Sorell Council Southern Beaches CERMP Outfall Project

Outfall Project 3_SE115527

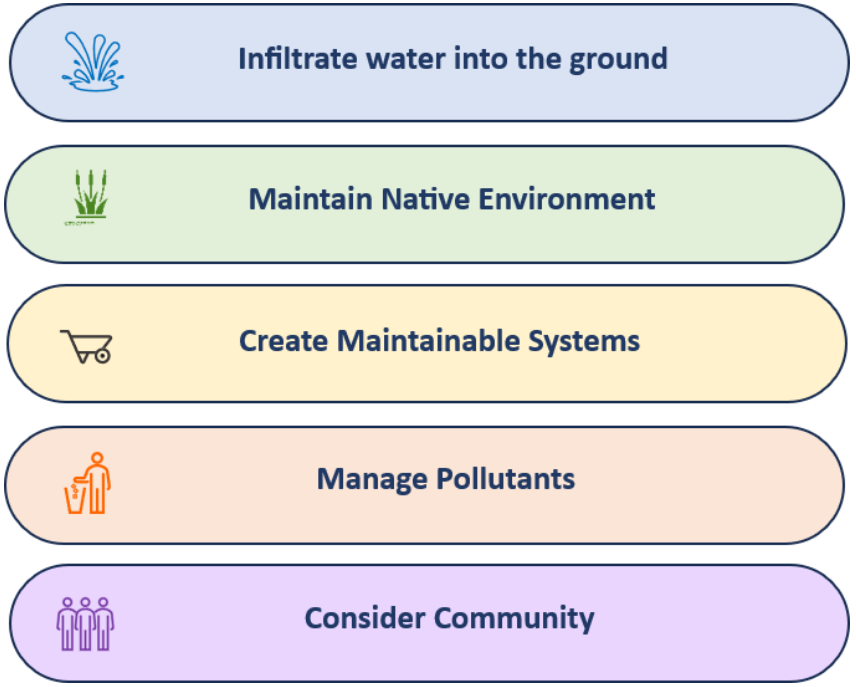
189 Lewisham Scenic Drive Anna Wilson December 2023

Brief

Manage Sorell Southern beach stormwater outfalls to protect dunes and beaches from erosion and pollutants as per the Sorell Council Coastal and Estuarine Risk Mitigation Project.
Each outfall project will follow a number of overarching principles to ensure that works are good for the community and will tie in with overall stormwater and pollution management objectives.

SE115527 Brief

Exposed pipe with no headwall. Some erosion occurring downstream.



SE115527 189 Lewisham Scenic Drive Existing conditions

The outfall SE115527 is at the back boundary of title 112209/1 – a designated but unused footway – and 189 Lewisham Scenic Drive. The outfall is a 225 dia PVC pipe of varying grade collecting stormwater from 1 side entry pit on Lewisham Scenic Drive. The pipe does not appear to be in Councils mapping system.
The existing outfall falls at the rear of the property boundary with approximately 23 metres of overland flow and 13.8m of fall prior to water level. The flow crosses a small footway at approximately 10m down.
The existing conditions are:

- Erosion occurring at the outfall
- Walkway is affected by water – muddy sections- however is holding up with no erosion.
- No apparent erosion downstream of the walkway.

Figure 2 Outfall Location

Figure 1 Image of outfall and residential outfall in same location

Existing Issues and Threats

There are several issues that need to be addressed in this area as described below.

Table 1 Tables of Issues and threats

No.	Issue	Notes
I1.	Extensive weeds on slope	Significant weed infestation particularly uphill of the walkway. The high proportion of weeds is causing the maintenance crew to undertake spray poisoning to manage the weeds. This may result in an increase in erosion risk if sections of vegetation die off.
I2.	Green waste dumping	Dumping green waste over back fences seems common along this area. This is causing weed infestations, peaks in nutrients and in the case of this outfall is exacerbating the erosion issues by killing localised vegetation.
I3.	Limited Access	There is walkway access to the site. It is possible that a very small machine may be able to access the site, otherwise any construction at this site will have to managed by hand equipment only.
I4.	Walkway	The walkway at this point appears to be created by locals but unofficially managed by Council. Keeping larger flows from impacting the walkway is desirable.

Figure 3 Side view of site

Discussion

The erosion at this site is at a nuisance level rather than a significant risk or threat. The outfall location itself has some erosion and the outfall is freestanding in the air however this is partially due to the level of fill in 187 Lewisham Scenic Court rather than entirely due to erosion from the outfall.
Due to the profusion of weeds it is difficult to tell how far down the existing erosion goes but there is no erosion present at or below the walkway. It appears that the existing vegetation is providing protection to the soil from erosive forces.

Access to the site is difficult and most machines will not be able to access the site. The site works will need to be carried out predominantly by hand with some small motorized machinery to assist if possible. The proposed design takes this issue into consideration.

The site is low risk for stormwater treatment as it has a small catchment without significant risk factors and outfalls into a marine zone.

Figure 4 Access Route

Recommendations

The recommendation is to install a PE sewer pipe from the outlet to a slightly flatter section just below the footway and installing a dissipator TEE junction (Washington State Department of Ecology, 2019) at the new outfall.
Reasoning behind this recommendation:

- The recommended pipe is scour and UV resistant so will operate at the high grade it will need to be laid on and will be fine if section are not able to have cover due to construction limitations.
- Moving the outfall to below the walkway will
    - Ensure the flow of water does not impact the footway
    - Bring the outfall closer to maintenance and inspection access
    - Remove the flow from the existing erosion risk area.
- Installing a diffusion TEE junction will spread the water load over a larger area and should minimise the risk of future erosion at the site.

References

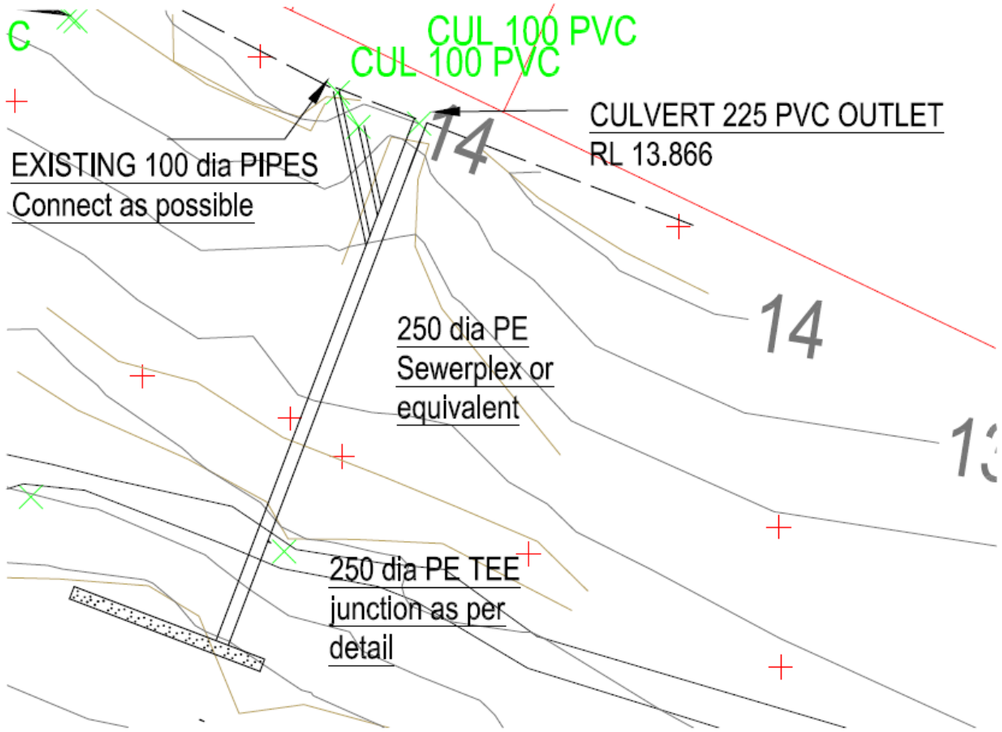
Kovacevic, S. (2020). *Sorell Stormwater System Management Plan.* HObart: Entura.

Standards Australia. (2018). *Australian/New Zealand Standard, Buried flexible pipelines Part 2: Installation.* Sydney: SAI Global.

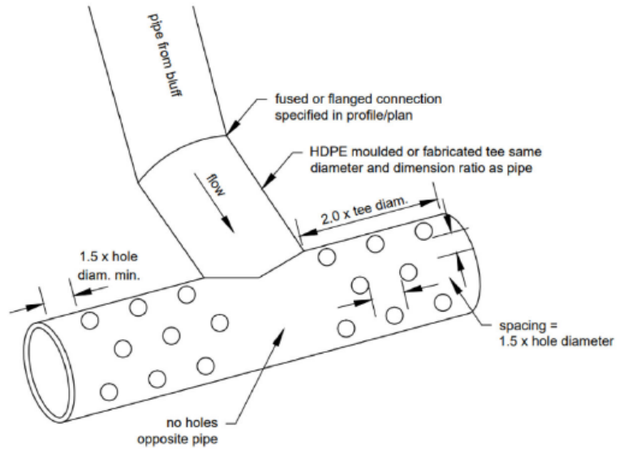
Standards Australia. (2021). *Australia/New Zealand Standard, Plumbing and drainage Part 3: Stormwater drainage.* Sydney: SAI Global.

Washington State Department of Ecology. (2019). *2019 Stormwater Management Manual for WEstern Washington Volume V, Runoff TReatment, Flow control and LID BMP Library.* Washington State Department of Ecology.

Construction Plan



DISPERSION TEE DETAIL



NOTES:

While all reasonable effort has been made to locate all visible above ground services, there may be other services which were not located during the field survey.

The title boundaries as shown on this plan were not marked at the time of the survey and have been determined by existing title dimensions and occupation (where available) only and not by field survey, and as a result are considered approximate only. This plan should not be used for building to boundary, or to prescribed set-backs, without further survey.

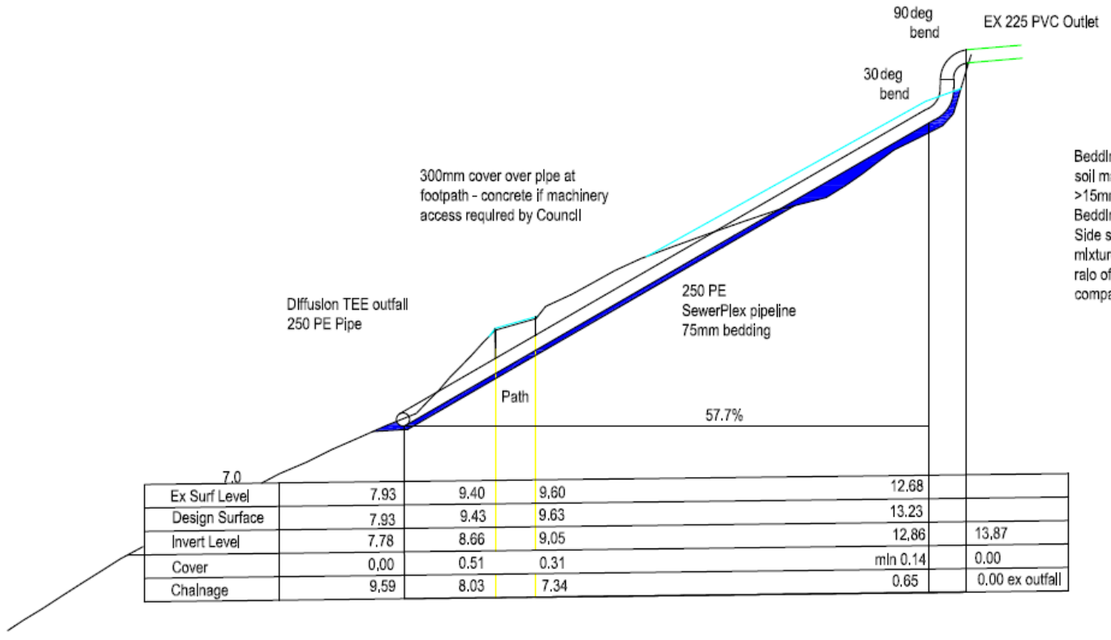
Prior to any demolition, excavation, final design or construction on this site, a full site inspection should be completed by the relevant engineers.

All survey data is 3D. The level (z-value) of any specific feature can be interrogated with a suitable CAD package. Spot heights of all features, including pipe inverts, are included in the model space but are not displayed on the PDF. Spot heights are organised into appropriate layers, and can be displayed as required.

DATUM - Vertical : AHD per SPM 8151 with reputed AHD level of 3.262 from SURCOM on 01/12/2023

Date of Survey : 29/11/23

NOTES:
Dispersion TEE as per detail
Drill holes in front half of TEE above ground level
hole dia 35mm spacing 70mm
TEE length max 3.4m as shown. TEE must be level. If ground conditions prevent full length from being laid level min length of TEE 1.5m
Cap Ends



Ex Surf Level	7.93	9.40	9.60	12.68	
Design Surface	7.93	9.43	9.63	13.23	
Invert Level	7.78	8.66	9.05	12.86	13.87
Cover	0.00	0.51	0.31	min 0.14	0.00
Chainage	9.59	8.03	7.34	0.65	0.00 ex outfall

Bedding material may be local soil material if free from rocks >15mm and hard objects. Bedding depth 75mm. Side support zone use a mixture of sand/cement in the ratio of 14:1 in place of compaction requirements.

- ROCK OUTCROP
- DRAIN
- WATER EDGE
- HIGH WATER LINE
- BOX CULVERT
- GRATED PIT
- CULVERT 100
- CULVERT 150
- CULVERT 225
- CULVERT 300
- CULVERT 375
- CULVERT 525
- CULVERT 600
- CULVERT 675
- BITUMEN CENTRE
- BITUMEN EDGE
- ROAD EDGE
- KERB LIP
- KERB BACK
- FOOTPATH
- DRIVEWAY
- VEHICLE TRACK
- CONCRETE SLAB
- MINOR BUILDING
- WALL
- WATER TANK ABOVEGROUND
- STEPS
- UNDERSIDE OF EAVES
- FENCE
- GATE

- PERM SURVEY MARK
- BENCH MARK
- TITLE PEG
- PHOTO CONTROL POINT
- NAIL
- SPIKE
- NATURAL SURFACE
- TREE
- STORMWATER MANHOLE
- CULVERT 100
- CULVERT 150
- CULVERT 225
- CULVERT 300
- CULVERT 375
- CULVERT 450
- CULVERT 525
- CULVERT 600
- CULVERT 675
- CULVERT 750
- ROAD SIGN
- PYLON
- TELSTRA PIT
- WATER UNCLASSIFIED
- STAYWIRE
- 200mm BLUEMETAL

- LIST MAP BOUNDARY APPROXIMATE ONLY
- ENBANKMANT ERROSION LEDGE
- BANK TOP
- BANK BOTTOM

WARNING:
BOUNDARIES HAVE BEEN DERIVED FROM LISTMAP DATA AND SHOULD BE CONSIDERED APPROXIMATE ONLY

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Project Name and Address
189 LEWISHAM SCENIC DRIVE
LEWISHAM
TAS 7173

Drawing Title
DESIGN PLAN

Client
SORELL COUNCIL

SCALE 0 1 2 3 4
1:100 at A3

Contour Interval 0.200 m

14 / 12 / 23

SHEET 3 of 6

DRAWN LO
CHKD DC

FILE REF: 13699

Geocivil Ref 1369901
AutoCAD Ref 1369901

DATUM Horz: GDA2020 GRID
Vert: AHD