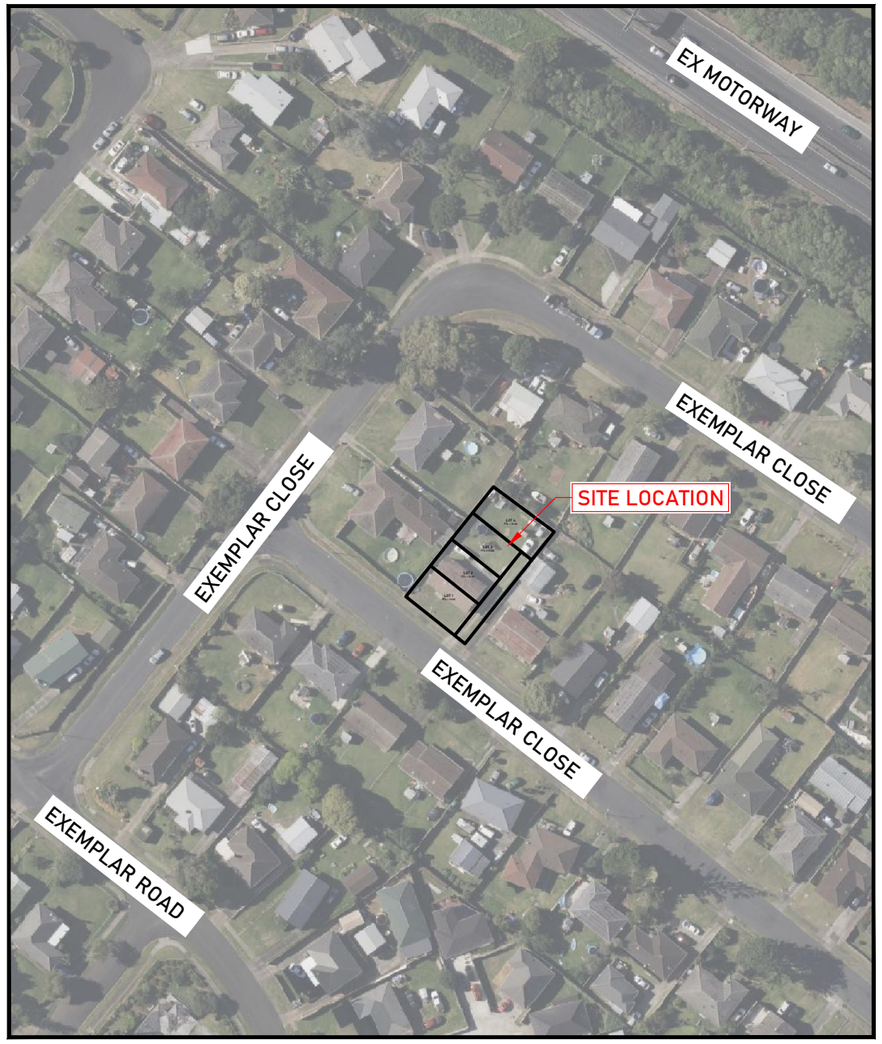
ENGINEERING DRAWING SET

5 EXEMPLAR CLOSE
EXAMPLE SUBURB

FOR RESOURCE CONSENT / ENGINEERING PLAN APPROVAL



LOCALITY PLAN

DRAWING INDEX

SHEET #	TITLE	REV	DATE
1	SAFETY IN DESIGN	0	DD/MM/YYYY
2	PROPOSED EARTHWORKS PLAN	0	DD/MM/YYYY
3	PROPOSED EROSION & SEDIMENT CONTROL PLAN	0	DD/MM/YYYY
4	PROPOSED COMMON ACCESSWAY & FINISHED DESIGN LEVELS PLAN	0	DD/MM/YYYY
5	PROPOSED COMMON ACCESSWAY & RETAINING WALL LONGITUDINAL SECTIONS	0	DD/MM/YYYY
6	TYPICAL COMMON ACCESSWAY CROSS SECTION VIEWS	0	DD/MM/YYYY
7	PROPOSED PUBLIC STORMWATER, WASTEWATER PLAN	0	DD/MM/YYYY
8	PROPOSED PUBLIC STORMWATER LONGITUDINAL SECTION VIEW	0	DD/MM/YYYY
9	PROPOSED PUBLIC WASTEWATER LONGITUDINAL SECTION VIEW	0	DD/MM/YYYY
10	PROPOSED SERVICES & PRIVATE DRAINAGE PLAN	0	DD/MM/YYYY
11	WASTEWATER STANDARD DETAILS (1)	0	DD/MM/YYYY
12	WASTEWATER STANDARD DETAILS (2)	0	DD/MM/YYYY
13	WASTEWATER STANDARD DETAILS (3)	0	DD/MM/YYYY
14	STORMWATER STANDARD DETAILS (1)	0	DD/MM/YYYY
15	STORMWATER STANDARD DETAILS (2)	0	DD/MM/YYYY

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Safety in Design Risk Assessment

Design life cycle	Investigation and design	Setup, construction and commissioning	Operation	Maintenance	Disposal

Date	dd/mm/yyyy	Revision number	SEE TITLE BLOCK

Job name	5 Exemplar Close, Example Suburb	Job number	26000	Design	
People involved in risk assessment					

HAZARD IDENTIFIED				INITIAL RISK ASSESSMENT					RESIDUAL RISK ASSESSMENT							
						Initial risk rating							Residual risk rating			
Item	Design reference	Design life cycle	Hazards	Risk	Existing control measures	Consequence	Likelihood	Risk rating	Potential control measures	Responsibility	By when	Decision/status	Consequence	Likelihood	Risk rating	Comments
1	Heavy Equipment & Machinery	Setup, construction and commissioning	Damage to existing features (concrete driveway)	Property damage and injury	none	MINOR	LIKELY	MEDIUM	Site Meetings & Marking out construction areas, avoid using extg d/w	Contractor	Construction phase	Residual risk to be managed	MINOR	UNLIKELY	LOW	
2	Construction method	Setup, construction and commissioning	Deep excavation, working at heights	Injury	Competent Contractor	MODERATE	POSSIBLE	HIGH	Weekly Safety Meetings, Use PPE & Mark Areas	Contractor	Construction phase	Residual risk to be managed	MODERATE	UNLIKELY	MEDIUM	
3	Ground conditions	Setup, construction and commissioning	Collapse of excavation, hard rock encountered during construction	Injury, difficult to construct	Temporary works, competent Contractor	MAJOR	UNLIKELY	MEDIUM	Controls to be developed by Contractor	Contractor	Construction phase	Residual risk to be managed	MAJOR	UNLIKELY	MEDIUM	
4	Excavation & Backfilling	Operation	Incorrect Cut & Fill	Cost	Standard operating procedures	MAJOR	UNLIKELY	MEDIUM	Surveyor marking out clear FFLs stakes on Site	Contractors	Construction phase	Contractor to contact surveyor at relevant stages	MAJOR	RARE	LOW	
5	Construction Around Landscape Areas	Setup, construction and commissioning	Wet, silty, clay-like surfaces	Injury	Boots	MODERATE	POSSIBLE	HIGH	Mark out areas not be worked near, post-rainfall	Contractor	Construction phase	Residual risk to be managed	MODERATE	RARE	LOW	

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
SAFETY IN DESIGN

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y
DRAWN	H.BECHU	DD/MM/Y
CHECKED	S.SARAH	DD/MM/Y

SCALE: NA [ORIGINAL A3]

JOB NUMBER	SHEET	REVISION
26000-05	1 OF 15	0

EARTHWORK NOTES:

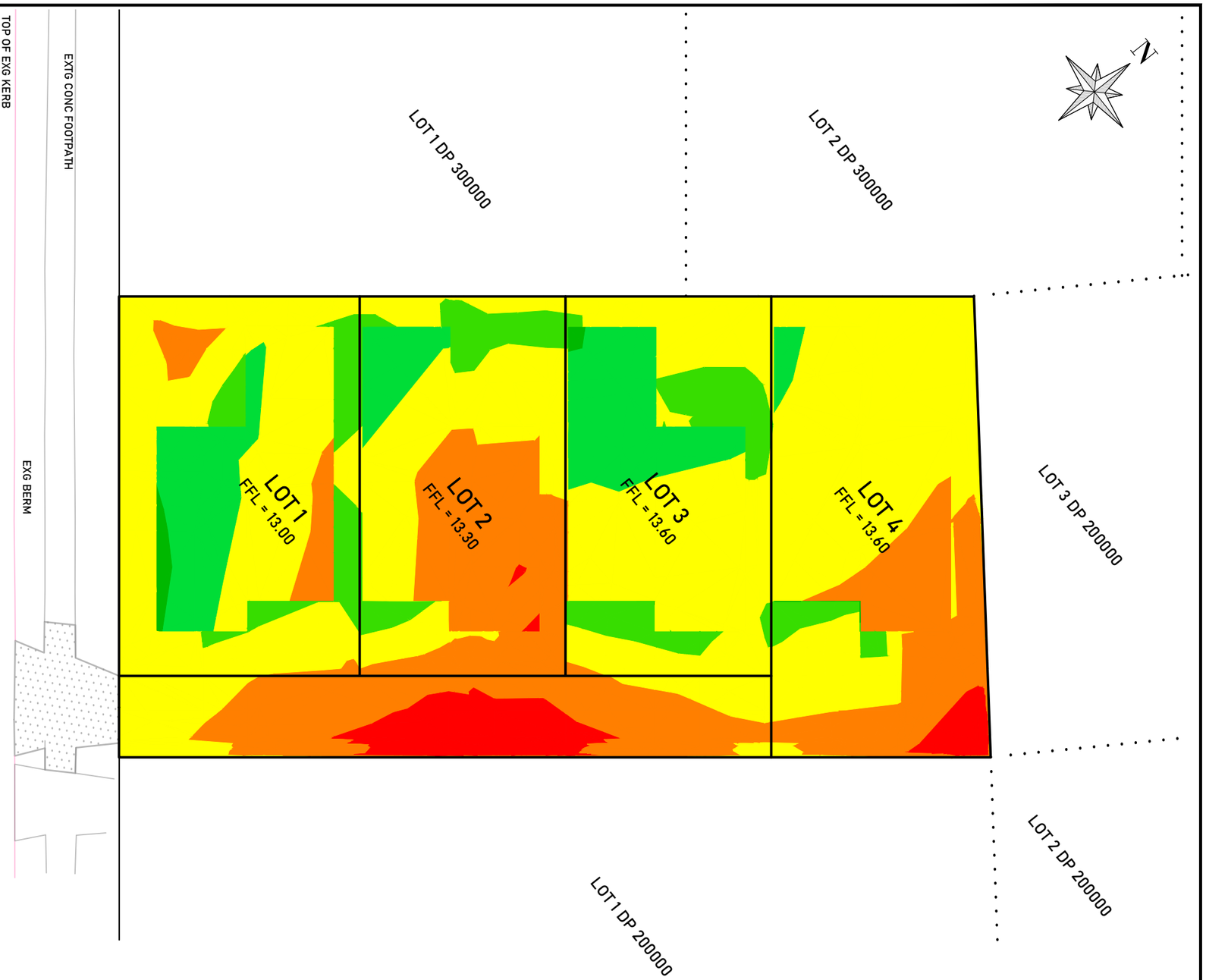
1. BASE SURFACE USED FOR EARTHWORKS CALCULATIONS IS:
   1.1. TOPOGRAPHICAL SURVEY OF LOT 1 DP 100000 | PRODUCED BY: TRIG CONSULTANTS | JOB: 26000-01 | DATE: MM/YYYY

2. COMPARISON SURFACE USED FOR EARTHWORKS CALCULATIONS IS:
   2.1. THE FINAL DESIGN LEVELS FOR THE PROPOSED SUBDIVISION AT 5 EXEMPLAR CLOSE, EXAMPLE SUBURB | DATE: MM/YYYY

3. COMPARISON SURFACE HAS BEEN REDUCED TO SUBGRADE LEVELS
   3.1. FFL SUBGRADE = 300mm BELOW FFL
   3.2. TOPSOIL = 150mm BELOW FINISHED GROUND LEVELS

4. CUT/FILL DATA HAS BEEN ANALYZED AT 200mm INTERVALS

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-0.40	-0.20	
2	-0.20	0.00	
3	0.00	0.20	
4	0.20	0.40	
5	0.40	0.60	



CUT / FILL ANALYSIS			
2D AREA	CUT	FILL	TOTAL (Net)*
735.49m²	22.50m³	80.83m³	58.32m³<Fill>

*SEE NOTE 3

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

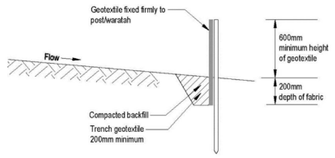
TITLE:
PROPOSED
EARTHWORKS
PLAN

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

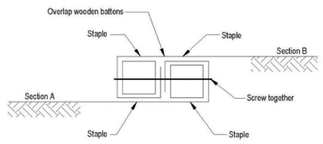
		DATE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y
DRAWN	H.BECHU	DD/MM/Y
CHECKED	S.SARAH	DD/MM/Y

SCALE: 1:200 [ORIGINAL A3]

JOB NUMBER: 26000-05
SHEET: 2 OF 15
REVISION: 0

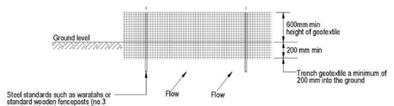


Cross-section

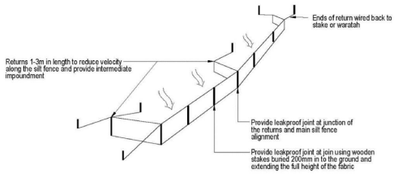


Standard fabric joint

Figure 83: Silt fence cross-section



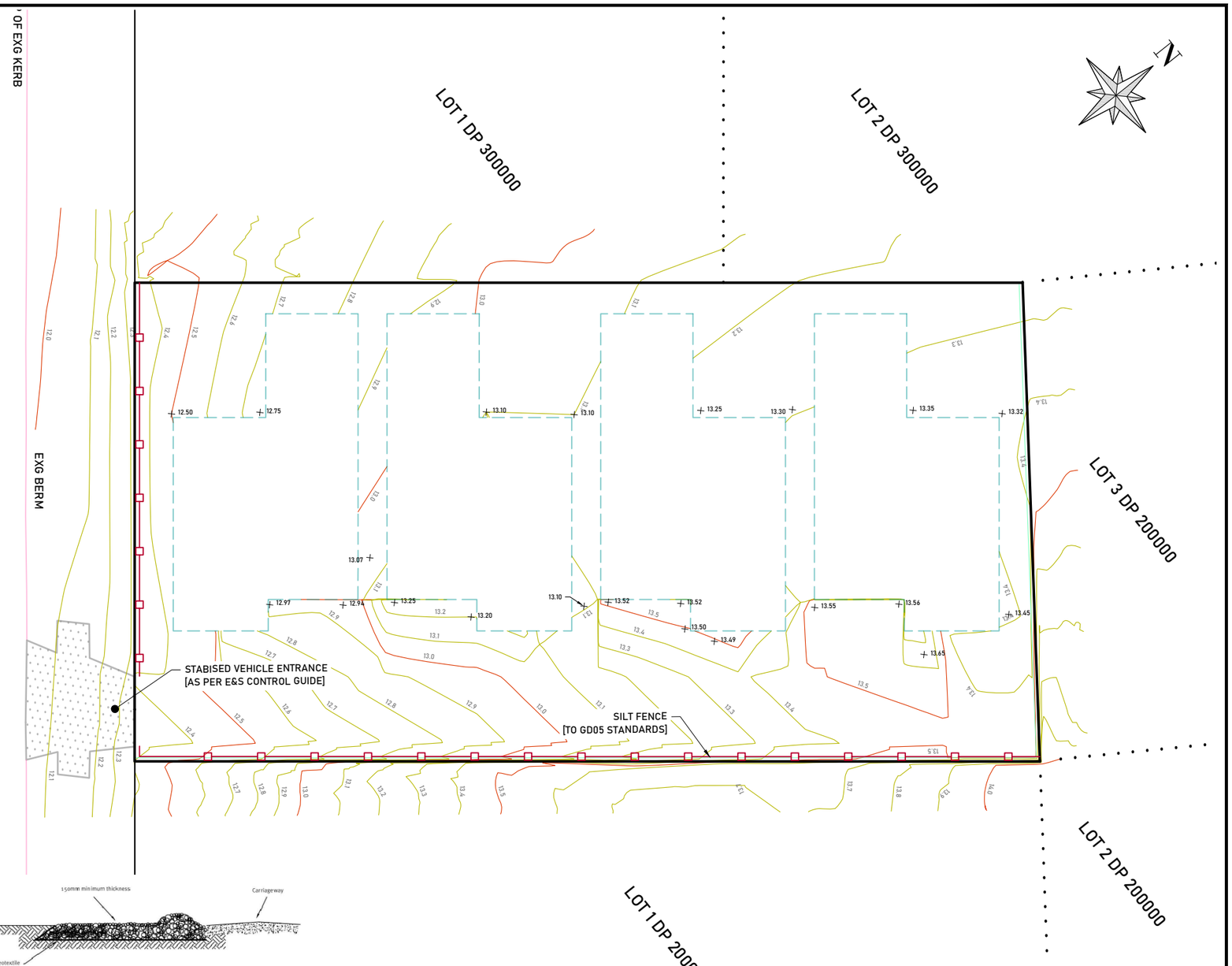
Elevation



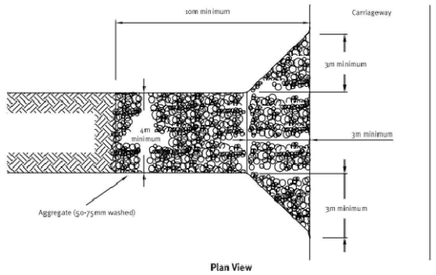
Silt fence with returns and support wire

Figure 82: Schematic of a silt fence

EXEMPLAR CLOSE



Side Elevation



Plan View

SITE PLAN NOTES:

1. LEVELS ARE IN TERMS OF AUCKLAND VERTICAL DATUM 2016 LINZ DATUM
2. CONTOUR INTERVALS:
   MAJOR - 1.00m
   MINOR - 0.10m
3. REFER TO THE ARCHITECT DRAWINGS FOR INTERNAL LAYOUT
4. CONTOURS SHOWN ARE THE FINAL SURFACE CONTOURS AS PER DESIGN

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED
EROSION & SEDIMENT CONTROL
PLAN

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:200
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER 26000-05	SHEET 3 OF 15	REVISION 0	

DRAWING PATH: C:\USERS\HAB\DOWNLOADS

NOTES:

1. ALL TOPSOIL AND ORGANIC MATERIAL IS TO BE REMOVED PRIOR TO ANY METAL PLACEMENT.
2. PAVEMENT DESIGN IS BASED ON A SUBGRADE CBR STRENGTH OF 3%.
3. IF NECESSARY A GEOTEXTILE FABRIC (BDIDIM OR SIMILAR) IS TO BE PLACED ON THE SUBGRADE.
4. GAP 40 BASECOURSE IS TO BE COMPACTED TO MAXIMUM DENSITY USING A VIBRATING ROLLER OR PLATE COMPACTOR.
5. CONCRETE THICKNESS IS TO COMPLY WITH AUCKLAND COUNCIL STANDARDS
6. IF REQUIRED BY COUNCIL 665 MESH IS TO BE PLACED CENTRALLY AND SUPPORTED ON CHAIRS PRIOR TO POURING CONCRETE.
7. ALL SETOUT IS TO BE CONFIRMED BY THE CONTRACTOR INCLUDING LEVELS, ROW WIDTH ETC PRIOR TO CONSTRUCTION.
8. CONTRACTOR IS TO PILOT FOR ALL EXISTING SERVICES PRIOR TO COMMENCING WORKS.
9. THESE ENGINEERING PLANS ARE TO BE READ IN CONJUNCTION WITH THE SURVEYORS AND ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION SUCH AS PRIVATE DRAINAGE, RETAINING WALLS AND OTHER SERVICES.
10. REFER TO THE ARCHITECTURAL PLANS FOR SURFACE FINISHES, TEXTURES AND CONCRETE COLOUR/OXIDATION ETC.
11. THESE PLANS ARE TO BE READ IN CONJUNCTION WITH ANY CONSENTS ISSUED BY COUNCIL.
12. HARDFILL BACKFILL IS TO BE COMPACTED IN ALL LOCATIONS WHERE TRENCHES WILL BE SUBJECTED TO TRAFFIC LOADING
13. LEVELS/HEIGHTS ARE IN TERMS OF THE LINZ DATUM "NEW ZEALAND VERTICAL DATUM 2016"

SURFACE LEGEND

- ACCESSWAY (CAW)
- DRIVEWAY
- PROP LANDSCAPE SURFACE
- MAJOR CONTOUR (0.5m)
- MINOR CONTOUR (0.1m)

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED
COMMON ACCESSWAY & FINISHED
DESIGN LEVELS
PLAN

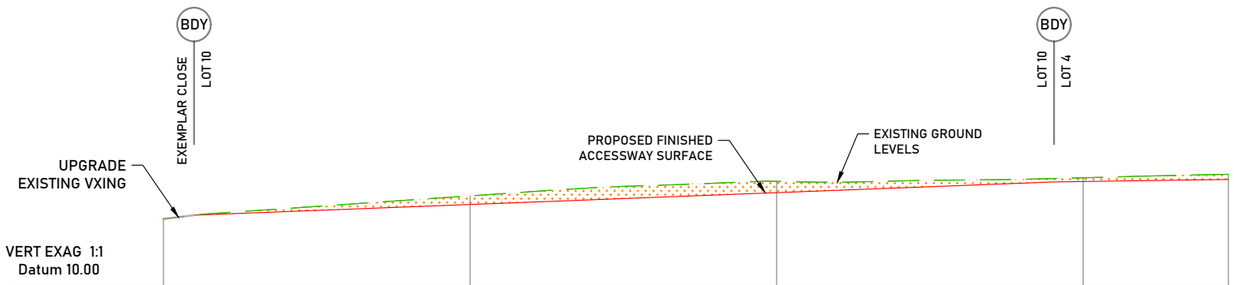
REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:200
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	

JOB NUMBER 26000-05 | SHEET 4 OF 15 | REVISION 0

NOTES:

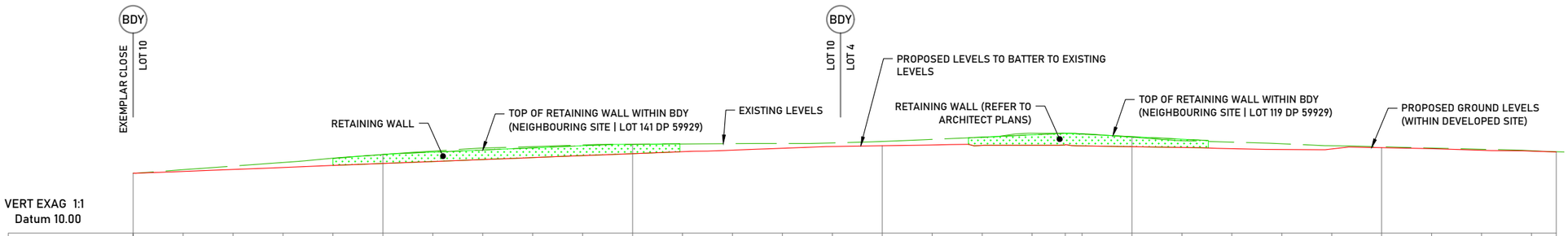
1. THE CONTRACTOR MUST CONFIRM THE LEVELS OF THE EXISTING SURFACE ONCE SURFACE IS CLEARED FROM ALL VEGETATION. ANY VARIATIONS TO THE LEVELS SHOWN ON THESE PLANS SHALL BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING WORKS



DESIGN LEVELS	12.34	12.38	12.46	12.54	12.61	12.69	12.77	12.85	12.92	13.00	13.08	13.15	13.23	13.31	13.39	13.44	13.47	13.50	13.51
EXISTING LEVELS		12.42	12.56	12.70	12.84	12.97	13.11	13.24	13.32	13.39	13.45	13.42	13.46	13.49	13.51	13.57	13.62	13.66	
DEPTH		0.04	0.10	0.16	0.22	0.28	0.34	0.39	0.39	0.39	0.37	0.27	0.23	0.18	0.13	0.13	0.15	0.16	
CHAINAGE	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00		

PROPOSED COMMON ACCESSWAY LONGITUDINAL SECTION

SCALE 1:200



DESIGN LEVELS	12.47	12.55	12.63	12.71	12.79	12.87	12.95	13.02	13.10	13.18	13.26	13.32	13.40	13.47	13.50	13.53	13.51	13.52	13.54	13.49	13.46	13.43	13.38	13.35	13.37	13.42	13.38	13.32	13.28		
EXISTING LEVELS				12.994	13.15	13.24	13.33	13.42	13.50	13.56	13.578						13.818		14.000				13.709								
HEIGHT				0.282	0.36	0.38	0.38	0.39	0.40	0.38	0.322						0.26		0.46				0.30								
CHAINAGE	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	37.33	38.00	40.00	42.00	44.00	46.00	48.00	50.00	52.00	54.00	56.00		

PROPOSED RETAINING WALL LONGITUDINAL SECTION

SCALE 1:200

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED
COMMON ACCESSWAY & RETAINING WALL
LONGITUDINAL SECTIONS

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:200
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	

JOB NUMBER 26000-05
SHEET 5 OF 15
REVISION 0

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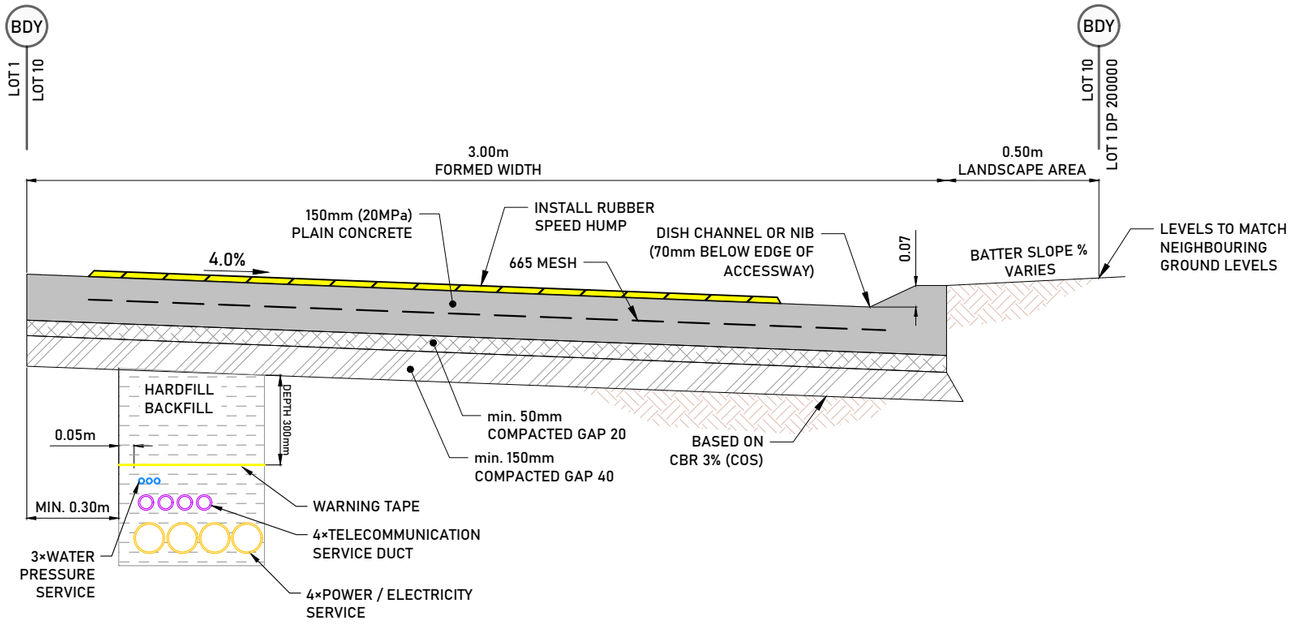
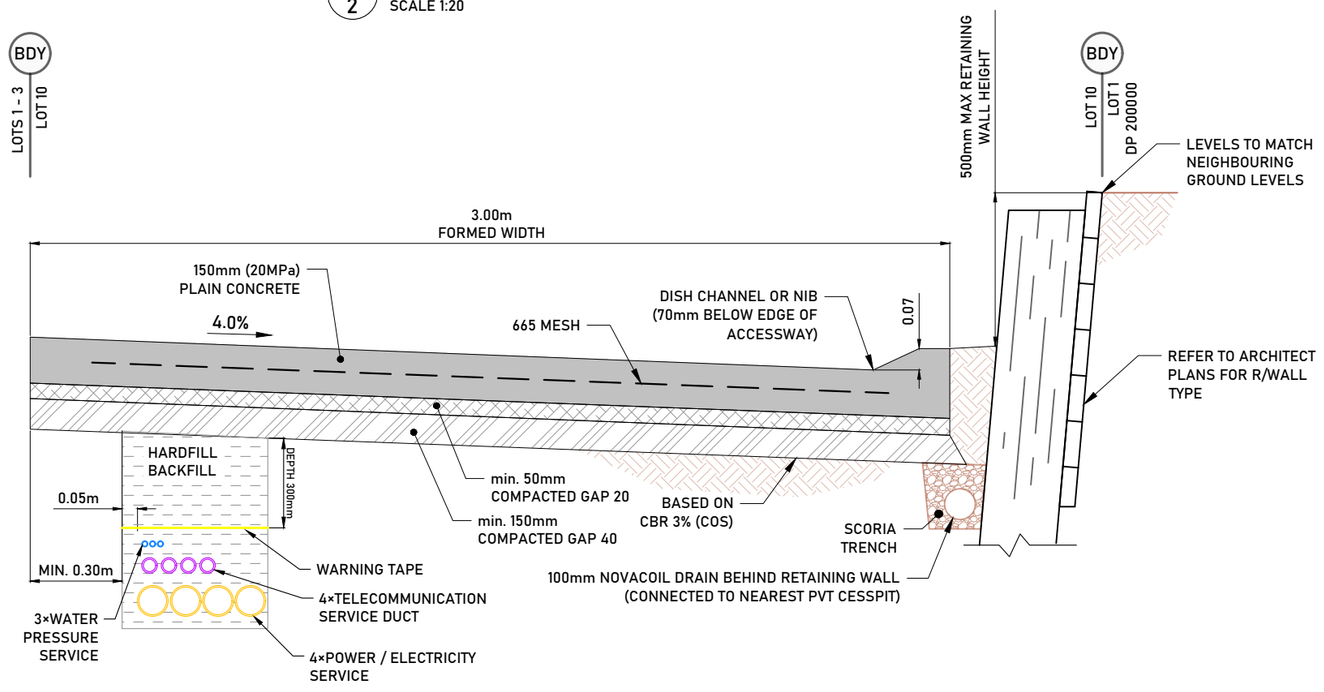


A 2 TYPICAL COMMON ACCESSWAY CROSS SECTION VIEW
SCALE 1:20



B 2 TYPICAL COMMON ACCESSWAY CROSS SECTION VIEW
SCALE 1:20

NOTES:

1. SERVICE TRENCH CAN BE STACKED VERTICALLY UNDER 300mm WARNING TAPE COVER FROM TOP OF BACKFILL. CONTRACTOR TO COS & DISCUSS WITH DESIGN ENGINEER PRIOR TO LAYING SERVICES

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
TYPICAL
COMMON ACCESSWAY
CROSS SECTION VIEWS

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:20
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	

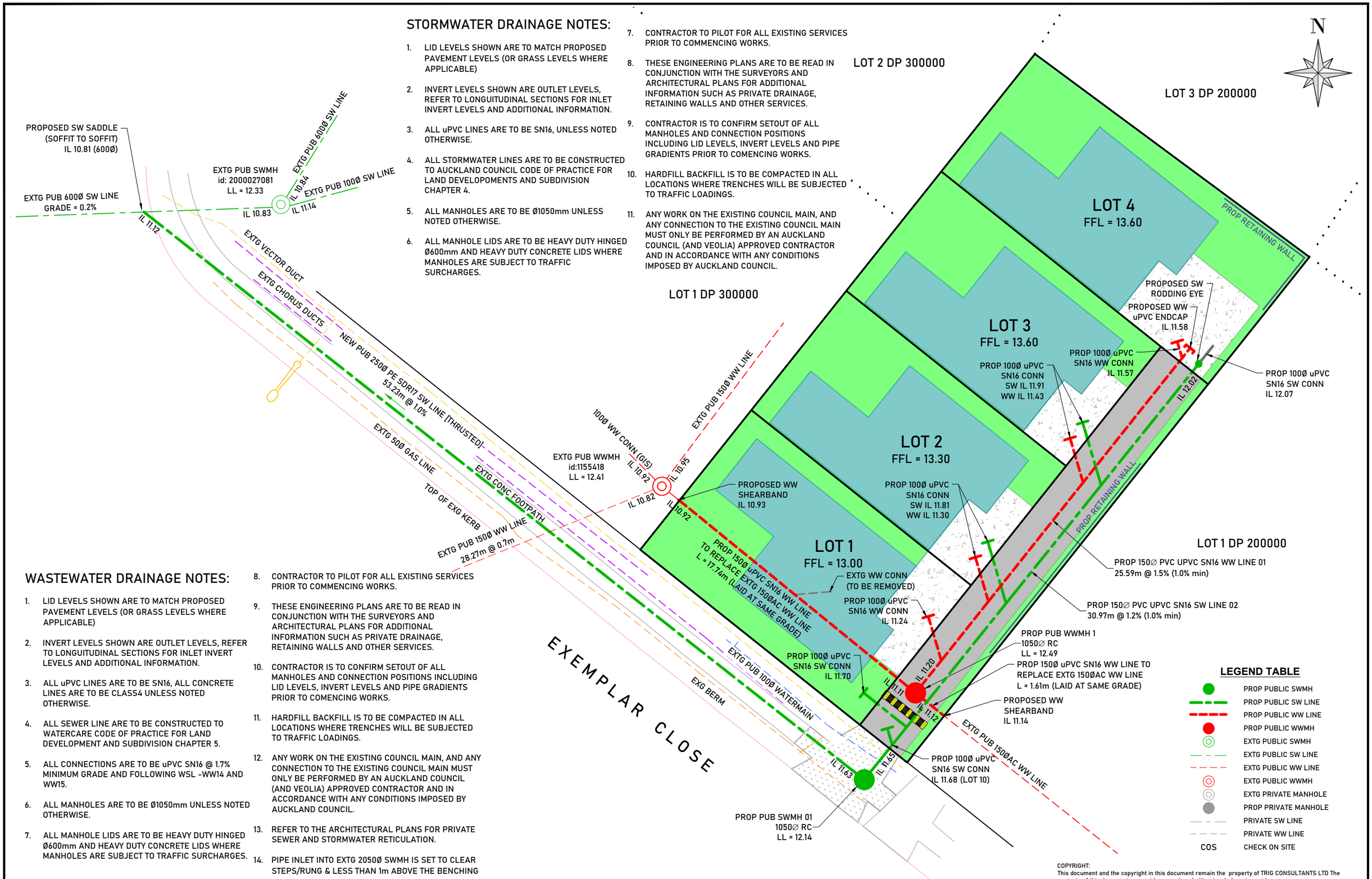
JOB NUMBER 26000-05 | SHEET 6 OF 15 | REVISION 0

STORMWATER DRAINAGE NOTES:

1. LID LEVELS SHOWN ARE TO MATCH PROPOSED PAVEMENT LEVELS (OR GRASS LEVELS WHERE APPLICABLE)
2. INVERT LEVELS SHOWN ARE OUTLET LEVELS, REFER TO LONGUITUDINAL SECTIONS FOR INLET INVERT LEVELS AND ADDITIONAL INFORMATION.
3. ALL uPVC LINES ARE TO BE SN16, UNLESS NOTED OTHERWISE.
4. ALL STORMWATER LINES ARE TO BE CONSTRUCTED TO AUCKLAND COUNCIL CODE OF PRACTICE FOR LAND DEVELOPOMENTS AND SUBDIVISION CHAPTER 4.
5. ALL MANHOLES ARE TO BE Ø1050mm UNLESS NOTED OTHERWISE.
6. ALL MANHOLE LIDS ARE TO BE HEAVY DUTY HINGED Ø600mm AND HEAVY DUTY CONCRETE LIDS WHERE MANHOLES ARE SUBJECT TO TRAFFIC SURCHARGES.
7. CONTRACTOR TO PILOT FOR ALL EXISTING SERVICES PRIOR TO COMMENCING WORKS.
8. THESE ENGINEERING PLANS ARE TO BE READ IN CONJUNCTION WITH THE SURVEYORS AND ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION SUCH AS PRIVATE DRAINAGE, RETAINING WALLS AND OTHER SERVICES.
9. CONTRACTOR IS TO CONFIRM SETOUT OF ALL MANHOLES AND CONNECTION POSITIONS INCLUDING LID LEVELS, INVERT LEVELS AND PIPE GRADIENTS PRIOR TO COMENCING WORKS.
10. HARDFILL BACKFILL IS TO BE COMPACTED IN ALL LOCATIONS WHERE TRENCHES WILL BE SUBJECTED TO TRAFFIC LOADINGS.
11. ANY WORK ON THE EXISTING COUNCIL MAIN, AND ANY CONNECTION TO THE EXISTING COUNCIL MAIN MUST ONLY BE PERFORMED BY AN AUCKLAND COUNCIL (AND VEOLIA) APPROVED CONTRACTOR AND IN ACCORDANCE WITH ANY CONDITIONS IMPOSED BY AUCKLAND COUNCIL.

WASTEWATER DRAINAGE NOTES:

1. LID LEVELS SHOWN ARE TO MATCH PROPOSED PAVEMENT LEVELS (OR GRASS LEVELS WHERE APPLICABLE)
2. INVERT LEVELS SHOWN ARE OUTLET LEVELS, REFER TO LONGUITUDINAL SECTIONS FOR INLET INVERT LEVELS AND ADDITIONAL INFORMATION.
3. ALL uPVC LINES ARE TO BE SN16, ALL CONCRETE LINES ARE TO BE CLASS4 UNLESS NOTED OTHERWISE.
4. ALL SEWER LINE ARE TO BE CONSTRUCTED TO WATERCARE CODE OF PRACTICE FOR LAND DEVELOPMENT AND SUBDIVISION CHAPTER 5.
5. ALL CONNECTIONS ARE TO BE uPVC SN16 @ 1.7% MINIMUM GRADE AND FOLLOWING WSL -WW14 AND WW15.
6. ALL MANHOLES ARE TO BE Ø1050mm UNLESS NOTED OTHERWISE.
7. ALL MANHOLE LIDS ARE TO BE HEAVY DUTY HINGED Ø600mm AND HEAVY DUTY CONCRETE LIDS WHERE MANHOLES ARE SUBJECT TO TRAFFIC SURCHARGES.
8. CONTRACTOR TO PILOT FOR ALL EXISTING SERVICES PRIOR TO COMMENCING WORKS.
9. THESE ENGINEERING PLANS ARE TO BE READ IN CONJUNCTION WITH THE SURVEYORS AND ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION SUCH AS PRIVATE DRAINAGE, RETAINING WALLS AND OTHER SERVICES.
10. CONTRACTOR IS TO CONFIRM SETOUT OF ALL MANHOLES AND CONNECTION POSITIONS INCLUDING LID LEVELS, INVERT LEVELS AND PIPE GRADIENTS PRIOR TO COMENCING WORKS.
11. HARDFILL BACKFILL IS TO BE COMPACTED IN ALL LOCATIONS WHERE TRENCHES WILL BE SUBJECTED TO TRAFFIC LOADINGS.
12. ANY WORK ON THE EXISTING COUNCIL MAIN, AND ANY CONNECTION TO THE EXISTING COUNCIL MAIN MUST ONLY BE PERFORMED BY AN AUCKLAND COUNCIL (AND VEOLIA) APPROVED CONTRACTOR AND IN ACCORDANCE WITH ANY CONDITIONS IMPOSED BY AUCKLAND COUNCIL.
13. REFER TO THE ARCHITECTURAL PLANS FOR PRIVATE SEWER AND STORMWATER RETICULATION.
14. PIPE INLET INTO EXTG 2050Ø SWMH IS SET TO CLEAR STEPS/RUNG & LESS THAN 1m ABOVE THE BENCHING



LEGEND TABLE

- PROP PUBLIC SWMH
- PROP PUBLIC SW LINE
- PROP PUBLIC WW LINE
- PROP PUBLIC WWMH
- EXTG PUBLIC SWMH
- EXTG PUBLIC SW LINE
- EXTG PUBLIC WW LINE
- EXTG PUBLIC WWMH
- EXTG PRIVATE MANHOLE
- PROP PRIVATE MANHOLE
- PRIVATE SW LINE
- PRIVATE WW LINE
- COS — CHECK ON SITE

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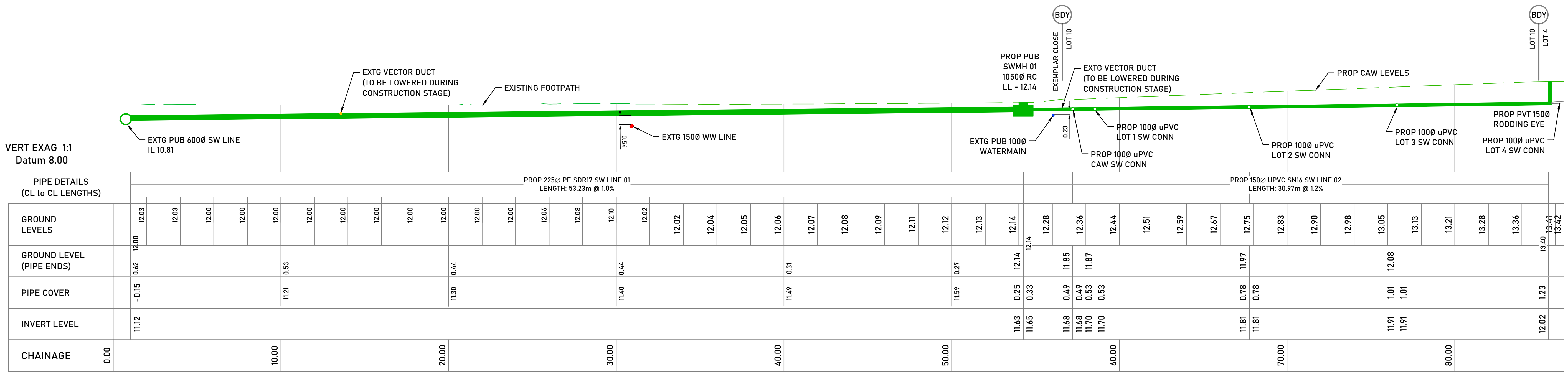
PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED PUBLIC
STORMWATER & WASTEWATER
PLAN

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:200
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER	SHEET		REVISION
26000-05	7 OF 15		0



PROPOSED PUBLIC STORMWATER LINE LONGITUDINAL SECTION

SCALE 1:250

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PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

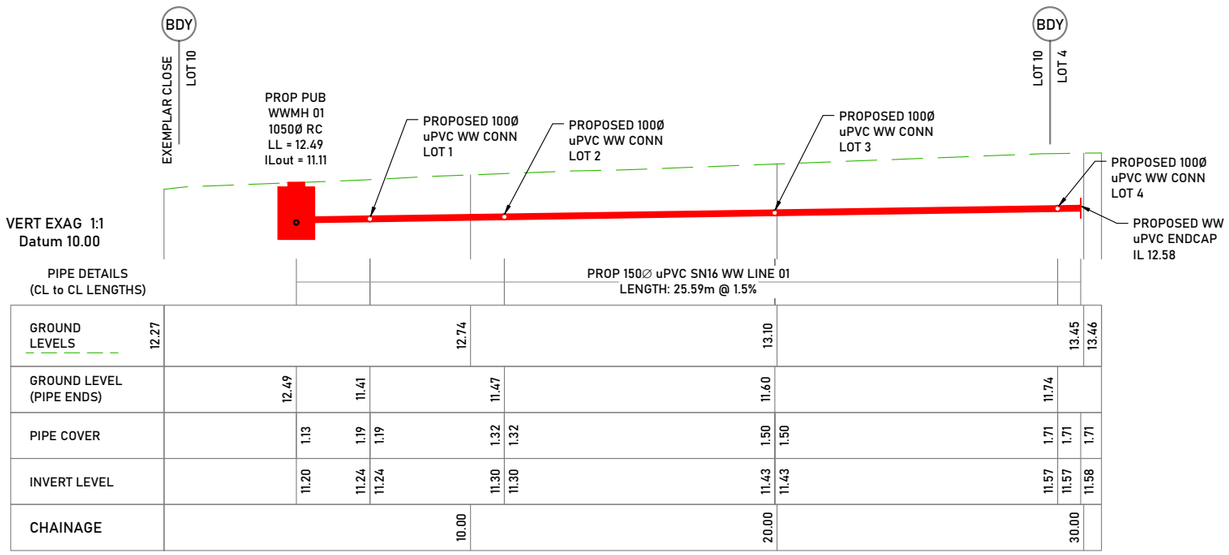
TITLE:
PROPOSED PUBLIC
STORMWATER
LONGITUDINAL SECTION VIEW

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y
DRAWN	H.BECHU	DD/MM/Y
CHECKED	S.SARAH	DD/MM/Y

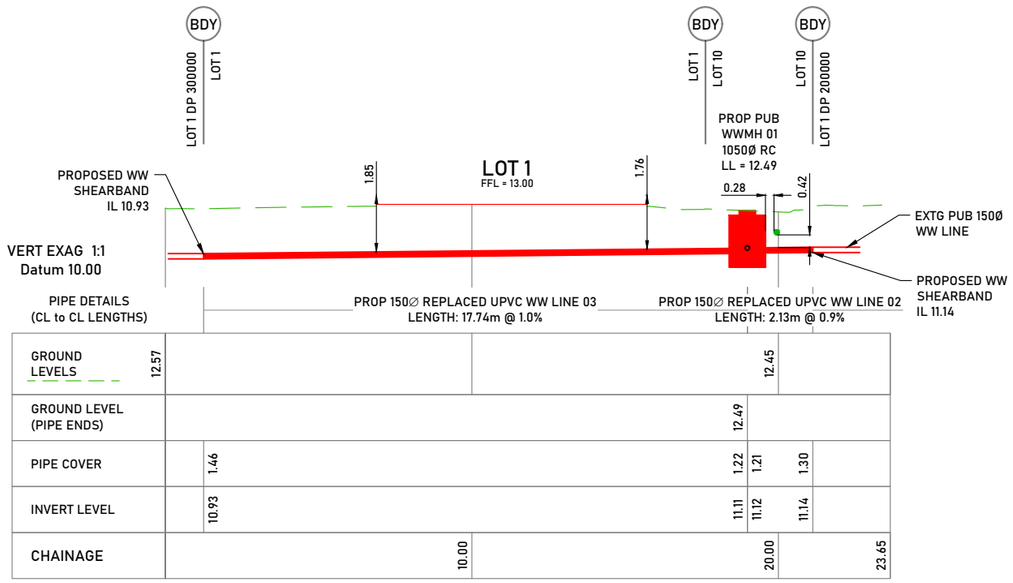
SCALE: 1:250 [ORIGINAL A3]

JOB NUMBER	SHEET	REVISION
26000-05	8 OF 15	0



PROPOSED PUBLIC WASTEWATER LINE LONGITUDINAL SECTION

SCALE 1:200



REPLACED EXTG PUBLIC WASTEWATER LINE LONGITUDINAL SECTION

SCALE 1:200

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DRAWING PATH: C:\USERS\HANS\DOWNLOADS

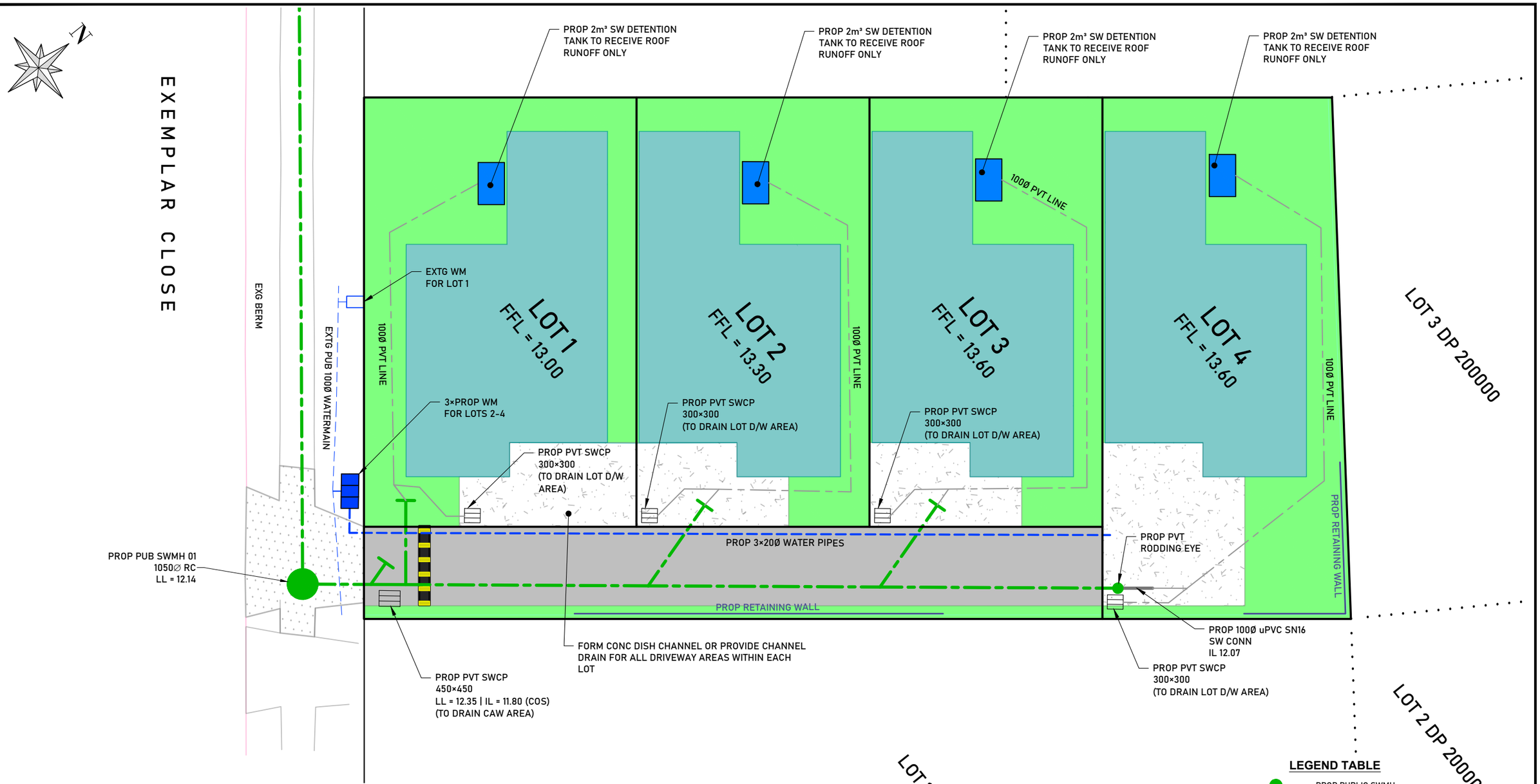
PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED PUBLIC
WASTEWATER
LONGITUDINAL SECTION VIEW

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:200
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	

JOB NUMBER	SHEET	REVISION
26000-05	9 OF 15	0



NOTES:

1. INVERT LEVELS SHOWN ARE OUTLET LEVELS, REFER TO LONGUITUDINAL SECTIONS FOR INLET INVERT LEVELS AND ADDITIONAL INFORMATION.
2. ALL uPVC LINES ARE TO BE SN16, UNLESS SHOWN OTHERWISE.
3. CONTRACTOR TO PILOT FOR ALL EXISTING SERVICES PRIOR TO COMMENCING WORKS.
4. THESE ENGINEERING PLANS ARE TO BE READ IN CONJUNCTION WITH THE SURVEYORS AND ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION SUCH AS PRIVATE DRAINAGE, RETAINING WALLS AND OTHER SERVICES.
5. CONTRACTOR IS TO CONFIRM SETOUT OF ALL MANHOLES AND CONNECTION POSITIONS INCLUDING LID LEVELS, INVERT LEVELS AND PIPE GRADIENTS PRIOR TO COMMENCING WORKS.
6. HARDFILL BACKFILL IS TO BE COMPACTED IN ALL LOCATIONS WHERE TRENCHES WILL BE SUBJECTED TO TRAFFIC LOADINGS.
7. ANY WORK ON THE EXISTING COUNCIL MAIN, AND ANY CONNECTION TO THE EXISTING COUNCIL MAIN MUST ONLY BE PERFORMED BY AN AUCKLAND COUNCIL (AND VEOLIA) APPROVED CONTRACTOR AND IN ACCORDANCE WITH ANY CONDITIONS IMPOSED BY AUCKLAND COUNCIL.
8. REFER TO THE ARCHITECTURAL PLANS FOR PRIVATE SEWER AND STORMWATER RETICULATION.

LEGEND TABLE

	PROP PUBLIC SWMH
	PROP PUBLIC SW LINE
	PROP PUBLIC WW LINE
	PROP PUBLIC WWMH
	EXTG PUBLIC SWMH
	EXTG PUBLIC SW LINE
	EXTG PUBLIC WW LINE
	EXTG PUBLIC WWMH
	EXTG PRIVATE MANHOLE
	PROP PRIVATE MANHOLE
	PRIVATE SW LINE
	PRIVATE WW LINE
COS	CHECK ON SITE

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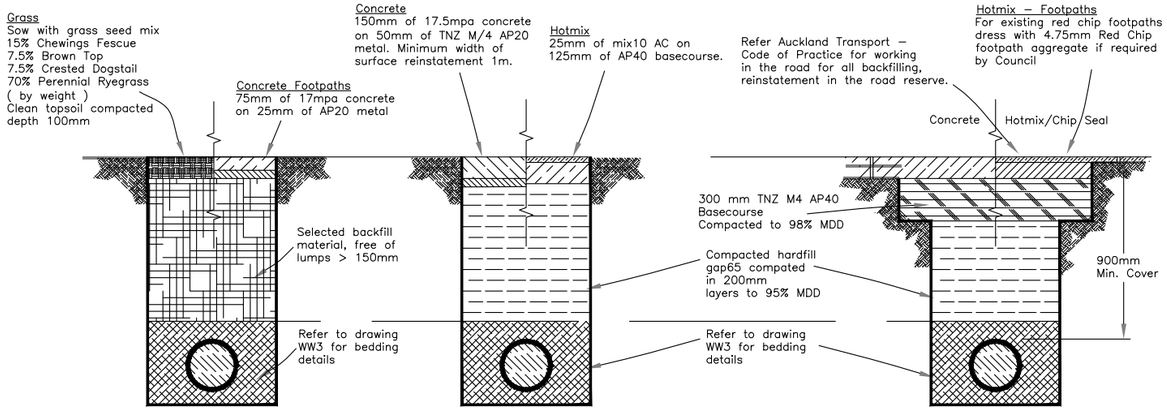
PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
PROPOSED
SERVICES & PRIVATE DRAINAGE
PLAN

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	1:150
DRAWN	H.BECHU	DD/MM/Y	[ORIGINAL A3]
CHECKED	S.SARAH	DD/MM/Y	

JOB NUMBER	SHEET	REVISION
26000-05	10 OF 15	0



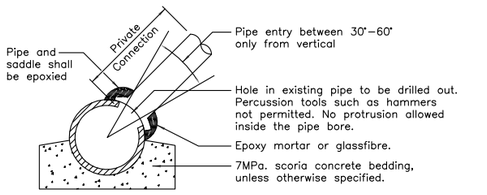
GRASS AREA & FOOTPATH
(Not in Road reserve)
REINSTATEMENT

DRIVEWAY REINSTATEMENT
(Not in Road Reserve)

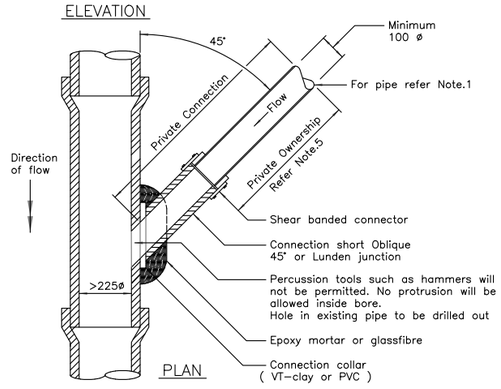
FOOTPATH/VEHICLE CROSSING,
CARRIAGEWAY REINSTATEMENT

NOTES

1. All trench surface reinstatement within the road reserve shall comply with Auckland Transport requirements.
   The details shown are typical expectations for reinstatements.
2. Backfill shall be compacted in 200mm layers to obtain maximum density as described in Watercare's Construction Standards.
3. Where concrete or other stabilized layers exist in the roadway, the trench shall be reinstated with similar material or as directed by the roading engineer.



ELEVATION

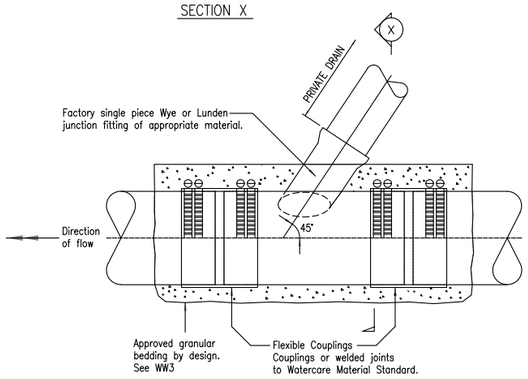


PLAN

NOTES:

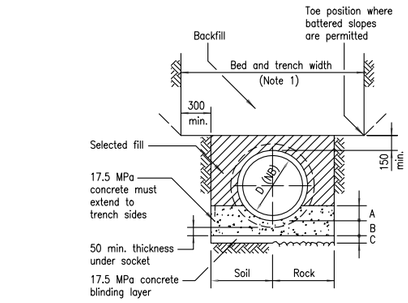
1. Applies to concrete, VT–clay, or PVC pipe saddle connections only. For other materials refer WW15.
2. The maximum lateral pipe size shall be less than half of the main.
3. For pipe lateral to main ratio outside the above parameters, refer to WW15, or a manhole shall be constructed where approved.
4. If the existing sewer pipe has PE or CIPP liner, specific design & approval required from Watercare.
5. Refer to Watercare Point–of–Supply Policy.

SECTION X

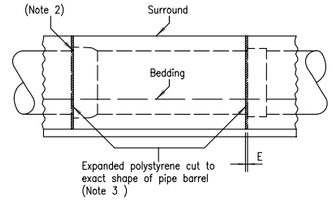


NOTES:

1. For saddle connections refer WW14
2. Refer to Watercare Point–of–Supply policy



CONCRETE BEDDING



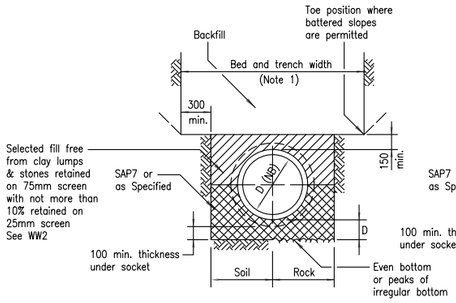
CONCRETE BEDDING AND SURROUND

NOTES :

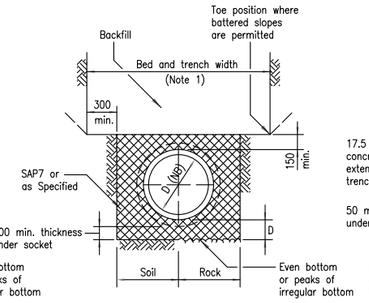
1. Concrete bedding O.A. Width = D+200mm
   Concrete Surround O.A. Width = D+D/2 with Min 50mm concrete either side.
   Granular bedding Min. 300mm either side of the pipe.
2. Wrap joint gap outside the rubber ring with an acceptable system.
3. Expanded polystyrene shall extend the full cross–section of concrete.
4. Bedding and backfill shall be well compacted in layers not exceeding 200mm depth to AS/NZS 2566.2

DIMENSION TABLE		
	D≤250	D=300
A	0.5D	150
B	100	150
C	50	50
D	150	150
E*	25	25
E**	25	25

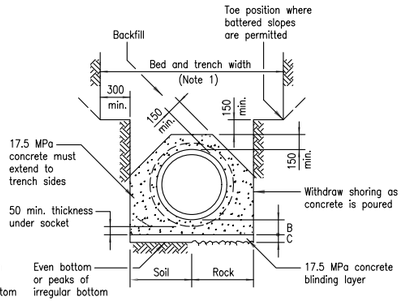
E*=E for concrete surround
E**=E for concrete bedding



GRANULAR BEDDING



GRANULAR SURROUND



CONCRETE SURROUND

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DRAWING PATH: C:\USERS\HAMS\DOWNLOADS

PROJECT:

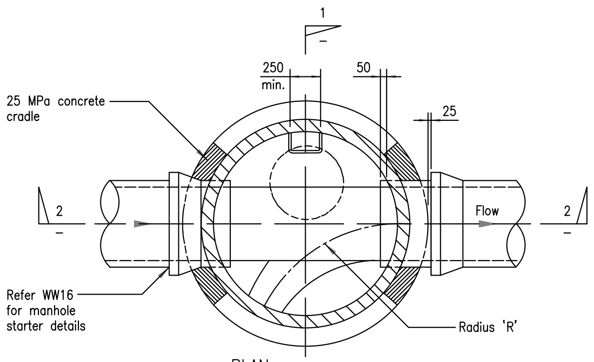
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:

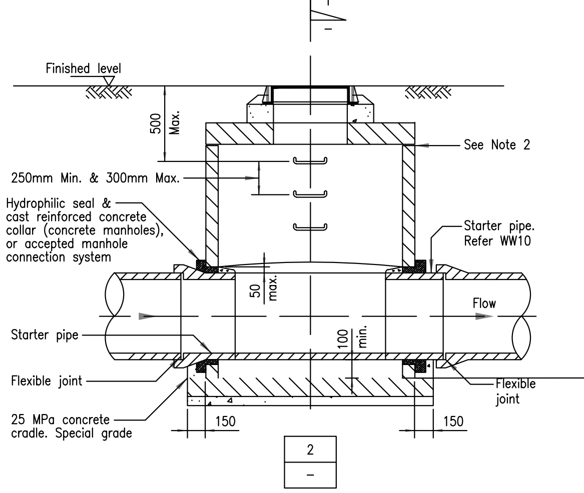
WASTEWATER STANDARD
DETAILS (1)

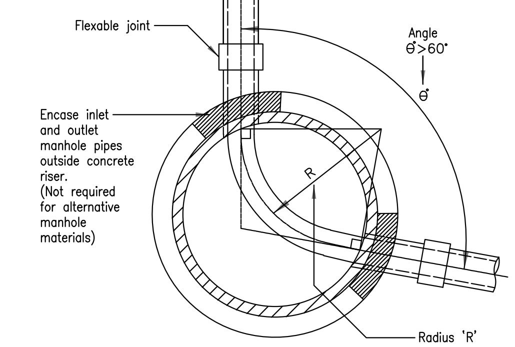
REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	NA
DRAWN	H.BECHU	DD/MM/Y	
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER	SHEET		REVISION
26000-05	11 OF 15		0

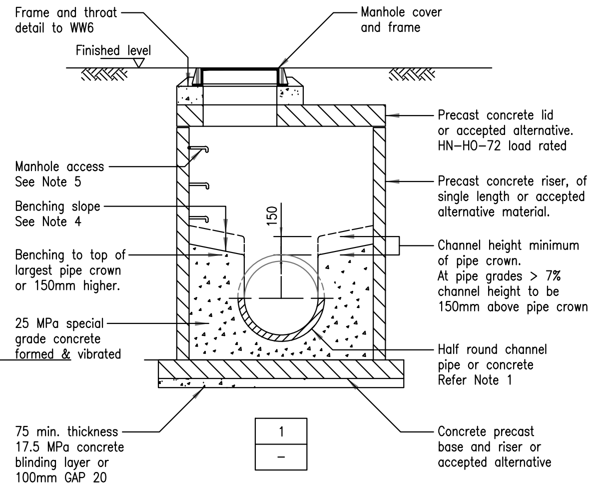


PLAN





PLAN



MANHOLE RISER DIAMETERS			
MAX. PIPE DIA.	NO. OF INCOMING PIPES **		
	1	2*	3***
≤250	1050	1050	1050
300	1500	1500	1500
>300	Refer to transmission dwgs.		

* Based on Max. 120 Deg deflection through manhole.

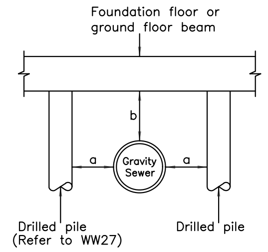
** To be determined with due regard for future potential connections.

*** Based on Min. 60 Deg between pipes & ≤ 180 Deg between pipe 1 & pipe 3

[Outside these criteria requires specific design]

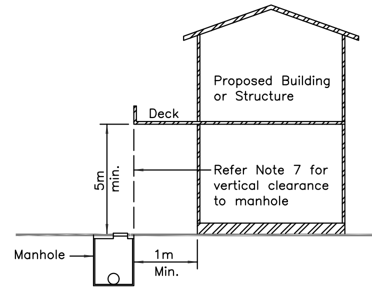
NOTES:

1. Half round channels shall be pre-formed from a corrosion, prehibitive material.
2. Joint seals shall be an acceptable flexible seal. The joint shall be closed with an epoxy mortar (if concrete) & externally wrapped with an acceptable wrapping system.
3. Refer WW6 for manhole throat and cover details.
4. Concrete benching shall have a minimum slope of 1 in 12, proprietary benching products with a smooth surface (such as Polyethylene) shall not be less than 1 in 20. Refer to Watercare material supply standard.
5. Refer to the material supply standard for step-rung and ladder policy.
6. For manholes deeper than 1.8m Refer to WW9
6. Abbreviations :
   Min. = Minimum
   I.D. = Internal diameter
   'R' = Min. Radius (3 x I.D.).



PIPE CONSTRUCTION CLEARANCE
FOR BRIDGING OPTIONS

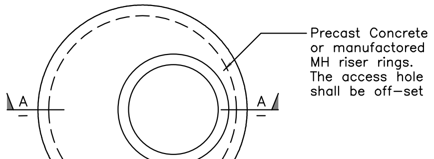
Minimum Pile Clearances						
Type of Sewer	Sewer Depth < 3m		Sewer Depth 3m–5m		Sewer Depth >5m	
	a	b	a	b	a	b
Local Wastewater Network	1m	0.6m	1m	0.6m	1.5m	0.6m
Transmission (Trunk) Sewer	1m	1m	2m	1m	3m	1.5m



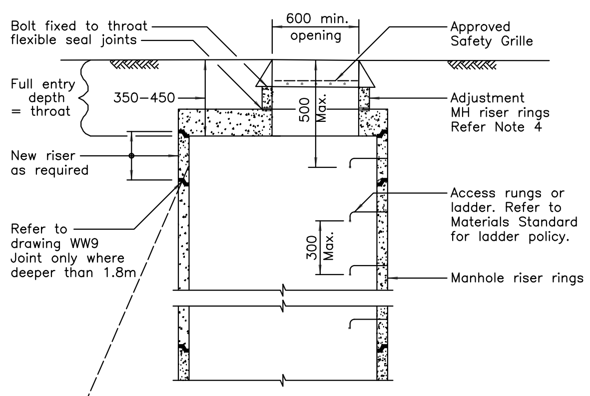
MANHOLE CONSTRUCTION CLEARANCE

NOTES:

1. Locate sewer to survey accuracy or by hand piloting.
2. No driven piles within 5m of a sewer or 10m of brick sewer.
3. All manholes shall have 24 hrs unobstructed access.
4. No construction shall occur above a manhole or within tolerances 'a' or 'b' in table above.
5. Pressure mains shall not be built over.
6. Brick or poor condition wastewater pipe shall not be built over. Bridging options must be approved.
7. Vertical clearance from the top of the chamber shall be 5m Min. over the full width of the chamber.



PLAN



TYPICAL SECTION A–A
THROUGH MANHOLE

NOTES:

1. Lid supplied to HN–HO–72 loading and compliance certified.
2. When the throat depth is greater than 450mm, a new manhole riser is required with a new adjustment ring.
3. Refer drawing WW9 for manholes deeper than 1.8m
4. Refer drawing WW7 for sloping ground.
5. Refer drawing WW5 for manhole details.
6. Approved Safety Grille below access manhole cover.
7. Manhole covers in the road shall be constructed so that the cover hinge is facing the oncoming traffic. (Refer Fig 1)
8. For all other covers the orientation should be so that the cover hinge is at 90 degrees from the ladder, Either side. (Refer Fig 2)

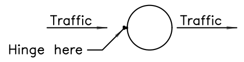


Fig 1

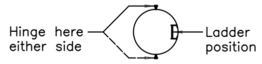
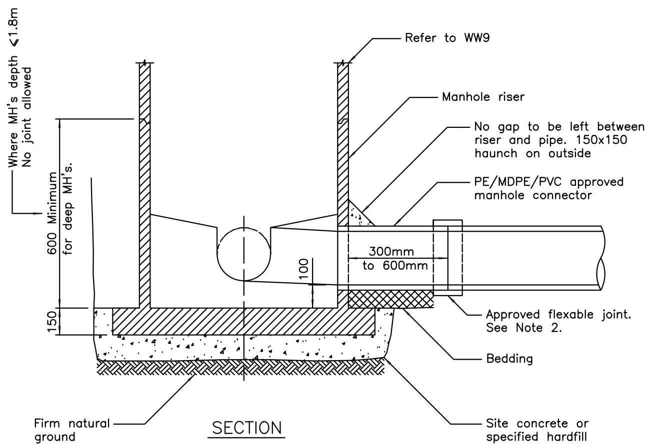


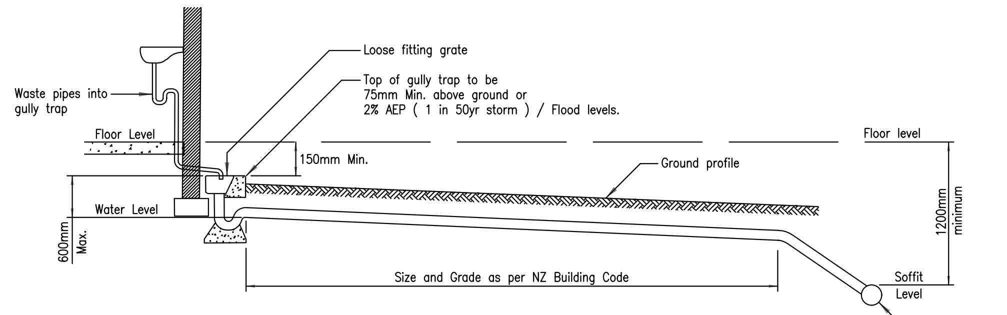
Fig 2



SECTION

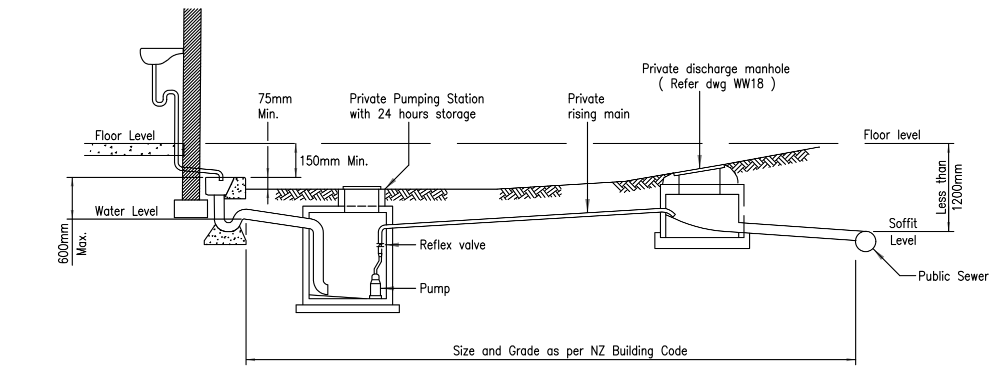
Notes:

1. This drawing shall be read with WW5.
2. For PE pipe connections to a concrete manhole refer to WW11 and WW12 for acceptable solutions.
3. Detail may differ for accepted proprietary manhole systems other than concrete.



PRIVATE WASTEWATER CONNECTION TO PUBLIC SEWER

(Floor level to soffit 1200mm minimum unless approved by Watercare)



PRIVATE WASTEWATER PUMPING STATION CONNECTION TO PUBLIC SEWER

(Floor level to soffit less than 1200mm)

NOTE:

EXAMPLE OF HOUSE SERVICE CONNECTION TO A PUBLIC SEWER

1. Minimum requirements are satisfied when the floor level is at least 1200mm above the soffit of the receiving sewer.
2. Where the receiving sewer is less than 1200mm a private pumping station and discharge manhole shall be installed.
3. Ground around gully trap shall be at least 75mm below the gully trap or 2% of the AEP (Annual exceedance probability) – Rain fall flood levels.
4. Building floor shall be at least 150mm above the gully trap. Gully traps shall not be placed in over land flow paths.

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PROJECT:

PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

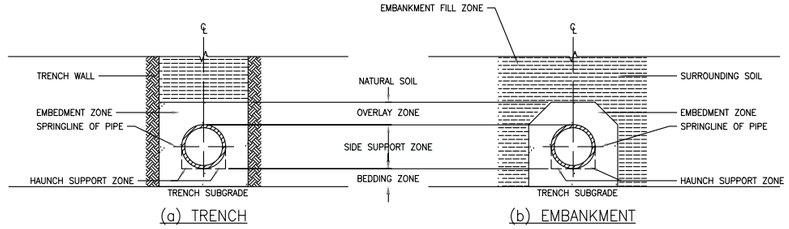
TITLE:

WASTEWATER STANDARD
DETAILS (2)

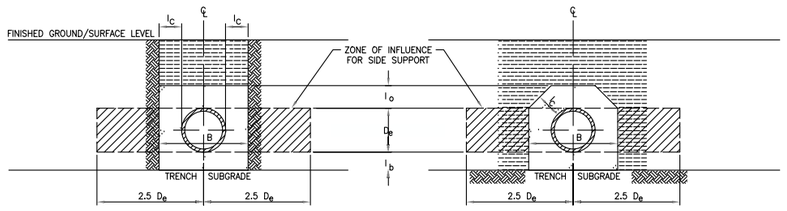
REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	NA
DRAWN	H.BECHU	DD/MM/Y	
CHECKED	S.SARAH	DD/MM/Y	

JOB NUMBER	SHEET	REVISION
26000-05	12 OF 15	0



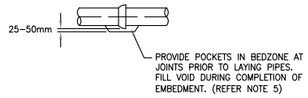
(a) TRENCH (b) EMBANKMENT



(a) TRENCH (b) EMBANKMENT

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. FLEXIBLE PIPES INCLUDES PVC, GRP, PP AND PE.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT. REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE THAT THE BEDDING IS DEEP ENOUGH SO THAT PIPE JOINT PROJECTIONS (SOCKETS, FLANGES) DO NOT TOUCH THE TRENCH FLOOR (SEE DETAIL BELOW).
6. BEDDING MATERIALS SHALL BE GAP/SAP 20.
7. THIS DRAWING IS BASED ON AS/NZS 2566 PART 2: 2002 "BURIED FLEXIBLE PIPELINES & INSTALLATION" AND REPRODUCED WITH THE PERMISSION OF STANDARDS NEW ZEALAND.



PIPE JOINT BEDDING POCKETS
FOR JOINT PROJECTIONS

MINIMUM EMBEDMENT ZONE DIMENSIONS				
D_e (mm)	MINIMUM DIMENSION (mm)			
	l_b	l_c	l_o	$B=D_e+2l_c$
$75 \leq D_e \leq 150$	75	100	100	275 – 350
$150 < D_e \leq 300$	100	150	150	450 – 600
$300 < D_e \leq 450$	100	200	150	700 – 850
$450 < D_e \leq 900$	150	300	150	1050 – 1500
$900 < D_e \leq 1500$	150	350	200	1600 – 2200
$1500 < D_e \leq 4000$	150	$0.25D_e$	300	2250 – 6000

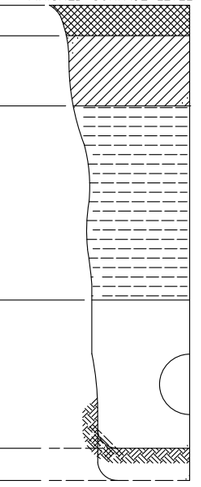
DEFINITIONS OF SYMBOLS USED:

- B TRENCH WIDTH
- D_e EXTERNAL DIAMETER OF PIPELINE.
- l_b DEPTH OF BEDDING UNDER BARREL OF PIPELINE.
- l_c MINIMUM DISTANCE BETWEEN SPRINGLINE OF PIPE AND PERMANENT SIDE OF TRENCH.
- l_o MINIMUM DEPTH OF COVER OVER SOFFIT OF PIPELINE.

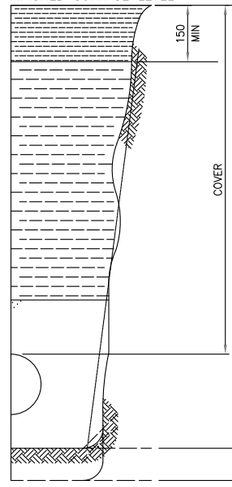
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. EMBEDMENT, TRENCH FILL AND COMPACTION SHALL MEET THE REQUIREMENT OF DESIGN DRAWINGS OR SPECIFICATIONS.
3. SIDES OF EXCAVATION SHALL BE KEPT VERTICAL TO AT LEAST 150mm ABOVE THE PIPE.

MATERIAL	ZONE
TO AUCKLAND TRANSPORT REQUIREMENTS	SURFACE COURSE
TO MATCH EXISTING ROAD BASE OR TO AUCKLAND TRANSPORT REQUIREMENTS	ROAD BASE
TRENCH FILL MATERIALS IN ACCORDANCE WITH SW02 AND SW03, COMPACTED IN LAYERS OF NOT MORE THAN 300mm OR AS SPECIFIED	TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)
EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03	EMBEDMENT
	OVER–EXCAVATION



VEHICULAR LOADING (CARRIAGEWAY)



ZONE	MATERIAL
TOPSOIL OR PAVEMENT	ORIGINAL OR IMPORTED MATERIAL TO MATCH EXISTING
TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)	INORGANIC FILL MATERIAL PLACED IN LAYERS NOT MORE THAN 300mm OR AS SPECIFIED
EMBEDMENT	EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03
OVER–EXCAVATION	

NO VEHICULAR LOADING (NON CARRIAGEWAY)
INCLUDES LOCATIONS WHERE OCCASIONAL VEHICLE LOADING OCCURS

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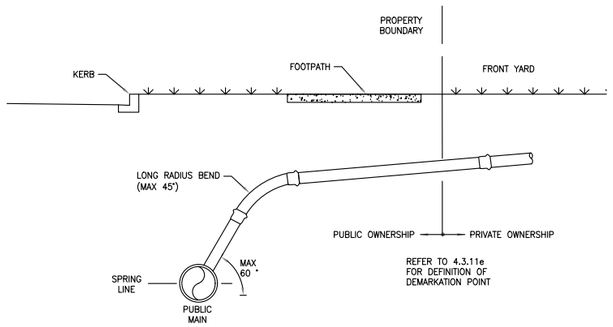
PROJECT:
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:
STORMWATER STANDARD DETAILS (1)

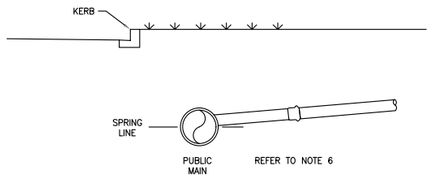
REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	NA
DRAWN	H.BECHU	DD/MM/Y	
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER 26000-05	SHEET 13 OF 15	REVISION 0	

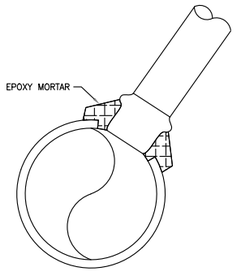


LATERAL CONNECTION – DEEP PUBLIC MAIN

(SINGLE LOT CONNECTION SHOWN)



LATERAL CONNECTION – SHALLOW PUBLIC MAIN



CONNECTION WHERE SADDLE IS NOT COMMERCIALLY AVAILABLE

NOTES:

GENERAL NOTES:

1. REFER SWCoP SECTION 4.3.9.5 FOR MINIMUM PIPE DIAMETERS.
2. REFER SWCoP SECTION 4.3.11 FOR PUBLIC/PRIVATE DEMARKATION DEFINITIONS.
3. REFER SWCoP SECTION 4.3.12 FOR LATERAL CONNECTION REQUIREMENTS.
4. REFER SWCoP SECTION4.3.13 FOR CATCHPIT CONNECTIONS DETAILS.
5. THE CENTRELINE OF THE LATERAL SHALL BE ABOVE THE SPRING LINE OF THE PUBLIC MAIN IT CONNECTS TO.
6. THE LATERAL CONNECTION SHALL BE FULLY SUPPORTED WITH COMPACTED BEDDING MATERIAL, WHICH SHALL EXTEND FROM THE BEDDING OF THE PUBLIC MAIN TO AT LEAST THE SPRING LINE OF THE LATERAL CONNECTION PIPE THROUGH ITS LENGTH UNTIL BEYOND THE TRENCH WALL OF THE PUBLIC MAIN.

NOTES FOR CONNECTION TO A PVC PUBLIC MAIN:

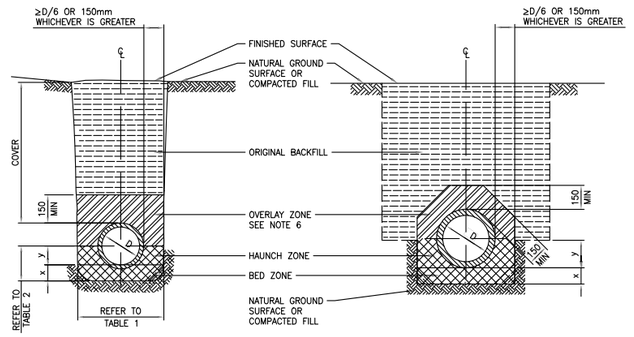
1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A REINFORCED MOULDED PVC SWEPT TEE OR Y–JUNCTION FITTING WHERE SUCH FITTINGS ARE NORMALLY AVAILABLE WITHIN THE LOCAL MARKET. SADDLE CONNECTIONS ARE PERMITTED ONLY WHEN SWEPT TEE OR Y–JUNCTIONS ARE UNAVAILABLE.

NOTES FOR CONNECTION TO A REINFORCED CONCRETE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A FLANGED VITREOUS CLAY SADDLE INSERT APPROPRIATELY SIZED TO MATCH THE PUBLIC MAIN.
2. THE HOLE INTO THE EXISTING PUBLIC MAIN SHALL BE DRILLED.
3. THE SADDLE INSERT SHALL BE SEALED VIA EPOXY MORTAR TO THE PUBLIC MAIN.
4. THERE SHALL BE NO PROTRUSION OF THE SADDLE INSERT INSIDE THE BORE OF THE PUBLIC MAIN.

NOTES FOR CONNECTION TO A PE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A JUNCTION CUT IN WITH ELECTROFUSION COUPLERS. ALTERNATIVELY A SADDLE MAY BE ELECTROFUSED ONTO THE PIPE. SPECIFIC APPROVAL FROM AUCKLAND COUNCIL IS REQUIRED TO SADDLE INTO A PE MAIN.
2. ELECTROFUSION FITTINGS SHALL BE SELECTED TO MATCH SDR AND RESIN OF HOST PIPE, AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.



TRENCH CONDITION EMBANKMENT CONDITION

H2 TYPE BEDDING – CONCRETE PIPES

TABLE 1

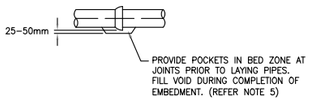
MAXIMUM PERMISSIBLE TRENCH WIDTHS (IF TRENCH WIDER, USE EMBANKMENT CONDITION)															
NORMAL INTERNAL PIPE DIAMETER (mm)	150	225	300	375	450	525	600	675	750	825	900	975	1050	1200	>1200
MAXIMUM TRENCH WIDTH (mm)	600	600	700	800	900	1000	1100	1200	1300	1400	1500	1500	1600	1800	OD+700

TABLE 2

H2 SUPPORT TYPE	MINIMUM DEPTH (mm)	
	x BED ZONE (mm)	y HAUNCH ZONE (mm)
	100 IF D ≤ 1500 150 IF D > 1500	0.3D

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. CONCRETE PIPE CLASS SHALL BE DESIGNED IN ACCORDANCE WITH AS/NZS 3725: 2007, USING H2 BEDDING, TO CONSTRUCTION OR FINAL CONDITION LOADINGS, WHICHEVER IS GREATER.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT.
   REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE BEDDING IS DEEP ENOUGH THAT PIPE JOINT PROJECTIONS (SOCKETS) DO NOT TOUCH TRENCH FLOOR (SEE DETAIL BELOW).
6. OVERLAY ZONE AGGREGATE TO BE IN ACCORDANCE WITH AS/NZS 3725:2007.
7. MATERIAL SHALL BE COMPACTED AS NECESSARY TO PREVENT EXCESSIVE SETTLEMENT IN THE GROUND SURFACE LEVEL OVER THE INSTALLED PIPE.
8. WHERE REQUIRED BY SITE CONDITIONS SPECIFIC DESIGN OF PIPE EMBEDMENT MAY BE REQUIRED. THIS SHOULD BE UNDERTAKEN IN ACCORDANCE WITH AS/NZS 3725: 2007 TO THE APPROVAL OF AUCKLAND COUNCIL.
9. EMBEDMENT FOR 'RIGID PIPES' OTHER THAN CONCRETE IS SUBJECT TO SPECIFIC DESIGN AND APPROVAL.



PIPE JOINT BEDDING POCKETS

FOR JOINT PROJECTIONS

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PROJECT:

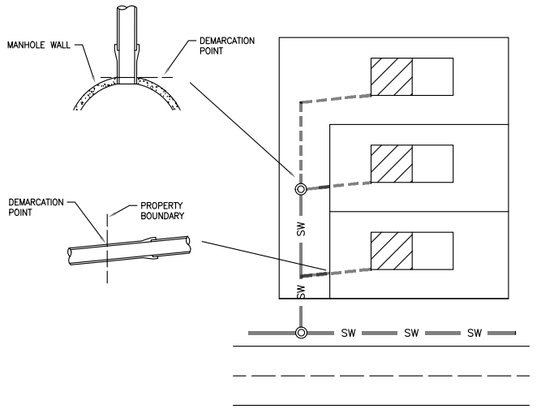
PROPOSED 4 LOT SUBDIVISION
AT
5 EXEMPLAR CLOSE, EXAMPLE

TITLE:

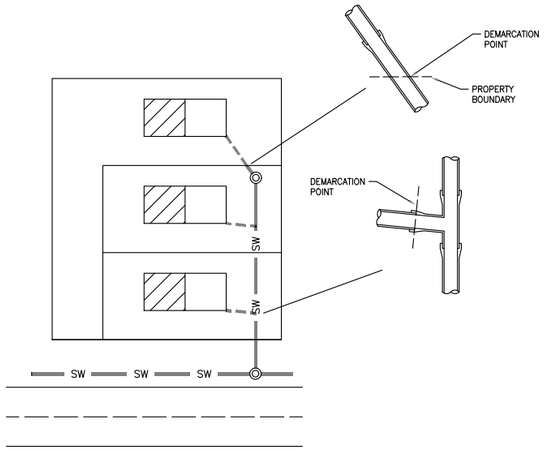
STORMWATER STANDARD DETAILS (2)

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	NA
DRAWN	H.BECHU	DD/MM/Y	
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER	SHEET	REVISION	
26000-05	14 OF 15	0	



PREFERRED CONNECTION SCENARIO

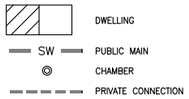


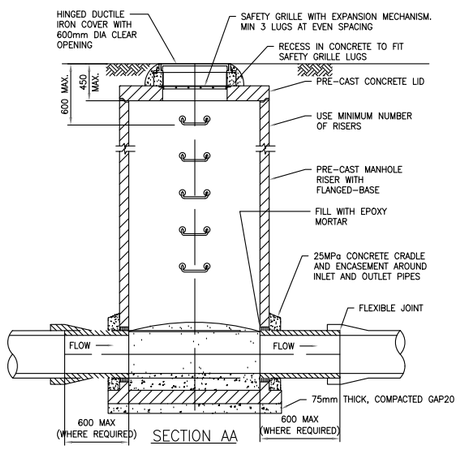
ALTERNATIVE CONNECTION SCENARIO
(REFER NOTE 4)

NOTES:

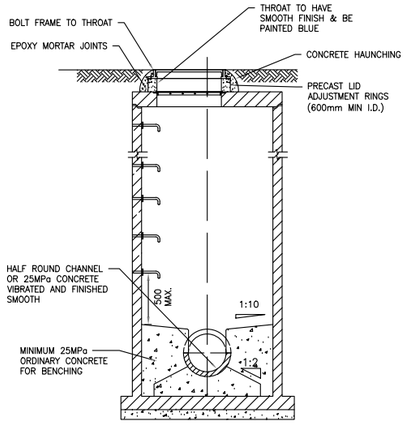
1. MINIMUM PIPELINE DIAMETER ARE SUBJECT TO 4.3.9.5
2. MINIMUM CONNECTION TO PUBLIC MAINS REQUIREMENTS ARE SUBJECT TO 4.3.11 & 4.3.12
3. MINIMUM REQUIREMENTS FOR MANHOLE AND NON-ACCESS CHAMBERS ARE SUBJECT TO 4.3.10
4. ALTERNATIVE CONNECTION SCENARIO TO BE USED ONLY WHEN NOT PRACTICABLE TO INSTALL PIPELINE IN SHARED ACCESS WAY AREA AND IS SUBJECT TO APPROVAL BY AUCKLAND COUNCIL.

LEGEND:





SECTION AA

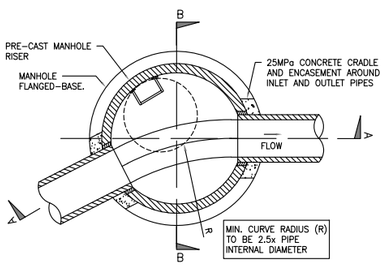


SECTION BB

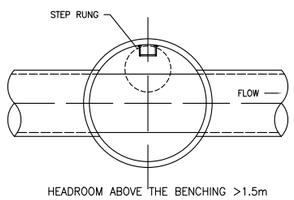
NOTES:

1. MANHOLES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THIS DRAWING AND SECTION 4.3.10 OF THE SWCoP AND IN COMPLIANCE WITH MANUFACTURERS' SPECIFICATION.
2. MANHOLE RISER DIAMETER IS TO ALLOW FOR A MINIMUM CURVE RADIUS BETWEEN THE INLET AND OUTLET PIPES OF 2.5 TIMES THE INTERNAL DIAMETER OF THE OUTLET PIPE.
3. PRECAST LID ADJUSTMENT RINGS TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION.
4. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA, ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.
5. MANHOLE COVERS ON ROADS SHALL BE ALIGNED SO THAT A VEHICLE STRIKING A HINGED COVER IN A PARTIALLY OPEN POSITION SHALL PUSH THAT COVER TOWARDS ITS CLOSED POSITION.
6. REFER SWCoP SECTION 4.3.10.10 FOR MANHOLE SAFETY GRILLE REQUIREMENTS AND DETAILS.

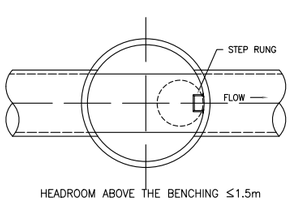
Minimum manhole riser diameter						
Pipe Dia	Deflection					
(mm)	0°	30°	45°	60°	75°	90°
450	1050	1050	1050	1350	1800	2300
525	1050	1050	1200	1500	2050	SD
600	1050	1050	1350	1800	2300	SD
750	1050	1050	1800	2300	SD	SD
825	1200	1200	1800	SD	SD	SD
900	1200	1200	2050	SD	SD	SD
1050	1500	1500	2300	SD	SD	SD
SD* Specific Design						



MANHOLE BASE & BENCHING PLAN



MANHOLE COVER AND RUNG ORIENTATION PLAN



MANHOLE COVER AND RUNG ORIENTATION PLAN

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PROJECT:
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TITLE:
STORMWATER STANDARD DETAILS (3)

REV	DESCRIPTION	CHECKED	DATE
0	FOR RESOURCE CONSENT	S.SARAH	DD/MM/YY

		DATE	SCALE
DESIGNED	H.BECHU / S.SARAH	DD/MM/Y	NA
DRAWN	H.BECHU	DD/MM/Y	
CHECKED	S.SARAH	DD/MM/Y	
JOB NUMBER	SHEET	REVISION	
26000-05	15 OF 15	0	