lot 729	A Special	78.27	19.68	21.71	2.03
7	MH19	47	Lot 741	B	3.26	20.08	22.15	2.07
7	MH19	48	Lot 728	A Special	5.28	20.15	22.23	2.08
7	MH19	49	Lot 742	B	16.87	20.56	22.69	2.12
7	MH19	50	Lot 727	A Special	18.28	20.61	22.75	2.14
7	MH19	51	Lot 743	B	31.55	21.08	23.27	2.19
7	MH19	52	Lot 726	A Special	33.84	21.17	23.35	2.18
7	MH19	53	Lot 744	B	45.50	21.58	23.70	2.12
7	MH19	54	Lot 725	A Special	48.10	21.67	23.81	2.14
7	MH19	55	Lot 745	B	58.26	22.03	24.17	2.14
7	MH19	56	Lot 724	A Special	61.66	22.15	24.30	2.14
9	MH6	57	Lot 754	A Special	35.00	18.25	19.66	1.40
9	MH6	58	Lot 759	B	36.45	18.28	19.72	1.44
9	MH6	59	Lot 753	A Special	49.15	18.54	20.18	1.64
9	MH6	60	Lot 760	B	50.68	18.57	20.27	1.69
9	MH6	61	Lot 761	B	61.29	18.79	20.63	1.84
9	MH6	62	Lot 752	A Special	65.05	18.86	20.80	1.94
9	MH6	63	Lot 762	B	74.17	19.05	21.17	2.12
9	MH6	64	Lot 751	A Special	78.26	19.13	21.29	2.16
9	MH21	65	Lot 763	B	0.00	19.30	21.67	2.37
9	MH21	66	Lot 750	A Special	4.97	20.18	21.83	1.65
9	MH21	67	Lot 764	B	13.64	20.49	22.16	1.67
9	MH21	68	Lot 749	A Special	17.20	20.62	22.25	1.64
9	MH21	69	Lot 765	B	27.81	20.99	22.64	1.64
9	MH21	70	Lot 748	A Special	31.03	21.11	22.77	1.67
9	MH21	71	Lot 766	B	38.72	21.28	23.06	1.68
9	MH21	72	Lot 747	A Special	44.90	21.60	23.30	1.70
9	MH21	73	Lot 767	B	49.46	21.76	23.48	1.71
9	MH21	74	Lot 746	A Special	57.97	22.06	23.77	1.70
9	MH21	75	Lot 768	B	63.46	22.26	24.01	1.75

Datum R.L.	15.00
DEPTH TO INVERT	22.033 [22.235] 19.296 2.939 2.270 2.381
R.L. OF INVERT	20.035 [22.564]
R.L. OF FIN. SURF.	22.033 [22.235] 14.513 [22.564]
R.L. OF NAT. SURF.	22.033 [22.235] 24.628 [22.564]
DISTANCE	0.000 [72.568]

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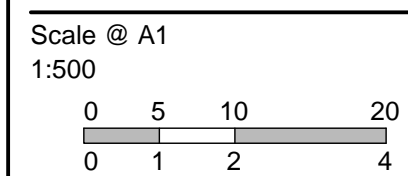
ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION



Principal
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Barwon Region Water Corporation

Barwon Water No. L006761
Estuary
Stage No. 7
Sewer Longitudinal Sections - 4

Drawing No. 0250EHL-07-56 Rev D
Sheet No. 6 of 6

Approved for Construction

DESIGN HEAD=118.1m AHD
TEST PRESSURE=1600kPa

NOTES
GENERAL

- SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE WATER SERVICES ASSOCIATION OF AUSTRALIA STANDARD CODES (WSA 02-2002 - WSA 03-2002) IN CONJUNCTION WITH BARWON WATERS SUPPLEMENTS TO THE CODES.
- BARWON WATER AND THE PROJECT MANAGER TO BE NOTIFIED 7 CLEAR WORKING DAYS NOTICE PRIOR TO COMMENCEMENT OF WORKS.
- THE CONTRACTOR SHALL
 - COMPLY WITH SAFETY REQUIREMENTS OF THE MINES ACT, GENERAL REGULATIONS AND STATUTORY RULES, AND THE MINES (TRENCHES) REGULATIONS 1982.
 - NOTIFY THE DEPARTMENT OF LABOUR OF HIS INTENTION TO COMMENCE TRENCHING OPERATIONS WHERE TRENCHES ARE 1.5 METRES OR DEEPER.
 - INSURE THAT THE MINE MANAGER OR HIS DEPUTY AS REQUIRED BY THE REGULATIONS IS IN ATTENDANCE WHEN TRENCHING OPERATIONS ARE IN PROGRESS.
- THE CONTRACTOR SHALL MAKE ALL WORKS AVAILABLE FOR THE INSPECTOR/SURVEYOR TO CARRY OUT THE NECESSARY INSPECTIONS AND SURVEYING BEFORE BACKFILLING IS COMMENCED.
- SERVICES ARE APPROXIMATE ONLY. ALL RELEVANT SERVICE AUTHORITY'S ARE TO BE CONTACTED PRIOR TO THE COMMENCEMENT OF EXCAVATION TO ESTABLISH THEIR EXACT LOCATION.
- CONTACT PRIOR TO COMMENCEMENT OF WORKS:
CITY OF GREATER GEELONG
POWERCOR
TELSTRA
TRU
VICTORIAN WORKCOVER AUTHORITY
- ALL SERVICES ARE TO BE LOCATED ON SITE PRIOR TO ANY EXCAVATION.
- INVERT LEVELS OF EXISTING SEWERS AND WATERMANS TO BE CHECKED PRIOR TO THE COMMENCEMENT OF WORKS.
- CLASS 2 BACKFILL TO BE USED UNDER DRIVEWAYS FOR WATER AND SEWER RETICULATION.
- PROPERTY OWNERS ARE TO BE NOTIFIED IN WRITING BY THE CONSULTANT 14 CLEAR DAYS PRIOR TO COMMENCEMENT OF WORKS
- COPY OF CADASTRAL MAP GRID (MGA) CONNECTION & COPY OF AUSTRALIAN HEIGHT DATUM (AHD) CONNECTION IS TO BE PROVIDED BY CONTRACTOR
- WORKS SHALL BE EFFECTED BETWEEN THE HOURS OF 8.00am AND 5.00pm MONDAY - FRIDAY. IN THE EVENT THAT WORKS ARE TO BE EFFECTED OUTSIDE THESE WORKING HOURS, A LETTER REQUESTING APPROVAL FOR SUCH OUT OF HOURS WORK SHALL BE LODGED TO THE SENIOR QUALITY AUDITOR.
- THE CONTRACTOR SHALL COMPLY WITH SAFETY REQUIREMENTS RELATING TO WORKING NEAR POWER LINES AS SET BY THE CHIEF ELECTRICAL INSPECTOR WHERE NECESSARY AN ACCREDITED TRAINED SPOTTER IS TO BE PROVIDED.
- WATER RESTRICTIONS ARE TO APPLY FROM MIDNIGHT JUNE 30th 2006. IN ACCORDANCE WITH BY-LAW NO. 187. ONLY TRIGGER HOSES (MAXIMUM SIZE 25mm) MAY BE USED FOR CONSTRUCTION WORK NOT INCLUDING TRENCHING, UNLESS OTHERWISE EXEMPTED BY THE AUTHORITY IN WRITING. MECHANICAL COMPACTION IS TO BE USED IN ACCORDANCE WITH MRWA SPECIFICATION 04-03 FOR TRENCH WORKS UNTIL FURTHER NOTICE. ANY WATER USED TO FLUSH WATER MAINS IS TO BE RECLAIMED AND USED FOR CONSTRUCTION PURPOSES.

WATER

- ENSURE WATERMANS ARE GRADED TO SUFFICIENT DEPTH UNDER ROADWAYS TO OBTAIN REQUIRED CLEARANCE UNDER STORM WATER DRAINS AND PAVEMENT LEVELS.
- MARKER POSTS TO BE PLACED AT FIRE PLUGS. FIRE PLUG INDICATORS ARE TO BE IN ACCORDANCE WITH CFA & WSAA REQUIREMENTS.
- ALL ALLOTMENTS ARE TO BE PROVIDED WITH A WATER SERVICE AS PART OF WATER RETICULATION WORKS. THE WATER MAIN IS TO BE TAPPED USING A TAPPING SADDLE AND PRESSURE FERRULE (FERRULE TO BE LEFT OPEN). A MINIMUM SIZE SERVICE (i.e. 20mm COPPER, 25mm PE) IS THEN TO BE EXTENDED TO A POINT 500mm WITHIN THE PROPERTY. THE SERVICE IS TO BE A CONTINUOUS LENGTH WITH NO JOINTS. IN THE CASE OF PE OR ANY OTHER NON-METALLIC SERVICE BEING INSTALLED, A COPPER TRACE WIRE IS TO BE INCORPORATED. A BURIED BALL VALVE IS TO BE PLACED AT THE END OF THE SERVICE AND BACKFILLED WITH SAND TO DESIGN SURFACE LEVEL. DETECTOR TAPE FROM BALL VALVE TO BE RUN TO SURFACE LEVEL.
- PE PIPE TO BE LAID IN ACCORDANCE WITH WSA-01 WITH LONG RADIUS BENDS OR DEFLECTION ONLY. NO COMPRESSION BENDS TO BE USED.
- AC PIPE NOTE
ANY WORK INVOLVING THE REMOVAL (CUTTING AND HANDLING), STORAGE, TRANSPORTATION AND DISPOSAL OF WASTE ASBESTOS CEMENT (AC) PIPES MUST BE CARRIED OUT IN ACCORDANCE WITH THE OCCUPATIONAL, HEALTH AND SAFETY (ASBESTOS) REGULATIONS 1992 AND RELEVANT CODES OF PRACTICE (REMOVAL), THE ENVIRONMENT PROTECTION (PRESCRIBED WASTE) REGULATIONS 1998 (STORAGE, TRANSPORTATION AND DISPOSAL), AND BARWON WATER'S SAFETY MANAGEMENT SYSTEM "SAFEAS".
FITZROY BOXES ARE TO BE PLACED OVER MONT TAP (MT) OR ANY TAPPING LOCATED WITHIN THE ROAD PAVEMENT.
- THRUST BLOCKS ARE TO BE CONSTRUCTED AS PER BARWON WATER STANDARD DRAWING No's 70104, 70105 AND 70106
- SWABBING OF WATER MAINS IS TO BE DONE IN ACCORDANCE WITH SECTION 6.7 AND SECTION 18 OF WSAA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2002 MRWA EDITION 1
- ALL WATER MAINS MUST BE HYDROSTATIC PRESSURE TESTED IN ACCORDANCE WITH SECTION 19.4 OF WSAA WATER SUPPLY CODE OF AUSTRALIA WSA 03-2002 MRWA EDITION 1.0. THE CONTRACTOR MUST GIVE BARWON WATER THREE WORKING DAYS NOTICE IN WRITING OF THE DATE AND TIME OF THE PROPOSED HYDROSTATIC PRESSURE TESTING TO ENSURE THAT BARWON WATER HAS THE OPPORTUNITY TO WITNESS THESE TESTS.

SPECIAL

- TRENCH COMPACTION RESULTS TO BE SUBMITTED BY CONSULTANT WITH 'AS CONSTRUCTED' NOTES.

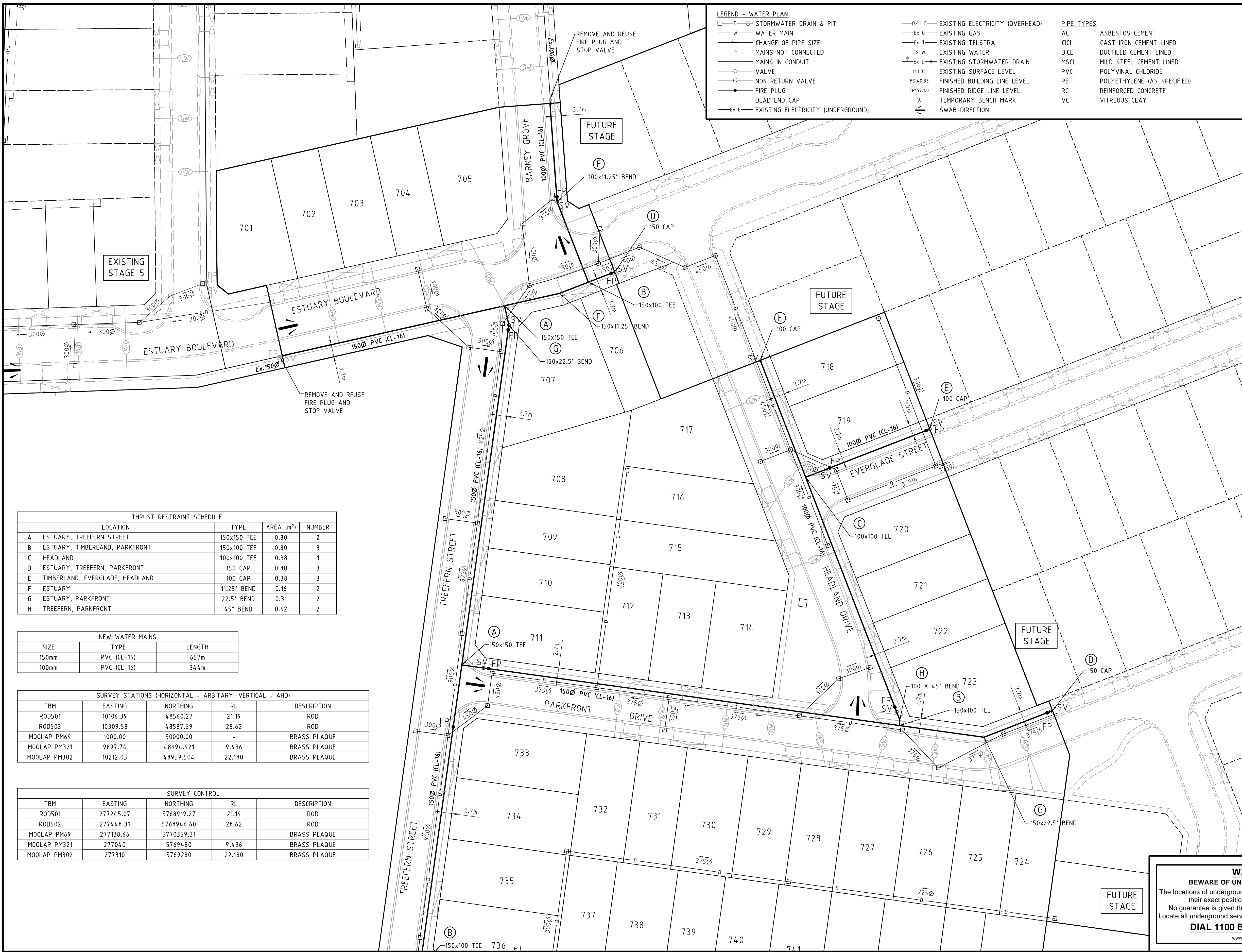
LEGEND - WATER PLAN

- STORMWATER DRAIN & PIT
- W — WATER MAIN
- T — CHANGE OF PIPE SIZE
- M — MAINS NOT CONNECTED
- C — MAINS IN CONDUIT
- V — VALVE
- N — NON RETURN VALVE
- F — FIRE PLUG
- D — DEAD END CAP
- E — EXISTING ELECTRICITY (UNDERGROUND)

- /H — EXISTING ELECTRICITY (OVERHEAD)
- Ex G — EXISTING GAS
- Ex T — EXISTING TELSTRA
- Ex W — EXISTING WATER
- Ex D — EXISTING STORMWATER DRAIN
- 14.134 — EXISTING SURFACE LEVEL
- F514.035 — FINISHED BUILDING LINE LEVEL
- FR157.40 — FINISHED RIDGE LINE LEVEL
- T — TEMPORARY BENCH MARK
- S — SWAB DIRECTION

PIPE TYPES

- AC ASBESTOS CEMENT
- CICL CAST IRON CEMENT LINED
- DICL DUCTILE CEMENT LINED
- MSCL MILD STEEL CEMENT LINED
- PVC POLYVINYL CHLORIDE
- PE POLYETHYLENE (AS SPECIFIED)
- RC REINFORCED CONCRETE
- VC VITREOUS CLAY



THRUST RESTRAINT SCHEDULE				
LOCATION	TYPE	AREA (m ²)	NUMBER	
A ESTUARY, TREFERN STREET	150x150 TEE	0.80	2	
B ESTUARY, TIMBERLAND, PARKFRONT	150x100 TEE	0.80	3	
C HEADLAND	100x100 TEE	0.38	1	
D ESTUARY, TREFERN, PARKFRONT	150 CAP	0.80	3	
E TIMBERLAND, EVERGLADE, HEADLAND	100 CAP	0.38	3	
F ESTUARY	11.25° BEND	0.16	2	
G ESTUARY, PARKFRONT	22.5° BEND	0.31	2	
H TREFERN, PARKFRONT	45° BEND	0.62	2	

NEW WATER MAINS		
SIZE	TYPE	LENGTH
150mm	PVC (CL-16)	657m
100mm	PVC (CL-16)	344m

SURVEY STATIONS (HORIZONTAL - ARBITRARY, VERTICAL - AHD)				
TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	10106.39	48560.27	21.19	ROD
ROD502	10309.58	48587.59	28.62	ROD
MOOLAP PM69	1000.00	50000.00	-	BRASS PLAQUE
MOOLAP PM321	9897.74	48994.921	9.436	BRASS PLAQUE
MOOLAP PM302	10212.03	48959.504	22.180	BRASS PLAQUE

SURVEY CONTROL				
TBM	EASTING	NORTHING	RL	DESCRIPTION
ROD501	277245.07	5768919.27	21.19	ROD
ROD502	277448.31	5768946.60	28.62	ROD
MOOLAP PM69	277138.66	5770359.31	-	BRASS PLAQUE
MOOLAP PM321	277040	5769480	9.436	BRASS PLAQUE
MOOLAP PM302	277310	5769280	22.180	BRASS PLAQUE

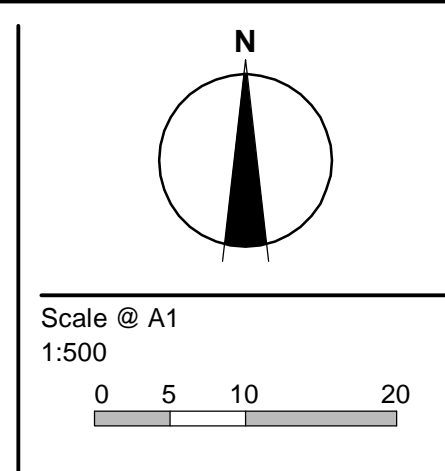
REVISION	DATE	DESIGN	APP'D
C ROAD NAMES AMENDED	22.11.11	AH/AH	JG
B BARWON WATER AMENDMENTS	28.04.11	CB/CB	JG
A ISSUED TO BARWON WATER FOR APPROVAL	28.02.11	AP/AP	JG

estuary leopard

Principal
Leopold Property Developments Pty Ltd
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Southbank, Victoria 3006

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smec urban
consulting group

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WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site.
No guarantee is given that all existing services are shown.
Locate all underground services before commencement of works
DIAL 1100 BEFORE YOU DIG
www.1100.com.au

WORKS SHALL NOT COMMENCE UNTIL PLANS ARE SIGNED BY BARWON WATER

ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR
DEVELOPMENT & CONSERVATION

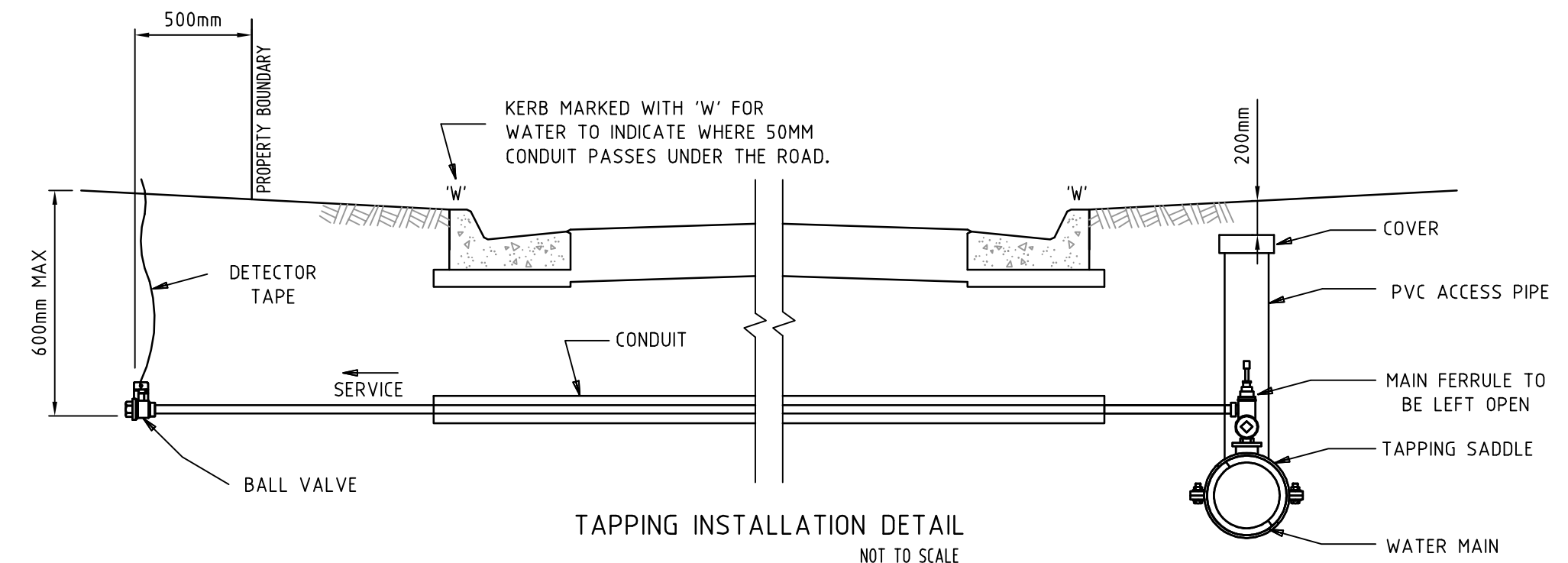
Barwon Region Water Authority
Barwon Water No. L006761
Estuary
Stage No. 7
Water Detail Plan

Drawing No. **0250EHL-07-61** Rev **C**
Sheet No. 1 of 2

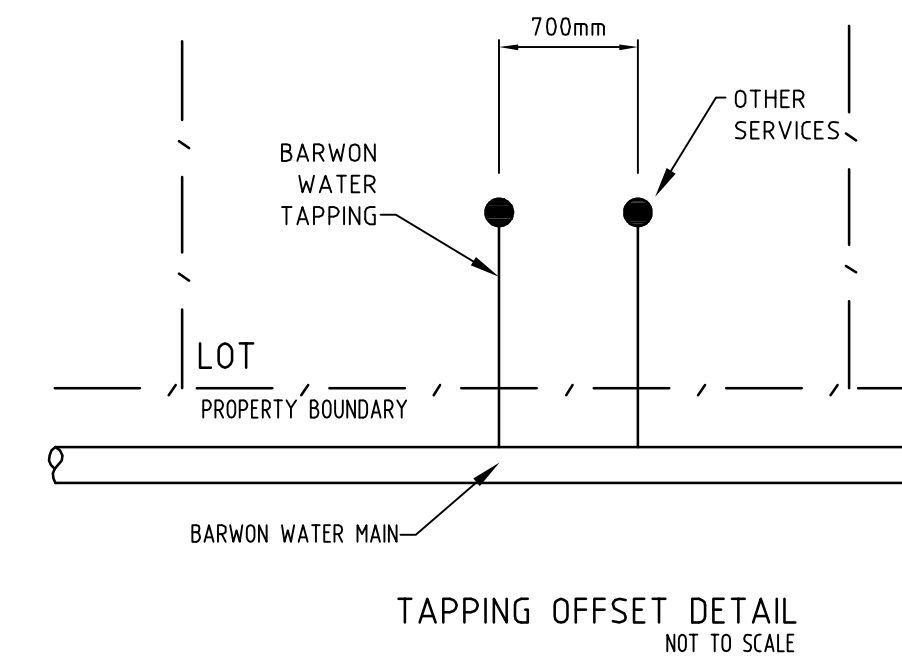
Approved for Construction



LEGEND - WATER PLAN		PIPE TYPES	
—○—	STORMWATER DRAIN & PIT	—D/H E—	EXISTING ELECTRICITY (OVERHEAD)
—W—	WATER MAIN	—Ex G—	EXISTING GAS
— —	CHANGE OF PIPE SIZE	—Ex T—	EXISTING TELSTRA
—+—	MAINS NOT CONNECTED	—Ex W—	EXISTING WATER
— —	MAINS IN CONDUIT	—○ D—	EXISTING STORMWATER DRAIN
—○—	VALVE	14.134	EXISTING SURFACE LEVEL
—○—	NON RETURN VALVE	FS14.035	FINISHED BUILDING LINE LEVEL
—○—	FIRE PLUG	FR157.4.0	FINISHED RIDGE LINE LEVEL
—○—	DEAD END CAP	—	TEMPORARY BENCH MARK
—Ex E—	EXISTING ELECTRICITY (UNDERGROUND)	—	SWAB DIRECTION
		AC	ASBESTOS CEMENT
		CICL	CAST IRON CEMENT LINED
		DICL	DUCTILED CEMENT LINED
		MSCL	MILD STEEL CEMENT LINED
		PVC	POLYVINYL CHLORIDE
		PE	POLYETHYLENE (AS SPECIFIED)
		RC	REINFORCED CONCRETE
		VC	VITREOUS CLAY



1. ALL LOTS ARE TO BE TAPPED USING A TAPPING SADDLE AND PRESSURE FERRULE.
2. A MINIMUM SIZE SERVICE (IE 20MM COPPER, 25MM PE) IS THEN TO BE EXTENDED TO A POINT 500MM WITHIN THE PROPERTY.
3. SERVICE PIPE BETWEEN MAIN FERRULE AND BALL VALVE TO BE A CONTINUOUS LENGTH (IE NO JOINS).
4. SERVICE TO BE TYPE 'B' COPPER OR CLASS 12 TYPE 50 PE. IN THE CASE OF PE OR ANY OTHER NON-METALLIC SERVICE BEING INSTALLED, A COPPER TRACE WIRE IS TO BE INCORPORATED.
5. A BURIED BALL VALVE IS TO BE PLACED AT THE END OF THE SERVICE.
6. DETECTOR TAPE IS TO BE RUN TO SURFACE LEVEL.
7. BALL VALVE TO BE IN ACCORDANCE WITH AUSTRALIAN STANDARDS (IE STAMPED 'W') BRASS FITTING WITH STAINLESS STEEL BALL.



WARNING
BEWARE OF UNDERGROUND SERVICES
The locations of underground services are approximate only and their exact position should be proven on site. No guarantee is given that all existing services are shown. Locate all underground services before commencement of works.
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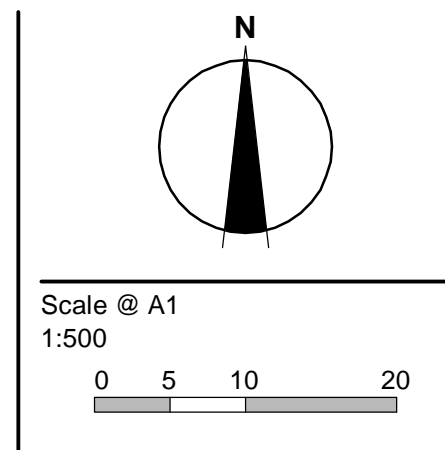
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ACCEPTED BY BARWON WATER DEVELOPMENT SERVICES CO-ORDINATOR DEVELOPMENT & CONSERVATION

REVISION	DATE	DES/DT	APP'D
C	22.11.11	AH/AH	JG
B	28.04.11	CB/CB	JG
A	28.02.11	AP/AP	JG

estuary leopold
Principal
Leopold Property Developments Pty Ltd
Level 1, 6 Riverside Quay
Southbank, Victoria 3006

- Construction Notes
1. Construction of the sewer and water mains is to be in accordance with the Barwon Water standard specifications "Construction of gravity sewers and rising mains" and "Construction of water mains".
 2. Every endeavour to ensure the location of all existing services on the plan are correct. However actual locations are to be checked on site prior to commencement of excavations.
 3. Nominal size of water mains indicated in millimetres & offsets are indicated in metres.
 4. All sewer pipes are 1500mm unless otherwise shown.

Designed
A.Perkins
Drawn
A.Perkins
Checked
C. Birkett
Authorised
J. Golden
Date
January 2011



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smec urban
consulting group
Level 1, 47 Pakington Street, Geelong West, VIC, 3218
p +61 3 5228 3100 | f +61 3 5228 3199 | www.smu.com.au

Adelaide +61 8 8223 6455 Gold Coast +61 7 5578 0222
Brisbane +61 7 3831 8988 Melbourne +61 3 9869 0800
Canberra +61 2 6126 1900 Traralgon +61 3 5173 0100

Barwon Region Water Authority
Barwon Water No.
Estuary
Stage No. 7
Water Detail Plan
Drawing No. 0250EHL-07-62 Rev C
Sheet No. 2 of 2
Approved for Construction