# **EXXARO MINING**

# CIVIL DESIGN REPORT FOR THE SURFACE WATER MANAGEMENT PLAN

# FOR THE

# PROPOSED NEW DEVELOPMENT OF A TOWNSHIP ON A POTION OF THE FARM NELSONSKOP

26 JUNE 2016

REPORT No: E0505-SWMP / Rev 0

Prepared For:

DRIES DE RIDDER TOWN PLANNER Herman Street LEPHALALE AVON ENGINEERS (Pty) Ltd Reg No 1998/020126/07

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## STORMWATER REPORT FOR THE PROPOSED TOWNSHIP DEVELOPMENT ON THE FARM NELSONSKOP, LEPHALALE

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## 1. INTRODUCTION

Exxaro has embarked a township development on a Portion of the farm Nelsonskop 464LQ located to the west of Lephalale and adjacent to Marapong Town. The proposed development area has a gentle slope to the east with no defined natural drainage channel, except for the manmade channels created to discharge stormwater from both the Matimba Power Station and Marapong Town.

In order for the development of the proposed township on Nelsonskop to proceed, the recently constructed stormwater channels will need to be incorporated within the proposed Nelsonskop Township development.

As the catchment area upstream of the proposed development area is less than 5km<sup>2</sup> and these is no real defined natural drainage channel (except for the recently constructed storwater drainage channels) located on the development area, no 1:50 year and 1:100 year floodline delineation will be required according the Water Act.

The center coordinates of the study area analyzed are at approximately Latitude 23°39'17.48"S and Longitude 27°36'38.01"E (WGS84 Lo27).



For the surface stormwater management, an electronic 0,5m-interval contour layout DTM base map was used to generate current stormwater drainage management plan as will be described later in the report.

### 2. HYDROLOGY

#### 2.1 CATCHMENT PARAMETERS

One global catchment was identified in the study area for the hydrology calculations in order to determine the expected stormwater peak flows for the development area.

Homogeneous catchment characteristics were applied for calculation purposes as obtained from the appropriate 1:50 000 topographical maps (2337DA). The catchment characteristics are summarized in Item 2.3 below.

The mean annual precipitation (MAP) for the polygon grid covering the study area (development area), based on the GISap software, is given as 470mm.

#### 2.2 METHOD USED FOR STORMWATER RUN-OFF CALCULATIONS

Due to the small catchment area of the study area, the Rational Method was used to calculate the storwater run-off peak.

#### 2.3 CATCHMENT CHARACTERISTICS

| Catchment area (km²)                       | 2,147 km² |
|--|-----------|
| 10/85 vertical difference of catchment (m) | 32m       |
| Flow length of longest watercourse (km)    | 3 188km   |
| Average slope of catchment (10/85)         | 1,01%     |
| Time of concentration (Tc)                 | 31,5 min  |

#### 3. SUMMARY OF HYDROLOGY

Table 1 below provides the results of the hydrology calculations for both the pre and post development scenarios.

#### **TABLE 1:** HYDROLOGY SUMMARY

| FLOW PEAKS DERIVED |     |     |      |      |      |      |
|--------------------|-----|-----|------|------|------|------|
| V (M³/S)           | Q2  | Q5  | Q10  | Q20  | Q50  | Q100 |
| PRE-DEVELOPMENT    | 4,9 | 7,7 | 8,9  | 12,5 | 17,1 | 20,7 |
| Post-Development   | 5,7 | 9,1 | 10,5 | 14,8 | 20,2 | 24,5 |

#### 4. STORMWATER MANAGEMENT PLAN

#### 4.1 EXISTING MAIN STORMWATER CHANNEL

The proposed development area currently has an existing stormwater diversion channel running across the proposed development area as indicated on the drawing E0505/000/A attached to this report as Annexure B. The discharge into this main stormwater channel originates from the Matiba Power Station. It has also been confirmed that all stormwater originating from the Matimba Power Station is now collected in pollution control dams on Matimba Power Station property and is not discharged in to the main stormwater channel anylonger.

The current capacity of the channel section of the existing stormwater channel is calculated to be approximately 210m<sup>3</sup>/s, which is considerably more than the post-development 1:50 year run-off of 24,5 m<sup>3</sup>/s from the proposed development area.

Detail of the existing (and proposed new) stormwater channel is attached to this report as Annexure B

## 4.2 EXTENSION OF EXISTING MAIN STORMWATER CHANNEL

It is proposed to extend the existing stormwater diversion channel as depicted on the drawing E0505/000/A attached to this report as Annexure B, in order to accommodate and manage stormwater generated from the proposed new township development.

This channel must be incorporated into the surface stormwater management plan of the proposed new Nelsonskop Township development. Discharge of stormwater from the secondary stormwater systems in the proposed development area can be planned, as the capacity of the existing and new stormwater channel will be sufficient to accommodate such stormwater generated on the post development area.

## 4.3 EXISTING SECONDARY STORMWATER CHANNEL

The proposed development area currently also has an existing secondary stormwater diversion channel running south to north across the proposed development area and which originates from Marapong Town and is indicated on the drawing E0505/000/A attached to this report as Annexure B.

The current capacity of the channel section of the existing stormwater channel is calculated to be approximately  $75m^3/s$ , which is considerably more than the post-development 1:50 year run-off of 24,5 m<sup>3</sup>/s from the post-development area.

Detail of the existing (and proposed new) secondary stormwater channel is attached to this report as Annexure B

### 4.4 EXTENSION OF EXISTING SECONDARY STORMWATER CHANNEL

It is proposed to extend both the existing main stormwater and secondary diversion channels as depicted on the drawing E0505/000/A and which is attached to this report as Annexure B in order to accommodate and manage stormwater generated from the proposed new township development.

## 5. DETAIL DESIGN DRAWINGS FOR STORMWATER CHANNELS

The detailed design drawings are attached as Annexure B for further information and if required for the upgrading of the stormwater channels.

#### 6. CONCLUSIONS

- 6.1 A detailed electronic digital terrain model (DTM,) with a 0,5 m contour interval layout, was used for the analysis of the stormwater peak flow calculations.
- 6.2 The detailed analysis of the development revealed that the total catchment upstream is approximately 2,5km<sup>2</sup>. This implies that the delineation of the 1:50 & 1:100 year floodlines is not required as set out in the National Water Act (Act No. 36, 1998), as the catchment is less than 5km<sup>2</sup>.
- 6.3 The existing stormwater discharge from the Matimba Power Station and the Marapong Town must be accommodated in the township layout to be development by the appointed Town Planner as set out in the detail design drawings attached as Annexure B to this report.
- 6.4 It is hereby certified that the development area will be not be affected by both the 1:50 year & 1:100 year flood events.

Compiled by: A J SMITH MEng (Reg No 900262) AVON ENGINEERS (Pty) Ltd

Date: 26 June 2016

# ANNEXURE A



# <u>LOCALITY PLAN</u>

# ANNEXURE B DESIGN DRAWINGS



- THE COPYRIGHT ON THIS DRAWING, INCLUDING THE DESIGN AND DETAILS SHOWN HEREON, IS RESERVED BY THE CONSULTING ENGINEERS.
   ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
   ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
- ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
   NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.
   ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.
- BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.
  ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD DRAWINGS.
  THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)

GENERAL NOTES:

| А  | 13-06-2016 | FOR APPROVAL | A.J.S   |
|----|------------|--------------|---------|
| No | Date       | Details      | Checked |
|    |            | Revisions    |         |
|    |            |              |         |

|                   | A.J. SMITH PrENG. (900262) |            |
|-------------------|----------------------------|------------|
|                   | NAME                       |            |
| CONCEPT           |                            | 25/05/2016 |
| DRAWING           | SIGNATURE                  | DATE       |
|                   |                            |            |
|                   | NAME                       |            |
| TENDER            |                            |            |
| DRAWING           | SIGNATURE                  | DATE       |
| $\square \square$ |                            |            |
|                   | NAME                       |            |
| APPROVED FOR      |                            |            |
| DRAWING           | SIGNATURE                  | DATE       |
|                   |                            |            |
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| DRAWING           | SIGNATURE                  | DATE       |
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| ORIG              | SINAL DRAWING SIZE         | A1         |
| Olisat            |                            |            |

Client

EXXARO

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# Project Title

NELSONSKOP TOWNSHIP DEVELOPMENT

Drawing Title

CHANNEL LAYOUT PLAN

| Designed   | Drawn          | Checked |
|------------|----------------|---------|
| A.J.Smith  | WCA VAN STADEN |         |
| Scale      | Date           |         |
| 1:2500     | 13-06-2016     |         |
|            |                |         |
| Project No | Drawing No.    | Rev.    |
| E0505      | 000            | A       |

| MAIN CHANNEL 870.0<br>868.0<br>866.0  |  |                |                   |              |                   |               |
|---|--|----------------|-------------------|--------------|-------------------|---------------|
| SECTION 1 OF 6<br>864.0<br>SCALE : Vert 1 : 500<br>862.0<br>860.0   |  |                |                   |              |                   |               |
| Peg Distance (m)  |  | 8              | 20                | 8            | 20                | 00            |
| Grade (1: )   |  |                | ~                 | 2            | 537 634           | n             |
| Ground Level (m) (@GLO)   | .26  | 1              | 19                | 8            | ۳<br>۲            | .92           |
|   | 870<br>870   | 20             | 870               | 870          | 6                 | 0<br>0        |
| Design Level (m)  | 870.2  | 870.0          | 8698              | 869.8        | 869               | 869.7         |
| MAIN CHANNEL 870.0<br>868.0   |  |                |                   |              |                   |               |
| SECTION 2 OF 6<br>866.0<br>864.0<br>862.0   |  |                |                   |              |                   |               |
| Hor 1: 500 DATUM: 858.00  |  |                |                   |              |                   |               |
| Peg Distance (m)  | 350  | 450            | 200               | 220          | 900               | 650           |
|   | 22   | 537.634        | 21                | 33           | <u>6</u>          | 104.792       |
| Ground Level (m) (@GLO)   | 8698   | 00<br>88<br>80 | 889               | 6<br>98<br>8 | 889               | 880           |
| Design Level (m)  | 869.61   | 869.42         | 869.33            | 869.23       | 868.76            | 868.25        |
| MAIN CHANNEL 870.0<br>868.0   | END OF AS-BUILT S/W CHANNEL  |                |                   |              | SECONDARY_CHANNEL |               |
| SECTION 3 OF 6<br>SCALE : Vert 1: 500 864.0 862.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 860.0 862.0 |  |                |                   |              | 865.473           |               |
| Peg Distance (m)  | 20   | 00             | 20                | 8            | £22<br>50         | 0             |
| Grade (1: )   | ۲<br>104 792   | α              | <u> </u>          | ŏ            | 0<br>74 00        | 288 133       |
| Ground Level (m) (@GLO)   | 88<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>87<br>8  | 7.51           | 5.49              | 7.45         | 5.54              | 200.100<br>25 |
|   | 80<br>33<br>80<br>80   | 88<br>82       | 37 86             | 00<br>80     | 47 86             | 80<br>58      |
| Design Level (m)  | 867.5  | 866.5          | 866               | 865.5        | 865.4             | 865.          |
| MAIN CHANNEL         870.0           SECTION 4 OF 6         866.0   |  |                |                   | PI= 864.46   |                   |               |
| 864.0<br>SCALE : Vert 1 : 500<br>Hor 1 : 500<br>BATHM : 950 0   |  |                |                   |              |                   |               |
| Peg Distance (m)  | 1050   | 1150           | 1200              | 234.96       | 1300              | 1350          |
| Grade (1:_)   |  | 288.133        |                   |              |                   | 204.731       |
| Ground Level (m) (@GLO)   | 366.49   | 365.80         | 365.64            | 365.46       | 365.37            | 864.89        |
| Design Level (m)  | 4.93<br>8.11<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13<br>8.13 | 4<br>6<br>8    | 4<br>5.<br>9<br>2 | 4 46 5       | 4<br>15<br>2      | 3<br>06.<br>E |
| 870.0   | 88   | 80             | g                 | 8888         | 8<br>8            | 88            |
| MAIN CHANNEL         868.0           SECTION 5 OF 6         866.0   |  |                |                   | P= 1600      |                   |               |
| SCALE:Vert 1:500 862.0<br>Hor 1:500 860.0<br>DATUM:858.00   |  |                |                   |              |                   |               |
| Peg Distance (m)  | 1450   | 1500           | 1550              | 1600         | 1650              | 1700          |
| Grade (1:_)   | 204.731  |                |                   |              |                   | 271.569       |
| Ground Level (m) (@GLO)   | 864.45   | 864.00         | 864.18            | 863.68       | 863.53            | 863.18        |
| Design Level (m)  | 863.66   | 863.17         | 862.93            | 862.68       | 862.50            | 862.31        |
|   |  |                |                   |              |                   |               |
| MAIN CHAINEL         0000           SECTION 6 OF 6         866.0           864.0         862.0  |  |                |                   |              |                   |               |
| SCALE : Vert 1 : 500 860.0<br>Hor 1 : 500 DATUM : 858.00  |  |                |                   |              |                   | <u></u>       |
| Peg Distance (m)  | 1750   | 1850           | 1900              | 1950         | 5000              | 2044.5        |
| Grade (1:_)   | ച  | Q              | 271.569<br>م      | N            | Q                 |               |
| Ground Level (m) (@GLO)   | 863.1  | 862.6          | 862.4             | 862.2        | 8<br>6.           | 861.5         |
| Design Level (m)  | 862.13   | 861.76         | 861.58            | 861.39       | 861.21            | 861.04        |
|   |  |                |                   |              |                   |               |
|   |  |                |                   |              |                   |               |
|   |  |                |                   |              |                   |               |

| 300   | 869.61 869.99 350 | <ol> <li>THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br/>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br/>BY THE CONSULTING ENGINEERS.</li> <li>ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br/>WITH THE REQUIREMENTS OF THE LATEST<br/>RELEVANT SABS REQUIREMENTS.</li> <li>ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br/>SPECIFIED)</li> <li>NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWE</li> <li>ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON S<br/>BY THE CONTRACTOR BEFORE COMMENCING ANY WORI</li> <li>ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br/>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL<br/>ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br/>STANDARD DRAWINGS.</li> <li>THESE DRAWINGS MUST BE READ IN CONJUNCTION WIT<br/>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)</li> </ol>   |  |  |  |
|---|-------------------|--|--|--|--|
| 792<br>888<br>879<br>879<br>879<br>879<br>879<br>879<br>879<br>879<br>879 | 867.80 868.93 700 |  |  |  |  |
|   |                   | A     27/06/2016     FOR APPROVAL     A.J.       No     Date     Details     Chec       Image: Check state |  |  |  |
| 00<br>288.133<br>15<br>99<br>80<br>80                                     | 11 866.49 1050    |  |  |  |  |
| 8865.2  | 865.1             | A.J. SMITH PIENG. (900262)       NAME       CONCEPT       DRAWING       SIGNATURE       DRAWING       SIGNATURE       DRAWING       SIGNATURE       DAT  |  |  |  |
| 204.731   | 1400              | APPROVED FOR<br>CONSTRUCTION<br>DRAWING SIGNATURE DAT  |  |  |  |
| 863.90 864.89   | 863.66 864.45     | AS BUILT<br>DRAWING SIGNATURE DAT  |  |  |  |
| 1100  | 1750              | Client<br>EXXARO   |  |  |  |
|   | 862.13 863.15     | AVON ENGINEERS (Pty) Ltd<br>CONSULTING CIVIL & STRUCTURAL ENGINEERS<br>PRETORIA HERMANUS<br>473 KAY AVENUE POSTNET SUITE 26<br>MENLO PARK 0086 PRIVATEBAG X16<br>HERMANUS 7200<br>PO BOX 36384<br>MENLO PARK 0102 Tet: 082 456 5145<br>TEL: (012) 348 5066<br>Fax: (086) 685 4303  |  |  |  |
| .54   |                   | Project Title<br>NELSONSKOP TOWNSHIP<br>DEVELOPMENT  |  |  |  |
| 861.04 861  |                   | Drawing Title<br>MAIN CHANNEL<br>LONG SECTIONS   |  |  |  |
|   |                   | DesignedDrawnCheckedA.J.SmithWCA VAN STADENScaleDateAS SHOWN27-06-2016   |  |  |  |
|   |                   | Project No     Drawing No.     Rev.       E0505     001     A  |  |  |  |

| SE  | RVITUDE LINE |         |          |   |       |
|-----|--------------|---------|----------|---|-------|
| 872 |              |         |          |   |       |
|     |              |         |          |   |       |
| 871 |              |         |          |   |       |
|     |              |         |          |   |       |
| 870 |              |         |          |   |       |
|     |              |         |          |   |       |
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|     | Ϋ            | ين<br>ب |          |   | 1     |

| 873 | SERVITUDE LINE |  |  |
|-----|----------------|--|--|
| 070 |                |  |  |
| 8/2 |                |  |  |
| 871 |                |  |  |
|     |                |  |  |
| 870 |                |  |  |
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| 35  | 3              |  |  |

| 873 | SERVITUDE LINE |     |     |     |     |
|-----|----------------|-----|-----|-----|-----|
| 872 |                |     |     |     |     |
| 871 |                |     |     |     |     |
| 870 |                |     |     |     |     |
|     |                |     |     |     |     |
| Қ   | -30            | -25 | -20 | -15 | -10 |

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| SERVITUDE LINE |                |                |  |   |
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| -30            | -25            | -70            | ÷  | 2<br>•  |
|                |                |                |  |   |
|                | SERVITUDE LINE | SERVITUDE LINE | SERVITUDE LINE       Image: Servitude line | SERVITUDE LINE            8         9           8         8           9         8           8         9 |

| 873 | SERVITUDE LINE | E |       |     |      |
|-----|----------------|---|-------|-----|------|
| 872 |                |   |       |     |      |
| 871 |                |   |       |     |      |
| 870 |                |   |       |     |      |
| 869 |                |   |       |     |      |
|     | - 30           |   | - 07- | - C | - 10 |

| 873 | SERVITUDE LINE |    |            |    |         |
|-----|----------------|----|------------|----|---------|
| 070 |                |    |            |    |         |
| 0/2 |                |    |            |    |         |
| 871 |                |    |            |    |         |
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| 860 |                |    |            |    |         |
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|     | r 'P           |    | <b>`</b> I | `ı |         |

| 873 | SERVITUDE LINE |         |        |
|-----|----------------|---------|--------|
|     |                |         |        |
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|                    |                              | · · · · · · · · · · · · · · · · · · ·         |                              |                |
|--------------------|------------------------------|---|------------------------------|----------------|
| 873 SERVITUDE LINE |                              |   |                              | SERVITUDE LINE |
| 872                |                              |   |                              |                |
| 871                |                              |   |                              |                |
| 870                |                              |   |                              |                |
|                    |                              | 22 0  |                              |                |
|                    | Exist                        | ing Channel @ Peg Distance (m) 350 m          |                              |                |
|                    |                              |   |                              |                |
|                    |                              |   |                              | SERVITUDE LINE |
| 872                |                              |   |                              |                |
|                    |                              |   |                              |                |
| 870                |                              |   |                              |                |
|                    |                              | 0 2   |                              |                |
| 9 94               | 9 <del>-</del> -             | Existing Channel @ Peg Distance (m) 400 m     | ~                            |                |
|                    |                              |   |                              |                |
| 872 SERVITUDE LINE |                              |   |                              | SERVITUDE LINE |
| 871                |                              |   |                              |                |
| 870                |                              |   |                              |                |
| 869                |                              |   |                              |                |
| ·3 ·3              | ିକ୍ କ୍<br>Existing           | Channel @ Peg Distance (m) 450 m              | <sup>2</sup> 10 <sup>2</sup> | 32 50          |
|                    |                              |   |                              |                |
| 872 SERVITUDE LINE |                              |   |                              | SERVITUDE LINE |
| 871                |                              |   |                              |                |
| 870                |                              |   |                              |                |
| 869                |                              |   |                              |                |
|                    | چ چ<br>Existinç              | Channel @ Peg Distance (m) 500 m              |                              |                |
|                    |                              |   |                              |                |
| 871 SERVITUDE LINE |                              |   |                              | SERVITUDE LINE |
| 870                |                              |   | 1:7.00                       |                |
| 869                | 1:7.00                       | 0.00%   |                              |                |
|                    |                              | 22  | 0 2                          |                |
|                    | Existing Chan                | nel to be Built up @ Peg Distance (m) 550 m   | -                            |                |
|                    |                              |   |                              |                |
|                    |                              |   |                              |                |
| 869                | 1:7.00                       | 0.000/  | 1:7.00                       |                |
| 868                |                              | 0.00% 0.00%                                   |                              |                |
|                    |                              | 0   | 15         10         5      |                |
|                    | Existing Chan                | nel to be Built Up @ Peg Distance (m) 600 m   |                              |                |
|                    |                              |   |                              |                |
| 870                |                              |   |                              | SERVITUDE LINE |
| 869                | 1:7.00                       |   | 1:7.00                       |                |
| 868                |                              | 0.00%   |                              |                |
|                    | ين<br>چ چ ب<br>Evicting Chan | nel to he Built I In @ Peg Distance (m) 650 m | 3         5         5        |                |
|                    |                              |   |                              |                |
| 870 SERVITUDE LINE |                              |   |                              |                |
| 869                |                              |   | 1:7.00                       |                |
| 868                | 1:7.00                       | 0.00%   |                              |                |
| 867                |                              |   |                              |                |
| -50 -52            | မ္<br>Existing Chanr         | el to be Built Up @ Peg Distance (m) 700 m    | <del>ن</del>                 | 55 20          |





| SERVITUDE LINE        |  |   |                 | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS                        |
|-----------------------|--|---|-----------------|---|
| 869                   |  |   | SERVITUDE LINE  | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868                   | 1:7.00                                   | 1:7:00  |                 | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867                   | 0.00%                                    | 0.00%   |                 | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>               |
|                       |  |   |                 | BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.<br>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 750 m  |                 | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|                       |  |   |                 | 7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH<br>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
|                       |  |   |                 |   |
|                       |  |   |                 | GENERAL NOTES:  |
| 000                   | 1.7.00                                   | 1:7.00  | SERVITUDE LINE  |   |
| 867                   | 0.00%                                    | 0.00%   |                 |   |
| 866                   |  |   |                 |   |
| -25                   |  |   | 52              |   |
|                       | New Propossed Channel @                  | Peg Distance (m) 800 m  |                 |   |
|                       |  |   |                 |   |
| SERVITUDE LINE        |  |   |                 |   |
| 868                   |  | 4.7.00  |                 |   |
| 867                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 866                   | 0.00%                                    |   |                 |   |
|                       | 0 <u>5</u> <u>10</u>                     | <u>2</u> <u>3</u>   | 22 23 23 23     |   |
| -r 'Y                 | New Propossed Channel @                  | ) Peg Distance (m) 850 m  |                 | A 27/06/2016 FOR APPROVAL A.J.S   |
|                       |  |   |                 | No Date Details Checked   |
|                       |  |   | SERVITUDE LINE. | Revisions   |
|                       |  |   |                 |   |
| 867                   | 4.7.00                                   | 1:7.00  |                 |   |
| 866                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 865                   |  |   |                 |   |
| -25                   | ອຸ່ະ<br>New Pronossed Channel ທີ         | ې و چې د د د د د د د د د د د د د د د د د د                                    | 30 52 50        | A.J. SMITH PrENG. (900262)  |
|                       | New Propossed Onlamer (d                 |   |                 | CONCEPT 27-06-2016  |
| 030                   |  |   |                 | DRAWING SIGNATURE DATE  |
|                       |  |   | SERVITUDE LINE  |   |
| 867                   | 1.7 00                                   | 1:7.00  |                 | DRAWING SIGNATURE DATE  |
| 866                   | 0.00%                                    | 0.00%   |                 |   |
| 865                   |  |   |                 | CONSTRUCTION<br>DRAWING SIGNATURE DATE  |
|                       | بى<br>بە<br>ا                            | 2 2 2 0 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 | 22 20 15 15     | NAME  |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 950 m  |                 | AS BUILT<br>DRAWING SIGNATURE DATE  |
|                       |  |   |                 |   |
|                       |  |   |                 | 80mm ON ORIGINAL DRAWING  |
| 867                   |  |   | SERVITUDE LINE  |   |
| 866                   | 1:7.00                                   | 0.00%   |                 |   |
| 865                   |  |   |                 | Client  |
| -20                   | ې بې | 3         3         5         0   | 55 20           | EXXARO  |
|                       | New Propossed Channel @                  | Peg Distance (m) 1000 m   |                 |   |
|                       |  |   |                 |   |
|                       |  |   |                 |   |
| <u>106</u>            |  |   | SERVITUDE LINE  | AVON ENGINEERS (Ptv) Ltd  |
| 866                   | 1:7.00                                   | 1:7.00  |                 | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |
| 865                   | 0.00%                                    | 0.00%   |                 | PRETORIA HERMANUS<br>473 KAY AVENUE POSTNET SUITE 26<br>MENLO PARK 0086 PRIVATEBAG X16  |
|                       |  |   |                 | PO BOX 36384<br>MENLO PARK 0102<br>Tel: 082 456 5145  |
| 5<br>7                | · · · · · · · · · · · · · · · · · · ·    | Peg Distance (m) 1050 m   | й<br>Г          | TEL: (012) 348 5066<br>Fax: (086) 685 4303  |
|                       |  |   |                 | Project Title   |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  |   |
| 000                   | 1:7:00                                   | 1:7.00  |                 |   |
| 865                   | 0.00%                                    | 0.00%   |                 |   |
| 864                   |  |   |                 |   |
| بې<br>بې              | New Propossed Channel @                  | Peg Distance (m) 1100 m   | 5 9             |   |
|                       |  |   |                 | SHEET 3 OF 5  |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  | Designed Drawn Checked  |
| 865                   | 1:7.00                                   | 1:7.00  |                 | A.J.Smith WCA VAN STADEN  |
|                       | 0.00%                                    | U.UU%   |                 | AS SHOWN 27-06-2016   |
| <u>804</u><br>දුදු වැ | <u>ب</u><br>بن<br>                       | 5         5         5   |                 |   |
| `N                    | New Propossed Channel @                  | Peg Distance (m) 1150 m   |                 |   |
|                       | -  |   |                 | EUSUS 002.3 A   |

|     |                |              |                |                               |  |              |  |                |   | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS                        |
|-----|----------------|--------------|----------------|-------------------------------|--|--------------|--|----------------|---|---|
| 869 |                |              |                |                               |  |              |  | SERVITUDE LINE |   | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868 |                |              | 1:7.00         |                               |  |              | 1:7:00   |                |   | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>               |
|     |                | 2            |                | 2                             | 0  | 0 2          | <u>ې</u>   |                |   | BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.<br>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL |
|     | Ϋ́Ϋ́Υ          | Ť            | ÷              | New Propossed Channel @       | D Peg Distance (m) 750 m   |              | ÷  | й              |   | ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD DRAWINGS.  |
|     |                |              |                |                               |  |              |  |                |   | 7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH<br>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
| 869 |                |              |                |                               |  |              |  |                |   |   |
| 000 |                |              |                |                               |  |              |  |                |   | GENERAL NOTES:  |
| 000 |                |              | 1.7.00         |                               |  |              | 1:7.00   |                |   |   |
| 867 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   |   |
| 866 |                |              |                |                               |  |              |  |                |   |   |
| -25 | -20            | -15          | ų              |                               | Des Distance (m) 900 m   | 9            | τ.<br>τ.<br>τ.<br>τ.<br>τ.<br>τ.<br>τ.<br>τ.<br>τ.<br>τ. | 55 20          |   |   |
|     |                |              |                | New Propossed Channel @       | y Peg Distance (m) 800 m   |              |  |                |   |   |
|     |                |              |                |                               |  |              |  |                |   |   |
|     | SERVITUDE LINE |              |                |                               |  |              |  |                |   |   |
| 808 |                |              |                |                               |  |              | 00   | SERVITUDE LINE |   |   |
| 867 |                |              | 1:7.00         | 0.00%                         | 0.00%  |              |  |                |   |   |
| 866 |                |              |                |                               |  |              |  |                |   |   |
| -25 | -70            | -10 -15      | <u></u>        | 0                             | ى<br>ب   | 10           | <del>ن</del>   | 52 50          | 30                                      | A 27/06/2016 FOR APPROVAL A J S   |
|     |                |              |                | New Propossed Channel @       | Peg Distance (m) 850 m   |              |  |                |   |   |
|     |                |              |                |                               |  |              |  |                |   | Details Checked   |
| 868 | SERVITUDE LINE |              |                |                               |  |              |  | SERVITUDE LINE |   | Revisions   |
| 867 |                |              |                |                               |  |              |  |                |   |   |
|     |                |              | 1:7.00         |                               | 0.002/   | 1:7.00       |  |                |   |   |
| 866 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   |   |
| 865 |                | 0 2          |                |                               |  | 0            | Q  | <br>ب          | 0                                       |   |
| 4   | 4              | <b>T T</b>   |                | New Propossed Channel @       | Peg Distance (m) 900 m   | <del>,</del> |  |                |   | A.J. SMITH PrENG. (900262)  |
|     |                |              |                |                               |  |              |  |                |   | CONCEPT 27-06-2016  |
| 868 | SERVITUDE LINE |              |                |                               |  |              |  |                |   |   |
| 867 |                |              |                |                               |  |              |  | SERVITUDE LINE |   |   |
| 966 |                | 1:7.00       |                |                               |  |              | 1:7.00   |                |   | DRAWING SIGNATURE DATE  |
| 000 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   | APPROVED FOR<br>CONSTRUCTION  |
| 865 |                |              |                |                               |  |              |  |                |   | DRAWING SIGNATURE DATE  |
|     | -25            | -15          | -10            | ୍ୟ<br>New Propossed Channel ଜ | ୍ର<br>ନା Peg Distance (m) 950 m                                  | 2<br>2       | 15   | 20             |   |   |
|     |                |              |                |                               |  |              |  |                |   | DRAWING SIGNATURE DATE  |
|     |                |              |                |                               |  |              |  |                |   |   |
| 867 | SERVITUDE LINE |              |                |                               |  |              |  |                |   | 80mm ON ORIGINAL DRAWING  |
| 866 |                |              | 1:7.00         |                               |  |              |  | SERVITUDE LINE |   | ORIGINAL DRAWING SIZE A1  |
| 865 |                |              |                | 0.00%                         | 0.00%  | 1.7.00       |  |                |   | Client  |
|     |                |              |                |                               |  |              |  |                |   |   |
|     | -25            | ස්<br>ස්<br> |                | ∽<br>New Propossed Channel @  | > Peg Distance (m) 1000 m  | വ<br>പ്ര     | 2  | 20             |   | EXXARO  |
|     |                |              |                |                               |  |              |  |                |   |   |
|     |                |              |                |                               |  |              |  |                |   |   |
| 867 |                |              |                |                               |  |              |  | SERVITUDE LINE |   |   |
| 866 |                | 1.7.00       |                |                               |  |              | 1:7.00   |                |   | AVON ENGINEEKS (PTY) LTO  |
| 865 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   | PRETORIA HERMANUS 473 KAY AVENUE POSTNET SUITE 26   |
|     |                |              |                |                               |  |              |  |                |   | MENLO PARK 0086 PRIVATEBAG X16<br>HERMANUS 7200<br>PO BOX 36384<br>MENLO PARK 0102 Tet 082 456 5145   |
|     |                | Ϋ́ς          | -10            | Now Pronocood Channel         | $\sim$   | с.<br>С      | <del>2</del>   | 55             |   | TEL: (012) 348 5066<br>Fax : (086) 685 4303   |
|     |                |              |                |                               | רפץ טווגמווטפ (ווו) ווטטט m                                      |              |  |                |   | Project Title   |
|     |                |              |                |                               |  |              |  |                |   |   |
| 867 | SERVITUDE LINE |              |                |                               |  |              |  | SERVITUDE LINE | ——————————————————————————————————————— |   |
| 866 |                | 1:7.         | .00            |                               |  |              | 1:7.00   |                |   | DEVELOPIVIENI   |
| 865 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   |   |
| 864 |                |              |                |                               |  |              |  |                |   | Drawing Title   |
|     | -25            | <u>ب</u>     | -10            | P<br>New Pronossed Chappel @  | Peg Distance (m) 1100 m  | ې<br>م       | <u>ට</u>   | 55 20          |   | MAIN CHANNEL  |
|     |                |              |                | new r roposseu onanner (      | י ישואסוש אווע אוווא דישיי איז איז איז איז איז איז איז איז איז א |              |  |                |   | SHEFT 3 OF 5  |
|     |                |              |                |                               |  |              |  |                |   |   |
| 866 | SERVITUDE LINE |              |                |                               |  |              |  | SERVITUDE LINE |   | Designed Drawn Checked  |
| 005 |                |              | .7.00          |                               |  | 1:7.00       |  |                |   | A.J.Smith WCA VAN STADEN  |
| 000 |                |              |                | 0.00%                         | 0.00%  |              |  |                |   | Scale Date  |
| 864 |                | <br>ب        |                |                               |  |              |  |                |   |   |
|     | -2<br>-2       | <del>~</del> | <del>ب</del> م | New Propossed Channel @       | ) Peg Distance (m) 1150 m  | 5            | ₹  | 5 5            |   | Project No Drawing No. Rev.   |
|     |                |              |                |                               |  |              |  |                |   | E0505 002.3 A   |

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|----------|-----------------|---------------------------|-----------------------------------|------------------|---|---|---------------|
| 869      |                 |                           |                                   | 1.7.00           |   | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST<br>RELEVANT SABS REQUIREMENTS.   |               |
| 868      |                 | 1:7.00 0.00%              | 0.00%                             | 1.7.00           |   | 3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)  | SE            |
| 867      |                 |                           |                                   |                  |   | 4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWE     5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON S     BY THE CONTRACTOR BEFORE COMMENCING ANY WOR | N SITE<br>ORK |
|          | -25 -25         | ę. 9                      | 2                                 | - <sup>2</sup>   | 20                                      | 6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL<br>ENGINEERING WORKS, THIRD EDITION 2005 AND THE     | TH<br>IL      |
|          |                 | New Propossed             | Channel @ Peg Distance (m) 750 m  |                  |   | STANDARD DRAWINGS.<br>7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WIT<br>THE ARCHITECT'S DRAWINGS (JE APPLICABLE)                                       | VITH          |
|          |                 |                           |                                   |                  |   |   |               |
| 869      | SERVITUDE LINE  |                           |                                   |                  |   |   |               |
| 868      |                 |                           |                                   | 1:7.00           |   | GENERAL NOTES:  |               |
| 867      |                 | 1.7.00 0.00%              | 0.00%                             |                  |   |   |               |
| 866      |                 |                           |                                   |                  |   |   |               |
| -25      | -15 -           | ې<br>مې<br>Now Propossor  | Channel @ Peg Distance (m) 800 m  | - <sup>1</sup>   | 55 20                                   |   |               |
|          |                 | New Flopossed             |                                   |                  |   |   |               |
|          |                 |                           |                                   |                  |   |   |               |
| 868      |                 |                           |                                   |                  | SERVITUDE LINE,                         |   |               |
| 867      |                 | 4:7.00                    |                                   | 1:7.00           | <b></b>                                 |   |               |
| 866      |                 | 0.00%                     | 0.00%                             |                  |   |   |               |
|          |                 |                           |                                   | 2 0              | 2 20                                    |   |               |
| 5        | 47 <del>-</del> | - New Propossed           | Channel @ Peg Distance (m) 850 m  | · ~              | ~ | A 27/06/2016 FOR APPROVAL A.J.  | .J.S          |
|          |                 |                           |                                   |                  |   | No Date Details Check   | ∋cked         |
| 868      | SERVITUDE LINE  |                           |                                   |                  | SERVITUDE LINE                          | Revisions   |               |
| 867      |                 |                           |                                   | 1.7.00           |   |   |               |
| 866      |                 | 1:7.00 0.00%              | 0.00%                             | 1.7.00           |   |   |               |
| 965      |                 |                           |                                   |                  |   |   |               |
| -25      | -15 -20         | 0 yr                      |                                   | <del>ن</del>     | 52 53 50                                |   |               |
|          |                 | New Propossed             | Channel @ Peg Distance (m) 900 m  |                  |   |   | 6-2016        |
| 000      |                 |                           |                                   |                  |   | DRAWING SIGNATURE DAT   | ATE           |
| 000      | SERVITUDE LINE  |                           |                                   |                  | SERVITUDE LINE                          | TENDER NAME   |               |
| 867      |                 | 1:7.00                    |                                   | 1:7.00           |   | DRAWING SIGNATURE DAT   | <u>ATE</u>    |
| 866      |                 | 0                         | 0% 0.00%                          |                  |   | APPROVED FOR NAME   |               |
| 865      |                 |                           |                                   |                  |   | DRAWING SIGNATURE DAT   | <b>NTE</b>    |
| <u>?</u> | -52             | 우 오<br>New Propossed      | Channel @ Peg Distance (m) 950 m  | 6 č              | 22 53                                   | AS BUILT NAME   |               |
|          |                 | ·                         |                                   |                  |   | DRAWING SIGNATURE DAT   | <u>\TE</u>    |
|          | SERVITUDE LINE  |                           |                                   |                  |   |   |               |
| 867      |                 |                           |                                   |                  | SERVITUDE LINE                          |   | $\rightarrow$ |
| 866      |                 | 1:7.00                    | 0.00%                             | 1:7:00           |   |   |               |
| 865      |                 |                           |                                   |                  |   |   |               |
|          | -25             |                           |                                   | 12 10            | 52 53                                   | EXXARO  |               |
|          |                 | New Propossed             | Channel @ Peg Distance (m) 1000 m |                  |   |   |               |
|          |                 |                           |                                   |                  |   |   |               |
| 867      |                 |                           |                                   |                  | SERVITUDE LINE                          | AVON ENCINEEDS (D++) I+A  |               |
| 866      |                 | 1:7.00                    |                                   | 1:7.00           |   | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |               |
| 865      |                 | 0.00%                     | 0.00%                             |                  |   | PRETORIA HERMANUS 473 KAY AVENUE POSTNET SUITE 26 MENLO PARK 0086 PRIVATEBAG X16  |               |
|          |                 | 5:         6         4    | 22                                | <u>.</u>         | 32 50                                   | HERMANUS 7200<br>PO BOX 36384<br>MENLO PARK 0102 Tel: 082 456 5145  |               |
|          |                 | New Propossed             | Channel @ Peg Distance (m) 1050 m |                  |   | Fax: (086) 685 4303   |               |
|          |                 |                           |                                   |                  |   | Project Title   |               |
| 867      |                 |                           |                                   |                  | SERVITUDE LINE                          | NELSONSKOP TOWNSHIP   |               |
| 866      |                 | 1.7.00                    |                                   | 1:7.00           |   | DEVELOPMENT   |               |
| 865      |                 | 0.00%                     | 0.00%                             |                  |   |   |               |
| 864      |                 |                           |                                   |                  |   | Drawing Title   |               |
|          |                 | ج بے ہو۔<br>New Propossed | Channel @ Peg Distance (m) 1100 m | 5 5              | З 5                                     | MAIN CHANNEL<br>CROSS SECTIONS  |               |
|          |                 |                           |                                   |                  |   | SHEET 3 OF 5  |               |
|          | SERVITUDE LINE  |                           |                                   |                  |   |   |               |
| 866      |                 | 1.7.00                    |                                   | 4.7.00           | SERVITUDE LINE                          | Designed     Drawn     Checked       A J Smith     WCA VAN STADEN   |               |
| 865      |                 | 0.00%                     | 0.00%                             | I. <i>r</i> . UU |   | Scale Date  |               |
| 864      |                 |                           |                                   |                  |   | AS SHOWN 27-06-2016   |               |
|          | -12<br>-13      | e Se New Propossed        | Channel @ Peg Distance (m) 1150 m | 22 10            |   | Project No Drawing No. Rev.   |               |
|          |                 |                           |                                   |                  |   | E0505 002.3 A   | <b>۱</b>      |

|            | SERVITUDE LINE       |        |                                    |   |        |         |                 | ] | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS                        |
|------------|----------------------|--------|------------------------------------|---|--------|---------|-----------------|---|---|
| 869        |                      |        |                                    |   |        |         | SERVITUDE LINE, |   | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868        |                      |        | 1:7.00                             |   | 1:7.00 |         |                 |   | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867        |                      |        | 0.00%                              | 0.00%                                       |        |         |                 |   | <ol> <li>A. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>                  |
|            |                      |        | 2                                  |   |        |         |                 |   | BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.<br>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL |
|            | Ϋ́, Ϋ́, Ϋ́,          | Ę      | New Propossed Chan                 | nel @ Peg Distance (m) 750 m                | €      | × →     | 22              |   | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|            |                      |        |                                    |   |        |         |                 |   | 7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH<br>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
| 869        |                      |        |                                    |   |        |         |                 | 1 |   |
| 000        |                      |        |                                    |   |        |         |                 |   | GENERAL NOTES:  |
| 000        |                      |        | 1:7.00                             |   | 1:7.00 |         | SERVITUDE LINE  |   |   |
| 867        |                      |        | 0.00%                              | 0.00%                                       |        |         |                 |   |   |
| 866        |                      |        |                                    |   |        |         |                 |   |   |
| -25        | -20                  | -10    | ې<br>New Propossed Chan            | ool @ Peg Distance (m) 800 m                | 0      | 50      | 55              |   |   |
|            |                      |        |                                    |   |        |         |                 |   |   |
| <b>F</b>   |                      |        |                                    |   |        | T T     |                 | 1 |   |
| 869        | SERVITUDE LINE       |        |                                    |   |        |         |                 |   |   |
| 000        |                      |        |                                    |   | 1:7.00 |         | SERVITUDE LINE  |   |   |
| 807        |                      |        | 1:7.00 0.00%                       | 0.00%                                       |        |         |                 |   |   |
| 866        |                      |        |                                    |   |        |         |                 |   |   |
| -25        | -15 -20              | -10    | ې<br>م                             | 2<br>Z                                      | 10     | 50      | 30 25           |   | A 27/06/2016 FOR APPROVAL A.J.S   |
|            |                      |        | New Propossed Chan                 | nel @ Peg Distance (m) 850 m                |        |         |                 |   | No         Date         Details         Checked   |
|            |                      |        |                                    |   |        |         |                 |   | Revisions   |
| 868        | SERVITUDE LINE       |        |                                    |   |        |         | SERVITUDE LINE  |   |   |
| 867        |                      |        |                                    |   | 1.7 00 |         |                 |   |   |
| 866        |                      | 1:7.0  | 00 0.00%                           | 0.00%                                       |        |         |                 |   |   |
| 005        |                      |        |                                    |   |        |         |                 |   |   |
| <u>۵۰۰</u> | -15                  | -10    | чү О                               | ب<br>ب                                      |        | 5       | 30 25           |   |   |
|            |                      |        | New Propossed Chan                 | nel @ Peg Distance (m) 900 m                |        |         |                 |   | A.J. SMITH Prend. (900262)  |
|            |                      |        |                                    |   |        |         |                 | J | CONCEPT   |
| 868        | SERVITUDE LINE       |        |                                    |   |        |         | SERVITUDE LINE  |   | NAME  |
| 867        |                      |        |                                    |   | 4.7.00 |         |                 |   | TENDER  |
| 866        |                      | 1:7.00 |                                    |   | 1:7.00 |         |                 |   | NAME  |
| 865        |                      |        | 0.00%                              | 0.00%                                       |        |         |                 |   | APPROVED FOR<br>CONSTRUCTION<br>DRAWING SIGNATURE DATE  |
|            |                      | -15    | <del>ر</del><br>ب                  | 2 0   | 9      |         |                 |   |   |
|            |                      | •      | New Propossed Chan                 | nel @ Peg Distance (m) 950 m                |        |         |                 |   |   |
|            |                      |        |                                    |   |        |         |                 |   | DRAWING SIGNATURE DATE  |
|            | SERVITUDE LINE       |        |                                    |   |        |         |                 |   |   |
| 867        |                      |        |                                    |   |        |         | SERVITUDE LINE  |   |   |
| 866        |                      | 1:7.00 | 0.00%                              | 0.000/                                      | 1.7.00 |         |                 |   | ORIGINAL DRAWING SIZE AT  |
| 865        |                      |        | 0.00%                              | 0.00%                                       |        |         |                 |   | Client  |
|            | -20                  | -15    | ې<br>ب                             | 2 0   | 9      | 20 15   | 25              |   | EXXARO  |
|            |                      |        | New Propossed Chann                | el @ Peg Distance (m) 1000 m                |        |         |                 |   |   |
|            |                      |        |                                    |   |        |         |                 | ] |   |
| 867        | SERVITUDE LINE       |        |                                    |   |        |         |                 |   |   |
| 001        |                      |        |                                    |   |        |         |                 |   | AVON ENGINEERS (Pty) Ltd  |
| 866        |                      | 1:7.00 |                                    | 0.000/                                      | 1:7.00 |         |                 |   | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |
| 865        |                      |        | 0.00%                              | 0.00%                                       |        |         |                 |   | 473 KAY AVENUE POSTNET SUITE 26<br>MENLO PARK 0086 PRIVATEBAG X16<br>HERMANII \$200   |
|            | 25<br>15<br>20<br>25 | 2      |                                    | 2 0   | 10     |         | 22              |   | PO BOX 36384<br>MENLO PARK 0102 Tel: 082 456 5145<br>TEL: (012) 348 5066  |
|            |                      |        | New Propossed Chanr                | nel @ Peg Distance (m) 1050 m               |        |         |                 |   | Fax : (086) 685 4303  |
|            |                      |        |                                    |   |        |         |                 | ] | Project Title   |
| 867        | SERVITUDE LINE       |        |                                    |   |        |         |                 |   | NELSONSKOP TOWNSHIP   |
| 866        |                      |        |                                    |   |        |         | SERVITUDE LINE  |   | DEVELOPMENT   |
| 865        |                      | 1:7.00 | n nn%                              | 0.00%                                       | 1:7.00 |         |                 |   |   |
| 000        |                      |        | 0.0070                             | 0.0070                                      |        |         |                 |   |   |
| 864        | -15 -25              | -10    | ې<br>بې                            | 2 C   | 9      |         | 33              |   | MAIN CHANNEL  |
|            |                      |        | New Propossed Chanr                | nel @ Peg Distance (m) 1100 m               |        |         |                 |   | CROSS SECTIONS  |
|            |                      |        |                                    |   |        |         |                 | 1 | SHEET 3 OF 5  |
|            | SERVITUDE LINE       |        |                                    |   |        |         |                 |   |   |
| 866        |                      | 1.7 00 |                                    |   | 4.7.00 |         | SERVITUDE LINE  |   | Designed     Drawn     Checked       A.J.Smith     WCA VAN STADEN   |
| 865        |                      |        | 0.00%                              | 0.00%                                       | 1:7.00 |         |                 |   | Scale     Date  |
| 864        |                      |        |                                    |   |        |         |                 |   | AS SHOWN 27-06-2016   |
|            |                      | -10    | ې<br>بې<br>Nour Droposed Ob - ۲۰۰۰ | Dol @ Dog Distance (m) 1150 m               | 0      | 20 - 20 | 25              |   | Project No Drawing No. Rev.   |
|            |                      |        | ivew Propossed Unanr               | ובו שרפט טו <i>אנ</i> מווגיפ (ווו) דוסט ווו |        |         |                 |   | E0505 002.3 A   |

|          | SERVITUDE LINE                          |             |  |                                 |                          |                |    | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS          |
|----------|---|-------------|--|---------------------------------|--------------------------|----------------|----|---|
| 869      |   |             |  |                                 |                          |                |    | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868      |   |             | 1:7.00                                 |                                 | 1:7:00                   |                |    | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867      |   |             | 0.00%                                  | 0.00%                           |                          |                |    | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol> |
|          |   | 0 12        | م ــــــــــــــــــــــــــــــــــــ | 22                              | 2 10                     | 2 20           | I  | 6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL                                    |
| , c      | 수 · · · · · · · · · · · · · · · · · · · | <b>-</b>    | New Propossed Ch                       | annel @ Peg Distance (m) 750 m  | £ £                      | 7 7            |    | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|          |   |             |  |                                 |                          |                |    | THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
| 869      |   |             |  |                                 |                          |                |    |   |
| 868      |   |             |  |                                 |                          |                |    | GENERAL NOTES:  |
|          |   |             | 1:7.00                                 |                                 | 1:7.00                   |                |    |   |
| 867      |   |             | 0.00%                                  | 0.00%                           |                          |                |    |   |
| 866      |   |             |  |                                 |                          |                |    |   |
| -25      | -20                                     |             | ہ<br>New Propossed Ct                  | annel @ Peg Distance (m) 800 m  | 15 10                    | 52 50          |    |   |
|          |   |             |  |                                 |                          |                |    |   |
|          |   |             |  |                                 |                          |                |    |   |
| 868      |   |             |  |                                 |                          |                |    |   |
| 967      |   |             |  |                                 | 1:7.00                   |                |    |   |
|          |   |             | 1:7.00 0.00%                           | 0.00%                           |                          |                |    |   |
| 800      |   |             |  |                                 |                          |                |    |   |
|          |   |             |  |                                 | <b>1</b> 0<br><b>1</b> 2 | 20             | 33 | A 27/06/2016 FOR APPROVAL A.J.S   |
|          |   |             | New Propossed Ch                       |                                 |                          |                |    | No Date Details Checked   |
|          | 1                                       |             |  |                                 |                          | 1              |    | Revisions   |
| 868      | SERVITUDE LINE                          |             |  |                                 |                          | SERVITUDE LINE | [  |   |
| 867      |   |             |  |                                 | 1:7.00                   |                |    |   |
| 866      |   | 1:7         | .7.00 0.00%                            | 0.00%                           |                          |                |    |   |
| 865      |   |             |  |                                 |                          |                |    |   |
| -25      | -15                                     | -10         | Now Proposed Cl                        | e                               | <u>ې</u>                 | 55             | 8  | A.J. SMITH PrENG. (900262)  |
|          |   |             |  |                                 |                          |                |    | NAME           CONCEPT  |
| 868      |   |             |  |                                 |                          |                |    | DRAWING SIGNATURE DATE  |
|          | SERVITUDE LINE                          |             |  |                                 |                          | SERVITUDE LINE |    |   |
| 867      |   | 1:7.00      |  |                                 | 1:7.00                   |                |    | DRAWING SIGNATURE DATE  |
| 866      |   |             | 0.00%                                  | 0.00%                           |                          |                | —  |   |
| 865      |   |             |  |                                 |                          |                |    | CONSTRUCTION DATE DATE  |
|          | -22                                     | -12         | ୍<br>କ୍<br>New Decreased Of            |                                 | <b>1</b> 2               | 52             |    | NAME  |
|          |   |             | New Propossed Ch                       | iannei @ Feg Distance (m) 950 m |                          |                |    | AS BUILT DRAWING SIGNATURE DATE   |
|          |   |             |  |                                 |                          |                |    |   |
| 867      | SERVITUDE LINE                          |             |  |                                 |                          |                |    | 80mm ON ORIGINAL DRAWING  |
| 866      |   | 1:7.00      | 0                                      |                                 |                          |                |    | ORIGINAL DRAWING SIZE A1  |
| 865      |   |             | 0.00%                                  | 0.00%                           | 1.7.00                   |                |    | Client  |
|          |   |             |  |                                 |                          |                |    |   |
|          | -52                                     | ب<br>ب<br>ب | e v New Propossed Ch                   | annel @ Peg Distance (m) 1000 m | 0 <u>5</u>               | 25             |    | EXXARO  |
|          |   |             |  |                                 |                          |                |    |   |
|          |   |             |  |                                 |                          |                |    |   |
| 867      |   |             |  |                                 |                          | SERVITUDE LINE |    | AVON ENCINEERS (Pty) I +d   |
| 866      |   | 1:7.00      |  |                                 | 1:7.00                   |                |    | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |
| 865      |   |             | 0.00%                                  | 0.00%                           |                          |                |    | PRETORIA HERMANUS   |
|          |   |             |  |                                 |                          |                |    | PO BOX 36384<br>MENLO PARK 0102<br>Tel: 082 456 5145  |
|          | रूं <b>र</b> ू                          | ¥           | ج الم New Propossed Ch                 | annel @ Peg Distance (m) 1050 m | £                        | 3 2            |    | TEL: (012) 348 5066<br>Fax: (086) 685 4303  |
|          |   |             |  |                                 |                          |                |    | Project Title   |
| 867      | SERVITUDE LINE                          |             |  |                                 |                          |                | —  |   |
| 866      |   |             |  |                                 |                          | SERVITUDE LINE |    | DEVELOPMENT   |
| 005      |   | 1:7.00      |  | 0.000/                          | 1:7.00                   |                |    |   |
| 000      |   |             | 0.00%                                  | 0.00%                           |                          |                | —  |   |
| 864      | ۶۰ ۶۰<br>۲                              |             | ې<br>ب                                 | 22                              | 5                        |                | —  |   |
|          |   |             | New Propossed Ch                       | annel @ Peg Distance (m) 1100 m |                          |                |    | CROSS SECTIONS  |
| <u> </u> |   |             |  |                                 |                          |                |    | SHEET 3 OF 5  |
|          | SERVITUDE LINE                          |             |  |                                 |                          |                |    |   |
| 866      |   | 1.7 ∩∩      | )                                      |                                 |                          | SERVITUDE LINE |    | Designed     Drawn     Checked       A J Smith     WCA VAN STADEN   |
| 865      |   |             | 0.00%                                  | 0.00%                           | 1:7.00                   |                |    | Scale Date  |
| 864      |   |             |  |                                 |                          |                |    | AS SHOWN 27-06-2016   |
| 25       |   |             | ې<br>بې<br>Now Drosseed OL             | annel @ Peg Distance (m) 1150 m | 0 <b>0</b>               | 20 - 25        |    | Project No Drawing No. Rev.   |
|          |   |             | ivew Propossed Cha                     |                                 |                          |                |    | E0505 002.3 A   |

|     |                |   | <b></b>   |
|-----|----------------|---|---|
|     |                |   | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS  |
| 869 |                | SERVITUDE LINE,   | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868 |                | 1:7:00  | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867 |                | 0.00%   | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>   |
|     | 0 2            |   | <ul> <li>BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.</li> <li>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br/>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL</li> </ul>      |
|     |                | New Propossed Channel @ Peg Distance (m) 750 m  | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|     |                |   | THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
| 869 |                |   |   |
| 868 |                |   | GENERAL NOTES:  |
| 000 |                | 1:7.00 SERVITUDE LINE   |   |
| 867 |                | 0.00%   |   |
| 866 |                | Image: Second se<br>Image: Exact second seco |   |
|     | -25            | ې د د د د د د د د د د د د د د د د د د د   |   |
|     |                |   |   |
|     |                |   |   |
| 868 | SERVITUDE LINE |   |   |
| 007 |                | 1:7.00 SERVITUDE LINE   |   |
| 867 |                | 1:7.00 0.00%  |   |
| 866 |                |   |   |
| -25 | -20            |   | A 27/06/2016 FOR APPROVAL A.J.S   |
|     |                | New Propossed Channel @ Peg Distance (m) 850 m  | No Date Details Checked   |
|     |                |   | Revisions   |
| 868 | SERVITUDE LINE | SERVITUDE LINE  |   |
| 867 |                | 1:7.00  |   |
| 866 |                | 1:7.00 0.00%  |   |
| 865 |                |   |   |
| -72 | -20            | 30         31         32<  |   |
|     |                | New Propossed Channel @ Peg Distance (m) 900 m  |   |
|     |                |   | DRAWING SIGNATURE DATE  |
| 868 | SERVITUDE LINE | Image: Servitude Line,  | NAME  |
| 867 |                | 1.7.00  | DRAWING SIGNATURE DATE  |
| 866 |                |   |   |
| 865 |                |   | APPROVED FOR       CONSTRUCTION       DRAWING       SIGNATURE       DATE  |
| 2   |                | 2   | NAME  |
|     |                | New Propossed Channel @ Peg Distance (m) 950 m  | AS BUILT DRAWING SIGNATURE DATE   |
|     |                |   |   |
| 867 | SERVITUDE LINE |   | 80mm ON ORIGINAL DRAWING  |
| 000 |                | 17.00 SERVITUDE LINE  | ORIGINAL DRAWING SIZE A1  |
| 000 |                | 0.00%   | Client  |
| 865 |                |   |   |
|     | -25            |   | EXXARO  |
|     |                |   |   |
|     |                |   |   |
| 867 | SERVITUDE LINE | SERVITUDE LINE  |   |
| 866 |                | 1:7.00  | AVON ENGINEERS (Pty) Ltd  |
| 865 |                | 0.00%   | PRETORIA HERMANUS   |
|     |                |   | MENLO PARK 0086         PRIVATE BGI 120           MENLO PARK 0086         PRIVATEBG X16           HERMANUS 7200         HERMANUS 7200           PO BOX 36384         Tek 082 456 5145 |
|     | -25 -          | 부 후 후 우 우 원 원 원 원 문 문 문 문 문 문 문 문 문 문 문 문 문 문   | TEL: (012) 348 5066<br>Fax: (086) 685 4303  |
|     |                |   | Proiect Title   |
| 067 |                |   |   |
| 100 |                | SERVITUDE LINE  |   |
| 866 |                | 1:7.00  |   |
| 865 |                | 0.00%   |   |
| 864 | - 22           |   |   |
|     |                | Here     Here     Here     Here       New Propossed Channel @ Peg Distance (m) 1100 m     Here     Here   | CROSS SECTIONS  |
|     |                |   | SHEET 3 OF 5  |
|     | SERVITUDE LINE |   |   |
| 866 |                | SERVITUDE LINE  | Designed Drawn Checked  |
| 865 |                | 0.00%   | A.J.Smith WCA VAN STADEN<br>Scale Date  |
| 864 |                |   | AS SHOWN 27-06-2016   |
|     | -20            |   | Project No Drawing No. Rev.   |
|     |                | New Propossed Channel @ Peg Distance (m) 1150 m   | E0505 002.3 A   |
|     |                |   |   |

| SERVITUDE LINE        |  |   |                 | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS                        |
|-----------------------|--|---|-----------------|---|
| 869                   |  |   | SERVITUDE LINE  | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868                   | 1:7.00                                   | 1:7:00  |                 | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867                   | 0.00%                                    | 0.00%   |                 | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>               |
|                       |  |   |                 | BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.<br>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 750 m  |                 | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|                       |  |   |                 | 7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH<br>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
|                       |  |   |                 |   |
|                       |  |   |                 | GENERAL NOTES:  |
| 000                   | 1.7.00                                   | 1:7.00  | SERVITUDE LINE  |   |
| 867                   | 0.00%                                    | 0.00%   |                 |   |
| 866                   |  |   |                 |   |
| -25                   |  |   | 52              |   |
|                       | New Propossed Channel @                  | Peg Distance (m) 800 m  |                 |   |
|                       |  |   |                 |   |
| SERVITUDE LINE        |  |   |                 |   |
| 868                   |  | 4.7.00  |                 |   |
| 867                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 866                   | 0.00%                                    |   |                 |   |
|                       | 0 <u>5</u> <u>10</u>                     | <u>2</u> <u>3</u>   | 22 23 23 23     |   |
| -r 'Y                 | New Propossed Channel @                  | ) Peg Distance (m) 850 m  |                 | A 27/06/2016 FOR APPROVAL A.J.S   |
|                       |  |   |                 | No Date Details Checked   |
|                       |  |   | SERVITUDE LINE. | Revisions   |
|                       |  |   |                 |   |
| 867                   | 4.7.00                                   | 1:7.00  |                 |   |
| 866                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 865                   |  |   |                 |   |
| -25                   | ອຸ່ະ<br>New Pronossed Channel ທີ         | ې و چې د د د د د د د د د د د د د د د د د د                                    | 30 52 50        | A.J. SMITH PrENG. (900262)  |
|                       | New Propossed Onlamer (d                 |   |                 | CONCEPT 27-06-2016  |
| 030                   |  |   |                 | DRAWING SIGNATURE DATE  |
|                       |  |   | SERVITUDE LINE  |   |
| 867                   | 1.7 00                                   | 1:7.00  |                 | DRAWING SIGNATURE DATE  |
| 866                   | 0.00%                                    | 0.00%   |                 |   |
| 865                   |  |   |                 | CONSTRUCTION<br>DRAWING SIGNATURE DATE  |
|                       | بى بۇ<br>مەربىيە بۇ                      | 2 2 2 0 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 | 22 20 15 15     | NAME  |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 950 m  |                 | AS BUILT<br>DRAWING SIGNATURE DATE  |
|                       |  |   |                 |   |
|                       |  |   |                 | 80mm ON ORIGINAL DRAWING  |
| 867                   |  |   | SERVITUDE LINE  |   |
| 866                   | 1:7.00                                   | 1.7.00  |                 |   |
| 865                   |  |   |                 | Client  |
| -20                   | ې بې | 3         3         5         0   | 55 20           | EXXARO  |
|                       | New Propossed Channel @                  | Peg Distance (m) 1000 m   |                 |   |
|                       |  |   |                 |   |
|                       |  |   |                 |   |
| ٥٥ <i>١</i>           |  |   | SERVITUDE LINE  | AVON ENGINEERS (Ptv) Ltd  |
| 866                   | 1:7.00                                   | 1:7.00  |                 | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |
| 865                   | 0.00%                                    | 0.00%   |                 | PRETORIA HERMANUS<br>473 KAY AVENUE POSTNET SUITE 26<br>MENLO PARK 0086 PRIVATEBAG X16  |
|                       |  |   |                 | PO BOX 36384<br>MENLO PARK 0102<br>Tel: 082 456 5145  |
| Ş. Ş.                 | · · · · · · · · · · · · · · · · · · ·    | Peg Distance (m) 1050 m   | й<br>Г          | TEL: (012) 348 5066<br>Fax: (086) 685 4303  |
|                       |  |   |                 | Project Title   |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  | DEVELOPMENT   |
| 000                   | 1:7:00                                   | 1:7.00  |                 |   |
| 865                   | 0.00%                                    | 0.00%   |                 |   |
| 864                   |  |   |                 |   |
| بې<br>بې              | New Propossed Channel @                  | Peg Distance (m) 1100 m   | 5 9             |   |
|                       |  |   |                 | SHEET 3 OF 5  |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  | Designed Drawn Checked  |
| 865                   | 1:7.00                                   | 1:7.00  |                 | A.J.Smith WCA VAN STADEN  |
|                       | 0.00%                                    | U.UU%   |                 | AS SHOWN 27-06-2016   |
| <u>804</u><br>දුදු වැ | <u>ب</u><br>بن<br>                       | 5         5         5   |                 |   |
| `N                    | New Propossed Channel @                  | Peg Distance (m) 1150 m   |                 |   |
|                       | -  |   |                 | EUSUS 002.3 A   |

| SERVITUDE LINE        |  |   |                 | 1. THE COPYRIGHT ON THIS DRAWING, INCLUDING THE<br>DESIGN AND DETAILS SHOWN HEREON, IS RESERVED<br>BY THE CONSULTING ENGINEERS                        |
|-----------------------|--|---|-----------------|---|
| 869                   |  |   | SERVITUDE LINE  | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST  |
| 868                   | 1:7.00                                   | 1:7:00  |                 | RELEVANT SABS REQUIREMENTS.<br>3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE<br>SPECIFIED)   |
| 867                   | 0.00%                                    | 0.00%   |                 | <ol> <li>4. NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>5. ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE</li> </ol>               |
|                       |  |   |                 | BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.<br>6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 750 m  |                 | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.   |
|                       |  |   |                 | 7. THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH<br>THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)   |
|                       |  |   |                 |   |
|                       |  |   |                 | GENERAL NOTES:  |
| 000                   | 1.7.00                                   | 1:7.00  | SERVITUDE LINE  |   |
| 867                   | 0.00%                                    | 0.00%   |                 |   |
| 866                   |  |   |                 |   |
| -25                   |  |   | 52              |   |
|                       | New Propossed Channel @                  | Peg Distance (m) 800 m  |                 |   |
|                       |  |   |                 |   |
| SERVITUDE LINE        |  |   |                 |   |
| 868                   |  | 4.7.00  |                 |   |
| 867                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 866                   | 0.00%                                    |   |                 |   |
|                       | 0 <u>5</u> <u>10</u>                     | <u>2</u> <u>3</u>   | 22 23 23 23     |   |
| -r 'Y                 | New Propossed Channel @                  | ) Peg Distance (m) 850 m  |                 | A 27/06/2016 FOR APPROVAL A.J.S   |
|                       |  |   |                 | No Date Details Checked   |
|                       |  |   | SERVITUDE LINE. | Revisions   |
|                       |  |   |                 |   |
| 867                   | 4.7.00                                   | 1:7.00  |                 |   |
| 866                   | 1:7.00 0.00%                             | 0.00%   |                 |   |
| 865                   |  |   |                 |   |
| -25                   | ອຸ່ະ<br>New Pronossed Channel ທີ         | ې و چې د د د د د د د د د د د د د د د د د د                                    | 30 52 50        | A.J. SMITH PrENG. (900262)  |
|                       | New Propossed Onlamer (d                 |   |                 | CONCEPT 27-06-2016  |
| 030                   |  |   |                 | DRAWING SIGNATURE DATE  |
|                       |  |   | SERVITUDE LINE  |   |
| 867                   | 1.7 00                                   | 1:7.00  |                 | DRAWING SIGNATURE DATE  |
| 866                   | 0.00%                                    | 0.00%   |                 |   |
| 865                   |  |   |                 | CONSTRUCTION<br>DRAWING SIGNATURE DATE  |
|                       | بى بۇ<br>مەربىيە بۇ                      | 2 2 2 0 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 | 22 20 15 15     | NAME  |
|                       | New Propossed Channel @                  | ) Peg Distance (m) 950 m  |                 | AS BUILT<br>DRAWING SIGNATURE DATE  |
|                       |  |   |                 |   |
|                       |  |   |                 | 80mm ON ORIGINAL DRAWING  |
| 867                   |  |   | SERVITUDE LINE  |   |
| 866                   | 1:7.00                                   | 0.00%   |                 |   |
| 865                   |  |   |                 | Client  |
| -20                   | ې بې | 3         3         5         0   | 55 20           | EXXARO  |
|                       | New Propossed Channel @                  | Peg Distance (m) 1000 m   |                 |   |
|                       |  |   |                 |   |
|                       |  |   |                 |   |
| ٥٥ <i>١</i>           |  |   | SERVITUDE LINE  | AVON ENGINEERS (Ptv) Ltd  |
| 866                   | 1:7.00                                   | 1:7.00  |                 | CONSULTING CIVIL & STRUCTURAL ENGINEERS   |
| 865                   | 0.00%                                    | 0.00%   |                 | PRETORIA HERMANUS<br>473 KAY AVENUE POSTNET SUITE 26<br>MENLO PARK 0086 PRIVATEBAG X16  |
|                       |  |   |                 | PO BOX 36384<br>MENLO PARK 0102<br>Tel: 082 456 5145  |
| Ş. Ş.                 | · · · · · · · · · · · · · · · · · · ·    | Peg Distance (m) 1050 m   | й<br>Г          | TEL: (012) 348 5066<br>Fax: (086) 685 4303  |
|                       |  |   |                 | Project Title   |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  | DEVELOPMENT   |
| 000                   | 1:7:00                                   | 1:7.00  |                 |   |
| 865                   | 0.00%                                    | 0.00%   |                 |   |
| 864                   |  |   |                 |   |
| بې<br>بې              | New Propossed Channel @                  | Peg Distance (m) 1100 m   | 5 0             |   |
|                       |  |   |                 | SHEET 3 OF 5  |
|                       |  |   |                 |   |
|                       |  |   | SERVITUDE LINE  | Designed Drawn Checked  |
| 865                   | 1:7.00                                   | 1:7.00  |                 | A.J.Smith WCA VAN STADEN  |
|                       | 0.00%                                    | U.UU%   |                 | AS SHOWN 27-06-2016   |
| <u>804</u><br>දුදු වැ | <u>ب</u><br>بن<br>                       | 5         5         5   |                 |   |
| `N                    | New Propossed Channel @                  | Peg Distance (m) 1150 m   |                 |   |
|                       | -  |   |                 | EUSUS 002.3 A   |

|                    |                      |                                     |                               |        |              |   |          | THE COPYRIGHT ON THIS DRAWING, INCLUDING THE     DESIGN AND DETAILS SHOWN HEREON, IS RESERVED     BY THE CONSULTING ENGINEERS.   |
|--------------------|----------------------|-------------------------------------|-------------------------------|--------|--------------|---|----------|--|
| 869                |                      |                                     |                               |        |              | SERVITUDE LINE                          |          | 2. ALL MATERIAL AND WORKMANSHIP MUST COMPLY<br>WITH THE REQUIREMENTS OF THE LATEST   |
| 868                |                      | 1:7.00                              |                               | 1:7.00 |              |   |          | RELEVANT SABS REQUIREMENTS. 3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)  |
| 867                |                      | 0.00%                               | 0.00%                         |        |              |   |          | <ol> <li>NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.</li> <li>ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE<br/>DV THE CONTRACTOR REFORE COMMENCING ANY WORK</li> </ol> |
|                    | 12 12 20<br>12 12 12 | <u>م</u>                            | <u>ی</u>                      | 9      | <u>م</u>     | 52 50                                   |          | 6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH<br>THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL   |
|                    | ·· · ·               | New Propossed Char                  | nel @ Peg Distance (m) 750 m  |        |              |   |          | ENGINEERING WORKS, THIRD EDITION 2005 AND THE<br>STANDARD DRAWINGS.<br>7 THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH   |
|                    |                      |                                     |                               |        |              |   |          | THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)  |
| 869 SERVITUDE LINE |                      |                                     |                               |        |              |   |          |  |
| 868                |                      |                                     |                               |        |              |   |          | GENERAL NOTES:   |
| 967                |                      | 1:7.00                              | 0.000/                        | 1:7.00 |              |   |          |  |
|                    |                      | 0.00 %                              | 0.0070                        |        |              |   |          |  |
| 866                |                      |                                     |                               |        |              |   |          |  |
| Ϋ́Υ, Ϋ́Υ           | <u> </u>             | New Propossed Char                  | nel @ Peg Distance (m) 800 m  | ÷      | × ×          |   |          |  |
|                    |                      |                                     |                               |        |              |   |          |  |
|                    |                      |                                     |                               |        |              |   |          |  |
| 868                |                      |                                     |                               |        |              | SERVITUDE LINE,                         |          |  |
| 867                |                      | 4.7.00                              |                               | 1:7.00 |              |   |          |  |
| 866                |                      | 0.00%                               | 0.00%                         |        |              |   |          |  |
|                    |                      |                                     |                               |        |              |   |          |  |
| 52                 | -1                   | New Pronossed Char                  | nel @ Peg Distance (m) 850 m  | 40     | ct 02        | 55                                      | 30       | A 27/06/2016 FOR APPROVAL A.J.S  |
|                    |                      |                                     |                               |        |              |   |          | No Date Details Checked  |
| 1                  |                      | ]                                   |                               |        | 1            |   | [        | Revisions  |
| 868 SERVITUDE LINE |                      |                                     |                               |        |              |   |          |  |
| 867                |                      |                                     |                               | 1:7.00 |              |   |          |  |
| 866                | 1                    | .7.00 0.00%                         | 0.00%                         |        |              |   |          |  |
| 865                |                      |                                     |                               |        |              |   |          |  |
| -25                | -10                  | ې<br>New Pronossed Char             | anel @ Peg Distance (m) 900 m | 15 10  | 20           | 3 52                                    | <i>;</i> | A.J. SMITH PrENG. (900262)   |
|                    |                      |                                     |                               |        |              |   |          | CONCEPT  |
| 868                |                      |                                     |                               |        |              |   |          | DRAWING SIGNATURE DATE   |
| SERVITUDE LINE     |                      |                                     |                               |        |              | SERVITUDE LINE                          |          | TENDER   |
| 867                | 1:7.00               |                                     |                               | 1:7.00 |              |   |          | DRAWING SIGNATURE DATE   |
| 866                |                      | 0.00%                               | 0.00%                         |        |              |   |          |  |
| 865                |                      |                                     |                               |        |              |   |          | CONSTRUCTION DRAWING SIGNATURE DATE  |
| -25                | -20 -                | ିକ୍<br>ମୁନ୍ଦ୍<br>Now Dronocood Chor | anal @ Dag Distance (m) 050 m | 9      | τ.           | 20 - 23                                 |          |  |
|                    |                      |                                     | inel @ Peg Distance (m) 950 m |        |              |   |          | DRAWING SIGNATURE DATE   |
|                    |                      |                                     |                               |        |              |   |          |  |
| 867 SERVITUDE LINE |                      |                                     |                               |        |              |   |          | 80mm ON ORIGINAL DRAWING   |
| 866                | 1:7.00               | 0                                   |                               |        |              | SERVITUDE LINE                          |          | ORIGINAL DRAWING SIZE A1   |
| 865                |                      | 0.00%                               | 0.00%                         | 1:7.00 |              |   |          | Client   |
|                    |                      |                                     |                               |        |              |   |          |  |
| -25                | -20                  | ୍<br>New Propossed Chan             | nel @ Peg Distance (m) 1000 m | 0      | 15           | 20                                      |          | EXXARO   |
|                    |                      |                                     |                               |        |              |   |          |  |
|                    |                      |                                     |                               |        |              |   |          |  |
| 867                |                      |                                     |                               |        |              | SERVITUDE LINE                          |          | AVON ENCINEEDS (Dev) L+2   |
| 866                | 1:7.00               |                                     |                               | 1:7.00 |              |   |          | CONSULTING CIVIL & STRUCTURAL ENGINEERS  |
| 865                |                      | 0.00%                               | 0.00%                         |        |              |   |          | PRETORIA HERMANUS  |
|                    |                      |                                     |                               |        |              |   |          | MENLO PARK 0086 PRIVATEBAG X16<br>HERMANUS 7200<br>PO BOX 36384<br>MENLO PARK 0102 Tel: 082 456 5145   |
| -25                | -12 -50              | ې<br>New Pronossed Chan             | nel @ Peg Distance (m) 1050 m | 0      | 5            | 20                                      |          | TEL: (012) 348 5066<br>Fax: (086) 685 4303   |
|                    |                      |                                     |                               |        |              |   |          | Project Title  |
|                    |                      |                                     |                               |        |              |   | [        |  |
|                    |                      |                                     |                               |        |              | SERVITUDE LINE                          |          |  |
| 866                | 1.7.00               |                                     |                               | 1:7.00 |              |   |          |  |
| 865                |                      | 0.00%                               | 0.00%                         |        |              |   |          |  |
| 864                | 2                    | 22                                  | 21 0                          | 0      | <br>ي        | 8 2                                     |          |  |
| 7                  |                      | New Propossed Chan                  | nel @ Peg Distance (m) 1100 m | -      | <del>~</del> | ~ |          | CROSS SECTIONS   |
|                    |                      |                                     |                               |        |              |   |          | SHEET 3 OF 5   |
| SERVITUDE LINE     |                      |                                     |                               |        |              |   |          | L  |
| 866                |                      |                                     |                               |        | _            | SERVITUDE LINE                          |          | Designed Drawn Checked   |
| 865                | 1:7.00               | 0.00%                               | 0.00%                         | 1:7.00 |              |   |          | A.J.Smith WCA VAN STADEN<br>Scale Date   |
| 864                |                      |                                     |                               |        |              |   |          | AS SHOWN 27-06-2016  |
|                    |                      | بې<br>ا                             |                               | 10     | ي<br>ب       | 22<br>52                                |          | Project No Drawing No. Rev.  |
|                    |                      | New Propossed Chan                  | nel @ Peg Distance (m) 1150 m |        |              |   |          | E0505 002.3 A  |
|                    |                      |                                     |                               |        |              |   | [ ]      |  |

|            | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
|------------|----------------|-----|----------|---------|----------------------|--|---------|----------|--------------|----------------|
| 866        |                |     |          |         |                      |  |         |          | <b></b>      | SERVITUDE LINE |
| 865        |                |     |          | 1.1.00  | 0.00%                | 0.00%                                  | 1:7.0   | 0        |              |                |
| 864        |                |     |          |         |                      |  |         |          |              |                |
|            | -25            |     | -15      | -10     | ц                    | 0                                      | ي<br>ب  | 9        | <u>ى</u>     | 25             |
|            |                |     |          |         | New Propossed        | d Channel @ Peg Distance (m) 1200      | m       |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
|            | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 866        |                |     |          |         |                      |  |         |          |              | SERVITUDE LINE |
| 865        |                |     | 1:7.     | .00     |                      |  | 1       | :7.00    |              |                |
| 864        |                |     |          |         | 0.00%                | 0.00%                                  |         |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
|            | -25            | -20 | <u>-</u> | -10     | New Propossed        | d Channel @ Peg Distance (m) 1250      | m       | 00       | <del>د</del> | 73 57 57       |
|            |                |     |          |         |                      |  |         |          |              |                |
|            |                | 1   |          | 1       |                      |  |         |          |              |                |
| 866        | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 865        |                |     |          | -1:7.00 |                      |  | 4.7.00  |          |              |                |
| 864        |                |     |          |         | 0.00%                | 0.00%                                  | 11.00   |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
| č          | 67-            | -20 | 2        | -10     | 47<br>New Pronosser  | Channel @ Peg Distance (m) 1300        | m       | 0        | 15           | 55             |
|            |                |     |          |         |                      |  |         |          |              |                |
|            |                |     |          |         | Í                    |  | Ĩ       |          |              |                |
| 000        | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 865        |                |     |          | 1:6.99  |                      |  |         |          |              |                |
| 864        |                |     |          |         | 0.00%                | 0.00%                                  | 1:7.00  |          |              |                |
| 863        |                |     |          |         |                      |  |         |          |              |                |
| -25        |                | -20 |          | -10     | ب<br>ب               |  | ي<br>ا  | 10       | 15           | - 25           |
|            |                |     |          |         | New Propossed        | d Channel @ Peg Distance (m) 1350      | m       |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
| 865        | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 004        |                |     |          | 1:7.00  |                      |  | 1:7.00  |          |              | SERVITUDE LINE |
| 804        |                |     |          |         | 0:00%                | 0.00%                                  | 11100   |          |              |                |
| 863        |                |     |          |         |                      |  |         |          |              |                |
| -25        |                | -20 |          | -10     | ন্দ<br>New Proposser | ∽<br>۲ Channel @ Peq Distance (m) 1400 | °<br>∣m | 6        | 50 20        | 55             |
|            |                |     |          |         |                      |  |         |          |              |                |
| l i        |                |     |          |         |                      |  |         | 1        |              |                |
| 865        | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 864        |                |     |          | 1:7.00  |                      |  | 1:7.00  |          |              |                |
| 863        |                |     |          |         | 0.00%                | 0.00%                                  |         |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
|            | ς<br>Γ         | ÷   | ÷        | Ē       | New Propossed        | d Channel @ Peg Distance (m) 1450      | m       | ¢ *      | 5            | 5              |
|            |                |     |          |         | L                    |  |         |          |              |                |
| 865        |                |     |          |         |                      |  |         |          |              |                |
| 004        | SERVITUDE LINE |     |          |         |                      |  |         |          |              | SERVITUDE LINE |
| 864        |                |     | 1:7      | 2.00    | n nn%                | 0.00%                                  | 1:7.00  |          |              |                |
| 863        |                |     |          |         | V.UU /0              | 0.0070                                 |         |          |              |                |
| 25         | 50             |     | 9        |         | ې<br>بې د            | 2<br>2<br>2<br>C                       | 9       | 2        | 50           |                |
|            | ~ <b>1</b> 4   | ٠.  | 1        |         | New Propossed        | d Channel @ Peg Distance (m) 1500      | m       |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
| 865        |                |     |          |         |                      |  |         |          |              |                |
| 864        | SERVITUDE LINE |     |          |         |                      |  |         |          |              | SERVITUDE LINE |
| 863        |                |     | 1:7:00   |         | 0.00%                | 0.00%                                  | 1:7.00  |          |              |                |
|            |                |     |          |         |                      | 0.0070                                 |         |          |              |                |
| 862<br>\$? | -50            | -13 | -10      | u       | <u>م</u>             | ى                                      | 0       | -15<br>  | 50           |                |
|            |                |     |          |         | New Propossed        | d Channel @ Peg Distance (m) 1550      | m       |          |              |                |
|            |                |     |          |         |                      |  |         |          |              |                |
|            | SERVITUDE LINE |     |          |         |                      |  |         |          |              |                |
| 864        |                |     |          |         |                      |  |         |          |              |                |
| 863        |                |     | 1.7.00   |         | 0.00%                | 0.00%                                  | 1:6.99  |          |              |                |
| 862        |                |     |          |         |                      |  |         |          |              |                |
| -25        | -20            | -15 | -10      | ц       | 0                    | 2<br>2                                 | 10      | <u>ئ</u> | 5            | 35             |
| 1          |                |     |          |         |                      |  |         |          |              |                |

| 000     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             |         |    |
|---------|----------------|----------------|--------------|--------|---------------------------------------|-----------------------------------|--------------|-------------|-------------|---------|----|
| 800     |                |                |              | 1:7.00 |                                       |                                   |              |             | $\sim$      | SERV    |    |
| 865     |                |                |              |        | 0.00%                                 | 0.00%                             | 1:7:         | 00          |             |         |    |
| 864     |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | -55            | -20            | -15          | -10    | New Propossed (                       | Channel @ Peg Distance (m) 1200 n | ي<br>۱       | 9           | 5           | 5       | 25 |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 866     |                |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 865     |                |                | 1.7          | 7.00   |                                       |                                   |              | 1:7.00      | <b>`</b>    |         |    |
| 864     |                |                |              |        | 0.00%                                 | 0.00%                             |              |             |             |         |    |
|         | -25            | <u>୍</u>       | -15          |        | ې                                     | 0                                 | Q            | 10          | <u>ආ</u>    | 50      | 25 |
|         |                |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1250 n | n            |             |             |         |    |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 866     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             |         |    |
| 865     |                |                |              | 1:7:00 |                                       |                                   | 4.7.00       |             |             | SERV    |    |
| 864     |                |                |              |        | 0.00%                                 | 0.00%                             | 1.7.00       |             |             |         |    |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | 24             | -20            | 4-           | -10    | New Propossed (                       | Channel @ Peg Distance (m) 1300 n | n            | 10          | 84          | 50      | 56 |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 866     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             |         |    |
| 865     |                |                |              | 4.0.00 |                                       |                                   |              |             |             | SERV    |    |
| 864     |                |                |              | 1:6:99 | 0.00%                                 | 0.00%                             | 1:7.00       |             |             |         |    |
| 863     |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | -25            | -20            |              | 9-     | ـــــــــــــــــــــــــــــــــــــ |                                   | 2            | 10          | <u>Э</u>    | 50      | 25 |
|         |                |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1350 n | n            |             |             |         |    |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 865     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 864     |                |                |              | 1:7:00 | 0.00%                                 | 0.00%                             | 1:7.00       |             | <u> </u>    |         |    |
| 863     |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | -25            | -50            | <del>ب</del> | -10    |                                       |                                   |              | 9           | ۍ<br>ا      | 5       | 25 |
|         |                |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1400 n | n            |             |             |         |    |
|         |                | I              | ,            | 1      | I                                     | 1                                 |              |             | 1           |         |    |
| 865     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 864     |                |                |              | 1:7:00 | 0.00%                                 | 0.00%                             | 1:7.00       |             |             |         |    |
| 863     |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | -25            |                | <u>ę</u>     | 2      | ې رې                                  | cu C                              |              | 9           | 15          | 20      | 25 |
|         |                |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1450 n | n            |             |             |         |    |
|         |                |                |              |        |                                       |                                   | 1            |             |             | I       | Ì  |
| 865     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 864     |                |                |              | 7.00   | 0.00%                                 | 0.00%                             | 1:7.00       |             | •           |         |    |
| 863     |                |                |              |        |                                       |                                   |              |             |             |         |    |
|         | -22 -20        | 2<br>7<br>7    | 9            |        | ۲ <u>۰</u>                            | ى<br>ى                            | ę            | 2           | 2           | 07      | 25 |
|         |                |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1500 n | n            |             |             |         |    |
| 065     |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 000     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 864     |                |                | 1.7.00       |        |                                       |                                   | 1:7.00       |             |             |         |    |
| 863     |                |                |              |        | 0.00%                                 | 0.00%                             |              |             |             |         |    |
| 862<br> | 57.<br>50      | <del>ب</del> ة |              | ې      | ? 0                                   | വ                                 | 9            | 15          | S           | ې<br>بې | 1  |
|         | ·              |                |              |        | New Propossed (                       | Channel @ Peg Distance (m) 1550 n | n            |             |             |         |    |
|         |                |                |              |        |                                       |                                   |              |             |             |         |    |
| 864     | SERVITUDE LINE |                |              |        |                                       |                                   |              |             |             | SERV    |    |
| 000     |                |                |              |        |                                       |                                   | 1:6.99       |             |             |         |    |
| 803     |                |                |              |        | 0.00%                                 | 0.00%                             |              |             |             |         |    |
| 862     |                | <br>ی          |              | 2      |                                       | <br>ى                             |              | <br>ی       |             |         |    |
| Å.      | -2             | Ť              | Ę            | Ť      | _                                     |                                   | <del>,</del> | <del></del> | ର୍ <u>ଲ</u> | 55      |    |

| 866       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          |        |            |
|-----------|----------------|-----|--------------|--------|-------------------|--------------------------------|--------------|--------------|----------|--------|------------|
| 865       |                |     | 1:7.00       |        |                   |                                | 17.0         |              |          | SERV   | ITUDE LINE |
| 000       |                |     |              |        | 0.00%             | 0.00%                          |              |              |          |        |            |
| 004       | 52             | 50  | τ <u>υ</u> ς | 2      | <u></u>           | 0                              | <u>م</u>     | 0            | 25       | 50     | 25         |
|           |                |     |              | •      | New Proposse      | d Channel @ Peg Distance (m)   | 1200 m       |              |          |        |            |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 000       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          |        |            |
|           |                | -   | 1:7.00       |        |                   |                                |              |              |          | SERV   |            |
| 865       |                |     |              |        | 0.00%             | 0.00%                          | 1:           | 7.00         |          |        |            |
| 864       |                |     |              |        |                   |                                |              |              |          |        |            |
|           | -25            | -20 | -15          |        | Sew Proposse      | d Channel @ Peg Distance (m) * | 1250 m       | 10           | 5        | 20     | 25         |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 866       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          |        |            |
| 865       |                |     | 4.7.00       |        |                   |                                |              |              |          | SERV   |            |
| 864       |                |     | 1.1.00       |        | 0.00%             | 0.00%                          | 1:7.00       |              |          |        |            |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
|           | -25            | -50 | -12          |        | New Proposse      | d Channel @ Peg Distance (m)   | 1300 m       | 10           | ÷        | 20     | 25         |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 866       |                |     |              |        |                   |                                |              |              |          |        |            |
| 865       |                |     |              |        |                   |                                |              |              |          | SERV   |            |
| 864       |                |     | 1:6:99       |        | 0.00%             | 0.00%                          | 1:7.00       |              |          |        |            |
| 863       |                |     |              |        |                   |                                |              |              |          |        |            |
|           |                |     | -12          |        | ې<br>New Proposse | d Channel @ Peg Distance (m) ; | یے<br>1350 m | 9            | ති<br>   | 50     | 25 -       |
|           |                |     |              |        |                   |                                | 1550 m       |              |          |        |            |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 865       |                |     | 1.7.00       |        |                   |                                |              |              |          | SERV   |            |
| 864       |                |     | 1.7.00       |        | 0.00%             | 0.00%                          | 1:7.00       |              | <b>`</b> |        |            |
| 863       |                |     |              |        |                   |                                |              |              |          |        |            |
|           | Ş              | -50 | -9           |        | Sew Proposse      | d Channel @ Peg Distance (m)   | 1400 m       | 6 ť          |          | 5      | 25         |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 865       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          |        |            |
| 864       |                |     | 1:7:00       |        |                   |                                |              |              |          | SERV   | ITUDE LINE |
| 062       |                |     |              |        | 0.00%             | 0.00%                          | 1:7.00       |              |          |        |            |
| 000       |                |     |              |        |                   |                                |              |              |          |        |            |
|           | -25            |     | 2 9          |        | New Proposse      | d Channel @ Peg Distance (m)   | 1450 m       | 2 0          | č        | 50     | 55         |
|           |                |     |              |        |                   |                                |              |              |          |        |            |
| 865       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          |        |            |
| 864       |                |     | 1:7.00       |        |                   |                                | 1.7.00       |              |          | SERV   |            |
| 863       |                |     |              |        | 0.00%             | 0.00%                          | 1:7:00       |              |          |        |            |
|           | 25             | 15  | 10           | ې      | ,                 | 0                              | <u>ع</u>     | <del>ن</del> | 20       |        | 52         |
|           |                | · • |              |        | New Proposse      | d Channel @ Peg Distance (m)   | 1500 m       |              |          |        |            |
| L         |                |     |              |        |                   |                                |              |              |          |        |            |
| 865       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          | SERV   |            |
| 864       |                |     | 1.7.00       |        |                   |                                | 1:7.00       |              |          |        |            |
| 863       |                |     |              |        | 0.00%             | 0.00%                          |              |              |          |        |            |
| 862<br>يو | <u>्</u> र     | -12 |              | ېر     | c                 | <u>م</u>                       | 9 0          | <u>ى</u>     | 50       | ر<br>د | 3          |
|           |                |     |              |        | New Proposse      | d Channel @ Peg Distance (m)   | 1550 m       |              |          |        |            |
| L         |                |     |              |        |                   |                                |              |              |          |        |            |
| 864       | SERVITUDE LINE |     |              |        |                   |                                |              |              |          | SERV   |            |
| 863       |                |     |              |        | 0.000/            | 0.000/                         | 1:6.99       |              |          |        |            |
| 862       |                |     |              |        | 0.00%             | 0.00%                          |              |              |          |        |            |
| -25       | -20            | -15 | -10          | ې<br>۲ | 0                 | ى<br>ب                         | 10           | <del>ب</del> | 50       | 55     |            |
| 1         |                |     |              |        |                   |                                |              |              |          |        |            |

| 226 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       |      |            |
|-----|----------------|----------|--------------|--------|--------------------|-----------------------------------|-----------|----------|---------------------------------------|------|------------|
| 800 |                |          |              | 1:7:00 |                    |                                   |           |          |                                       | SERV | ITUDE LINE |
| 865 |                |          |              |        | 0.00%              | 0.00%                             | 1:7:00    |          |                                       |      |            |
| 864 |                |          |              |        |                    |                                   |           |          |                                       |      |            |
|     | -25            | -20      | -15          | -10    | Sew Propossed      | Channel @ Peo Distance (m) 1200   | ) m       | 9        | 5                                     | 50   | 25         |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 866 |                |          |              |        |                    |                                   |           |          |                                       | SERV |            |
| 865 |                |          | 1:7.0        | 0      |                    |                                   | 1:7.0     | 0        | · · · · · · · · · · · · · · · · · · · |      |            |
| 864 |                |          |              |        | 0.00%              | 0.00%                             |           |          |                                       |      |            |
|     | 25             | 50       | <del>ب</del> | 10     | φ                  | 0                                 | ۍ<br>ا    | 0        | 5                                     | 50   | 25         |
|     |                |          |              |        | New Propossed      | l Channel @ Peg Distance (m) 1250 | ) m       |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 866 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       |      |            |
| 865 |                |          |              | 1:7.00 |                    |                                   |           |          |                                       | SERV | ITUDE LINE |
| 864 |                |          |              |        | 0.00%              | 0.00%                             | 1:7.00    |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
|     |                | -20      |              | 9      | ې<br>New Pronosser | Channel @ Peo Distance (m) 1300   | نې<br>۱ m | 9        | <u>3</u>                              | 50   | 25         |
|     |                |          |              |        | New Propossed      |                                   | , 111     |          |                                       |      |            |
| 866 |                |          | 1            |        |                    |                                   |           |          |                                       |      |            |
| 000 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       | SERV |            |
| 865 |                |          |              | 6.99   |                    |                                   | 1:7.00    |          |                                       |      |            |
| 864 |                |          |              |        | 0.00%              | 0.00%                             |           |          |                                       |      |            |
| 863 |                | 2        | 20           | 0      | с                  | 0                                 | 2         | 0        |                                       | 0    |            |
| .,  |                |          | <b>N</b>     | Ϋ́τ    | New Propossed      | l Channel @ Peg Distance (m) 1350 | ) m       |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 965 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       |      |            |
|     |                |          |              | 1:7:00 |                    |                                   | 1.7 00    |          |                                       | SERV | ITUDE LINE |
| 864 |                |          |              |        | 0.00%              | 0.00%                             | 1.7.00    |          |                                       |      |            |
| 863 |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| -25 |                | -20      |              | 2      | New Propossed      | I Channel @ Peg Distance (m) 1400 | ີ<br>) m  | 2        | 5 20                                  |      | 25         |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 005 |                |          |              |        |                    |                                   |           |          |                                       |      |            |
|     |                |          |              | 7-00   |                    |                                   |           |          |                                       | SERV |            |
| 864 |                |          |              | 7.00   | 0.00%              | 0.00%                             | 1:7.00    |          |                                       |      |            |
| 863 |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| -25 |                | -20      | -10<br>-10   |        | မှ<br>မှ           | Channel @ Dee Distance (m) 1450   |           | ų<br>L   | 50                                    |      | 25         |
|     |                |          |              |        | New Propossed      | i Channel @ Peg Distance (m) 1450 | ) m       |          |                                       |      |            |
| 865 | 1              |          |              |        |                    |                                   |           |          |                                       |      |            |
| 000 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       | SERV |            |
| 864 |                |          | 1:7.0        | 0      | n nn%              | n nn%                             | 1:7.00    |          |                                       |      |            |
| 863 |                |          |              |        | 0.0070             | 0.0070                            |           |          |                                       |      |            |
| -25 | 5              | ्र<br>भू |              | ې      | ?                  | ي<br>م                            | 9         | <u>ئ</u> | 50                                    |      | 25         |
|     |                |          |              |        | New Propossed      | I Channel @ Peg Distance (m) 1500 | ) m       |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 865 | SERVITUDE LINE |          |              |        |                    |                                   |           |          |                                       | SERV |            |
| 864 |                |          | 1.7.00       |        |                    |                                   | 1:7.00    |          |                                       |      |            |
| 863 |                |          |              |        | 0.00%              | 0.00%                             |           |          |                                       |      |            |
| 862 |                |          |              |        |                    |                                   |           |          |                                       |      | 0          |
| -25 | -50            | -12      | -10          | ې<br>ب | New Propossed      | I Channel @ Peg Distance (m) 1550 | e<br>)m   | 5        | 50                                    |      | Ŭ.         |
|     |                |          |              |        |                    | / /                               |           |          |                                       |      |            |
|     |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| 864 |                |          | 7-00         |        |                    |                                   |           |          |                                       | SERV |            |
| 863 |                |          |              |        | 0.00%              | 0.00%                             | 1:6.99    |          |                                       |      |            |
| 862 |                |          |              |        |                    |                                   |           |          |                                       |      |            |
| -25 | -20            | -15      | -10          | မှ     | 0                  | ی<br>ک                            | 10        | 15       | 50                                    | 25   |            |

|                | SERVITUDE LINE |        |          |          |                     |   |        |              |                |          |    |
|----------------|----------------|--------|----------|----------|---------------------|---|--------|--------------|----------------|----------|----|
| 866            |                |        |          | 4.7.00   |                     |   |        |              |                | SERV     |    |
| 865            |                |        |          | 1.1.00   | 0.00%               | 0.00%   | 1:7.00 |              |                |          |    |
| 864            |                |        |          |          |                     |   |        |              |                |          |    |
|                | -75            | -20    | -15      | -        | φ                   | 0   | ى<br>ب | 0            | <del>ί</del> ο | 20       | 25 |
|                |                |        |          |          | New Propossed C     | Channel @ Peg Distance (m) 1200 m               |        |              |                |          |    |
| L              |                |        |          |          |                     |   |        |              |                |          |    |
|                | SERVITUDE LINE |        |          |          |                     |   |        |              |                |          |    |
| 866            |                |        |          |          |                     |   |        |              |                | SERV     |    |
| 865            |                |        | 1:7.     | 00       |                     |   | 1:7.00 |              |                |          |    |
| 864            |                |        |          |          | 0.00%               | 0.00%   |        |              |                |          |    |
|                |                |        |          |          |                     |   |        |              | 12             |          |    |
|                | -5             | -5     | <u>-</u> |          | New Propossed C     | Channel @ Peg Distance (m) 1250 m               |        | ~            | <del>~</del>   | 5        | 3  |
|                |                |        |          |          | ·                   |   |        |              |                |          |    |
| 220            |                |        |          |          |                     |   |        |              |                |          |    |
| 000            |                |        |          |          |                     |   |        |              |                | SERV     |    |
| 865            |                |        |          | 1:7.00   | 0.000/              | 0.000/  | 1:7.00 |              |                |          |    |
| 864            |                |        |          |          | 0.00%               | 0.00%   |        |              |                |          |    |
|                | 52             | 50     | 15       | 10       | <u> </u>            | 0   | 6      | 0            |                | 50       |    |
|                | - e-           | 10     |          | ч<br>Т   | New Propossed C     | Channel @ Peg Distance (m) 1300 m               |        |              |                |          |    |
|                |                |        |          |          | ·                   | · · ·   |        |              |                |          |    |
| 866            |                |        |          |          |                     |   |        |              |                |          |    |
| 865            |                |        |          |          |                     |   |        |              |                | SERV     |    |
|                |                |        |          | :6.99    |                     |   | 1:7.00 |              |                |          |    |
| 864            |                |        |          |          | 0.00%               | 0.00%   |        |              |                |          |    |
| 863            | ,              | 0      |          |          | Q                   | 2 0   |        | 0            |                | >        | Q  |
| 7              |                | 4      | <u>.</u> | <u>-</u> | New Propossed C     | Channel @ Peg Distance (m) 1350 m               |        | ~ *          | -              | 4        | 5  |
|                |                |        |          |          | ·                   |   |        |              |                |          |    |
|                |                |        |          |          |                     |   |        |              |                |          |    |
| 865            |                |        |          |          |                     |   |        |              |                | SERV     |    |
| 864            |                |        |          | 1:7.00   | 0.00%               | 0.00%   | 1:7.00 |              |                |          |    |
| 863            |                |        |          |          |                     |   |        |              |                |          |    |
| -25            |                | 07-    | -15<br>  | -10      | φ                   | Q Q   | 9      | 15           | 50             |          | 25 |
|                |                |        |          |          | New Propossed C     | Channel @ Peg Distance (m) 1400 m               |        |              |                |          |    |
|                |                |        |          |          |                     |   |        |              |                |          |    |
| 865            | SERVITUDE LINE |        |          |          |                     |   |        |              |                |          |    |
| 864            |                |        |          | :7:00    |                     |   | 47.00  |              | $\sim$         | SERV     |    |
|                |                |        |          |          | 0.00%               | 0.00%   | 1:7.00 |              |                |          |    |
| 803            |                |        |          |          |                     |   |        |              |                |          |    |
| -25            | -20            |        | -15      | :        | ې<br>Now Proposed ( | bannal @ Pag Distance (m) 1450 m                | 0      | <u>9</u>     | 5              |          | 25 |
|                |                |        |          |          | New Propossed C     | אמווויבו עי דפי טו <i>א</i> נמווטפ (ווו) 1400 M |        |              |                |          |    |
| 005            |                |        |          |          |                     |   |        |              |                |          |    |
| 000            | SERVITUDE LINE |        |          |          |                     |   |        |              |                | SERV     |    |
| 864            |                |        | 1.7.     | .00      | A 000/              | 0.000/  | 1:7.00 |              |                |          |    |
| 863            |                |        |          |          | 0.00%               | 0.00%   |        |              |                |          |    |
| <u>in</u>      | 0              |        | 0 15     |          | 0 · 2               | 2   | 0      | ې            | 0              |          | 52 |
| ۲ <sup>۰</sup> | 5              |        | · ÷      |          | New Propossed C     | Channel @ Peg Distance (m) 1500 m               | -      | ~            | 7              |          |    |
|                |                |        |          |          |                     |   |        |              |                |          |    |
| 865            |                |        |          |          |                     |   |        |              |                |          |    |
| 864            |                |        |          |          |                     |   |        |              |                | SERV     |    |
| 863            |                |        | 1:7:00   |          | 0.00%               | 0.00%   | 1:7.00 |              |                |          |    |
| 960            |                |        |          |          |                     |   |        |              |                |          |    |
| 2002<br>       | -20            | ų<br>t |          |          |                     | വ   | 10     | <del>ن</del> | 50             | <u>ې</u> | 3  |
|                |                |        |          |          | New Propossed C     | Channel @ Peg Distance (m) 1550 m               |        |              |                |          |    |
| L              |                |        |          |          |                     |   |        |              |                |          |    |
| 004            | SERVITUDE LINE |        |          |          |                     |   |        |              |                | SERV     |    |
| δ04            |                |        | 1.7:00   |          |                     |   | 4.0.00 |              |                |          |    |
| 863            |                |        |          |          | 0.00%               | 0.00%   | 1:0.99 |              |                |          |    |
| 862            |                |        |          |          |                     |   |        |              |                |          |    |
| -25            | -20            | -15    | -10      |          | မှ မ                | ي<br>م  | - 10   | -<br>-       | 50             |          |    |

|          | SERVITUDE LINE |               |          |          |                       |  |        |              |          |      |            |
|----------|----------------|---------------|----------|----------|-----------------------|--|--------|--------------|----------|------|------------|
| 866      |                |               |          | 1.7.00   |                       |  |        |              | <u> </u> | SERV |            |
| 865      |                |               |          |          | 0.00%                 | 0.00%                                  | 1:7.00 |              |          |      |            |
| 864      |                |               |          |          |                       |  |        |              |          |      |            |
|          | -25            | -20           |          | -10      | ∽<br>New Propossed C  | ⇔<br>Channel @ Peg Distance (m) 1200 m | 2<br>2 | 01           | 5        | 20   | 25         |
|          |                |               |          |          |                       |  |        |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 866      |                |               |          |          |                       |  |        |              |          | SERV |            |
| 865      |                |               | 1:7.(    | 00       |                       |  | 1:7.00 |              |          |      |            |
| 864      |                |               |          |          | 0.00%                 | 0.00%                                  |        |              |          |      |            |
|          | 52             | 50            | 15       | 0        | <br>ب                 | 0                                      | ۍ<br>ب |              | 15       | 50   | 55         |
|          |                |               |          | ·        | New Propossed C       | Channel @ Peg Distance (m) 1250 m      |        |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 866      | SERVITUDE LINE |               |          |          |                       |  |        |              |          |      |            |
| 865      |                |               |          | 1:7:00   |                       |  |        |              |          | SERV | ITUDE LINE |
| 864      |                |               |          |          | 0.00%                 | 0.00%                                  | 1:7.00 |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
|          | -52            | -20           | -15      | -10      | ہ۔<br>New Propossed C | Channel @ Peg Distance (m) 1300 m      | 0      | 0            | 5        | 50   | 25         |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 866      |                |               |          |          |                       |  |        |              |          |      |            |
| 865      | SERVITODE LINE |               |          |          |                       |  |        |              |          | SERV |            |
| 864      |                |               |          | 1:6:99   | 0.00%                 | 0.00%                                  | 1:7.00 |              |          |      |            |
| 004      |                |               |          |          | 0.00 //               | 0.00 //                                |        |              |          |      |            |
| 863<br>년 | 27. F          | 5, ¥          | <u>0</u> |          | ų                     | 2 0                                    |        | 9            | 15       | 50   | 25         |
|          |                |               |          |          | New Propossed C       | Channel @ Peg Distance (m) 1350 m      |        |              |          |      |            |
|          |                |               |          | _        |                       |  |        |              |          | _    |            |
| 865      | SERVITUDE LINE |               |          |          |                       |  |        |              |          | SERV |            |
| 864      |                |               |          | 1:7:00   | 0.000/                | 0.000/                                 | 1:7.00 |              |          | SERV |            |
| 863      |                |               |          |          | 0.00%                 | 0.00%                                  |        |              |          |      |            |
| -25      | -20            | <del>د</del>  |          |          | φ                     | Q Q                                    | 0      |              | <u>e</u> | 50   | 25         |
|          |                |               |          |          | New Propossed C       | Channel @ Peg Distance (m) 1400 m      |        |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 865      | SERVITUDE LINE |               |          |          |                       |  |        |              |          | SERV |            |
| 864      |                |               | 1        | :7.00    |                       |  | 1:7.00 |              |          | GERV |            |
| 863      |                |               |          |          | 0.00%                 | 0.00%                                  |        |              |          |      |            |
| -25      |                | 2             | 9        | <u>፡</u> |                       | ب<br>ب                                 | 9      | <u>3</u>     |          | 50   | 55         |
|          |                |               |          |          | New Propossed C       | Channel @ Peg Distance (m) 1450 m      |        |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 865      | SERVITUDE LINE |               |          |          |                       |  |        |              |          | SERV |            |
| 864      |                |               | 1:7.     | .00      |                       |  | 1.7.00 |              |          | OLIV |            |
| 863      |                |               |          |          | 0.00%                 | 0.00%                                  | 1.7.00 |              |          |      |            |
| 2        |                | ى             | 0        | Q        | 0                     | QI                                     | 0      | ى            | c        | 2    |            |
| -7       | -2             | -<br>-        |          | ·        | New Propossed C       | Channel @ Peg Distance (m) 1500 m      | -      |              | ۲<br>۲   | 7    | 2          |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 865      |                |               |          |          |                       |  |        |              |          |      |            |
| 864      | SERVITODE LINE | -             |          |          |                       |  |        |              |          | SERV |            |
| 863      |                |               | 11.00    |          | 0.00%                 | 0.00%                                  | 1:7.00 |              |          |      |            |
| 862      |                |               |          |          |                       |  |        |              |          |      |            |
| -25      | -20            | <u>ب</u><br>ب | 9        | ų        | New Pronocead (       | hannel @ Pen Distance (m) 1550 m       | 9      | ۍ<br>۲       | 50       |      | 3          |
|          |                |               |          |          |                       |  |        |              |          |      |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |
| 864      | SERVITUDE LINE |               |          |          |                       |  |        |              |          | SERV |            |
| 863      |                |               | 17.00    |          | 0.00%                 | 0.00%                                  | 1:6.99 |              |          |      | 1          |
| 862      |                |               |          |          |                       |  |        |              |          |      |            |
| -25      | -20            | -<br>-<br>2   | -10      | ф        | 0                     |  | 10     | <del>ب</del> | 20       | 55   |            |
|          |                |               |          |          |                       |  |        |              |          |      |            |

| 220        | SERVITUDE LINE |             |          |        |               |                              |          |              |              |   |            |
|------------|----------------|-------------|----------|--------|---------------|------------------------------|----------|--------------|--------------|---|------------|
|            |                |             | 1:7:00   |        |               |                              |          |              | <u> </u>     | SERV                                    |            |
| 865        |                |             |          |        | 0.00%         | 0.00%                        | 1.7.0    | 0            |              |   |            |
| 864        |                |             |          |        |               |                              |          |              |              |   |            |
|            | -25            | -20         |          | -      | New Propossed | Channel @ Peg Distance (m) 1 | l200 m   | 0            | 15           | 50                                      | 55         |
|            |                |             |          |        |               |                              |          |              |              |   |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
| 866        |                |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 865        |                |             | 1.7.00   |        |               |                              |          | :7.00        |              |   |            |
| 864        |                |             |          |        | 0.00%         | 0.00%                        |          |              |              |   |            |
|            | -25            | -20         | -15      |        | ې             | 0                            | ى<br>ب   | 10           | 15           | 20                                      | 25         |
|            |                |             |          |        | New Propossed | Channel @ Peg Distance (m) 1 | l250 m   |              |              |   |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
| 866        | SERVITUDE LINE |             |          |        |               |                              |          |              |              |   |            |
| 865        |                |             | 1:7.00   |        |               |                              | 4.7.00   |              |              | SERV                                    | ITUDE LINE |
| 864        |                |             |          |        | 0.00%         | 0.00%                        | 1.7.00   |              |              |   |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
|            | Ϋ́.            | -5          | Ť Ť      |        | New Propossed | Channel @ Peg Distance (m) 1 | 1300 m   | =            | <del>~</del> | 2                                       | 24         |
|            |                |             |          |        |               |                              |          |              |              |   |            |
| 866        | SERVITUDE LINE |             |          |        |               |                              |          |              |              |   |            |
| 865        |                |             |          |        |               |                              |          |              |              | SERV                                    | ITUDE LINE |
| 864        |                |             | 1:6:99   |        | 0.00%         | 0.00%                        | 1:7.00   |              |              |   |            |
| 863        |                |             |          |        |               |                              |          |              |              |   |            |
| κ<br>γ     | ç, ş           | 07-<br>Y    | 2 9-     |        |               |                              | یں<br>بہ | 10           | <del>ن</del> | 50                                      | 25         |
|            |                |             |          |        | New Propossed | Channel @ Peg Distance (m) 1 | 1350 m   |              |              |   |            |
| <b>[</b> ] |                |             |          |        |               | 1                            |          |              |              |   | 1          |
| 865        | SERVITUDE LINE |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 864        |                |             | 1:7:00   |        | 0.00%         | 0.00%                        | 1:7.00   |              | <b>`</b>     |   |            |
| 863        |                |             |          |        |               |                              |          |              |              |   |            |
| -25        | -20            | -15         | -10      |        | ц             | 0                            | ى<br>ب   |              | 2            | 20                                      | 25         |
|            |                |             |          |        | New Propossed | Channel @ Peg Distance (m) 1 | 1400 m   |              |              |   |            |
| <b>-</b>   |                |             | ſ        |        | 1             |                              |          | 1            |              |   |            |
| 865        | SERVITUDE LINE |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 864        |                |             | 1:7:00   |        | 0.00%         | 0.00%                        | 1:7.00   |              |              |   |            |
| 863        |                |             |          |        | 0.00 /0       | 0.00 //                      |          |              | <u> </u>     |   |            |
| -25        | -5             | - <u>-</u>  | -10-     |        | ц             | 0                            | ی<br>ک   | 15 10        |              | 5                                       | 25         |
|            |                |             |          |        | New Propossed | Channel @ Peg Distance (m) 1 | 1450 m   |              |              |   |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
| 865        | SERVITUDE LINE |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 864        |                |             | 1:7:00   |        | 0.000/        | 0.000/                       | 1:7.00   |              |              |   |            |
| 863        |                |             |          |        | 0.00%         | 0.00%                        |          |              |              |   |            |
| -25        | -70            | -15         |          | ې      | 2             | >                            |          | <del>ن</del> | 2            | 2                                       | 25         |
|            |                |             |          |        | New Propossed | Channel @ Peg Distance (m) 1 | 1500 m   |              |              |   |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
| 865        | SERVITUDE LINE |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 864        |                | -           | 1.7.00   |        |               |                              | 1:7.00   |              |              |   |            |
| 863        |                |             |          |        | 0.00%         | 0.00%                        |          |              |              |   |            |
| 862<br>يت  | 0              | ى<br>ى      | 0        | ي<br>ب | 0             | ى                            | 0        | 2            | 0            | L                                       |            |
| 7          | 5              | <del></del> | <u>-</u> | ·      | New Propossed | Channel @ Peg Distance (m) 1 | 1550 m   | ~            | 5            | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ |            |
|            |                |             |          |        |               |                              |          |              |              |   |            |
|            | SERVITUDE LINE |             |          |        |               |                              |          |              |              | SERV                                    |            |
| 864        |                |             | 1.7.00   |        |               |                              | 4,0,00   |              |              |   |            |
| 863        |                |             |          |        | 0.00%         | 0.00%                        | 1.0.99   |              |              |   |            |
| 862        |                |             |          |        |               |                              |          |              |              |   |            |
| -25        | -20            | -15         | -10      | ې<br>ب | 0             | 2                            | 10       | 2            | 20           | 25                                      |            |

| 000   | SERVITUDE LINE |          |             |        |                       |  |        |          |          |       |            |
|-------|----------------|----------|-------------|--------|-----------------------|--|--------|----------|----------|-------|------------|
| 000   |                |          |             | 1.7.00 |                       |  |        |          |          | SERVI |            |
| 865   |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 864   |                |          |             |        |                       |  |        |          |          |       |            |
|       | -25            | -20      | -1-         | -10    | <br>بې                |  | ى<br>م | 10       | 5<br>2   | 50    | 25         |
|       |                |          |             |        | New Propossed Ch      | annel @ Peg Distance (m) 1200 r            | n      |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 966   | SERVITUDE LINE |          |             |        |                       |  |        |          |          |       |            |
| _000  |                |          | 1.7.0       | 00     |                       |  |        |          |          | SERVI |            |
| 865   |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7    | .00      |          |       |            |
| 864   |                |          |             |        |                       |  |        |          |          |       |            |
| z     | \$7-           | -20      |             | -10    | γ                     | 0  | Q      | 10       | 15       | 20    | 25         |
|       |                |          |             |        | New Propossed Ch      | annel @ Peg Distance (m) 1250 r            | n      |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 866   | SERVITUDE LINE |          |             |        |                       |  |        |          |          |       |            |
| 865   |                |          |             | 1:7.00 |                       |  |        |          |          | SERVI | ITUDE LINE |
| 864   |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| -25 - |                | -20      |             | -1-    | ې<br>Now Proposed ۵۲  | annel @ Dea Distance (m) 1200 -            | 'n     | ę (      | <u>0</u> | 5     | 25         |
|       |                |          |             |        | New Propossed Ch      | ומווויבו ער ביץ טוגנמווטפ (ווו) 1300 ר<br> |        |          |          |       |            |
| 000   |                |          |             |        |                       | 1  |        | 1        |          |       |            |
| 000   | SERVITUDE LINE |          |             |        |                       |  |        |          |          |       |            |
| 865   |                |          |             | :6.99  |                       |  | 4700   |          |          | SERVI |            |
| 864   |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 863   |                |          |             |        |                       |  |        |          |          |       |            |
| -25   | ç              | 27       | -<br>-<br>- | -10    | ッ<br>New Propossed Ch | annel @ Peg Distance (m) 1350 r            | n      | 15<br>15 |          | 20    | 25         |
|       |                |          |             |        |                       |  |        |          |          |       |            |
|       |                |          |             | 1      |                       |  |        |          |          |       |            |
| 865   | SERVITUDE LINE |          |             |        |                       |  |        |          |          | SERV  |            |
| 864   |                |          |             | 1:7:00 | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 863   |                |          |             |        |                       |  |        |          |          |       |            |
| -25   | -20            |          |             | -10    | ф с                   | ى<br>مى                                    |        | 10       |          | 20    | 25         |
|       |                |          |             |        | New Propossed Ch      | annel @ Peg Distance (m) 1400 r            | n      |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 865   | SERVITUDE LINE |          |             |        |                       |  |        |          |          |       |            |
| 864   |                |          | 1           | :7.00  |                       |  |        |          | ~        | SERV  | ITUDE LINE |
|       |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 863   |                |          |             |        |                       |  |        |          |          |       |            |
| -25   | -20            |          | -10         |        | New Pronoesed Ch      | annel @ Peg Distance (m) 1/50 r            | n      | <u>ې</u> | Č        | 3     | 25         |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 865   |                | ſ        |             |        |                       | 1  | 1      | 1        | 1        |       |            |
| 004   | SERVITUDE LINE |          |             |        |                       |  |        |          |          | SERV  |            |
| 864   |                |          | 1:7.        | .00    | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 863   |                |          |             |        | V.UV /0               | 0.0070                                     |        |          |          |       |            |
| -25   | -20            | <u> </u> |             | Ľ      | ې<br>0 بې             | ى  | 9      | 15       | 20       |       | 25         |
|       |                |          |             |        | New Propossed Ch      | annel @ Peg Distance (m) 1500 r            | n      |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 865   |                |          |             |        |                       |  |        |          |          | SERV  |            |
| 864   |                |          | 1.7.00      |        |                       |  |        |          |          |       |            |
| 863   |                |          |             |        | 0.00%                 | 0.00%                                      | 1:7.00 |          |          |       |            |
| 862   |                |          |             |        |                       |  |        |          |          |       |            |
| -25   | -50            | -12      |             | ې      |                       |  |        | ۍ<br>ا   | 5        | 22    |            |
|       |                |          |             |        | New Propossed Ch      | iannei @ Peg Distance (m) 1550 r           | n      |          |          |       |            |
|       |                |          |             |        |                       |  |        |          |          |       |            |
| 864   | SERVITUDE LINE |          |             |        |                       |  |        |          |          | SERVI |            |
| 000   |                |          | 1.7:00      |        |                       |  | 1:6.99 |          |          |       |            |
| 000   |                |          |             |        | 0.00%                 | 0.00%                                      |        |          |          |       |            |
| 862   |                |          |             |        |                       |  |        |          |          |       |            |
| -25   | -20            | -15      | -10         | ې<br>۲ | 0                     | വ  | 10     | 15       | 20       | 25    |            |

| 966 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          |                |
|-----|--|--------------|---------|---------------------------------------|--------------------------------|---------------|--------|----------|----------------|
| 000 |  |              | 1:7:00  |                                       |                                |               | 7.00   | <u> </u> | SERVITUDE LINE |
| 865 |  |              |         | 0.00%                                 | 0.00%                          |               |        |          |                |
| 864 |  |              |         |                                       |                                |               |        |          |                |
|     | -56                                    | -16          | -10     | New Proposse                          | d Channel @ Peg Distance (m) 1 | 200 m         | 0      | Ð        | 55 20          |
|     |  |              |         |                                       |                                |               |        |          |                |
|     | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          |                |
| 866 |  |              |         |                                       |                                |               |        |          | SERVITUDE LINE |
| 865 |  |              | 1:7.00  | Ω.00%                                 | 0 00%                          |               | 1:7.00 | <b>`</b> |                |
| 864 |  |              |         | 0.0070                                | 0.0070                         |               |        |          |                |
|     | -25                                    |              | -10     | ې<br>ب                                | 0                              | ى<br>ب        | 10     | 15       | 22<br>23       |
|     |  |              |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 250 m         |        |          |                |
|     |  |              |         |                                       |                                |               |        |          |                |
| 866 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          |                |
| 865 |  |              | 1:7.00  |                                       |                                | 1.7.00        |        | <u>_</u> | SERVITUDE LINE |
| 864 |  |              |         | 0.00%                                 | 0.00%                          | 11.00         |        |          |                |
|     |  | <br>ما       | 0       | <br>ب                                 | 0                              | <br>ي         | 0      | Q        |                |
|     | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | 7            | <u></u> | New Proposse                          | d Channel @ Peg Distance (m) 1 | 300 m         | ~      | ~        | 5 5            |
|     |  |              |         |                                       |                                |               |        |          |                |
| 866 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          |                |
| 865 |  |              | 4.6.00  |                                       |                                |               |        |          | SERVITUDE LINE |
| 864 |  |              | 1.0.39  | 0.00%                                 | 0.00%                          | 1:7.00        |        |          |                |
| 863 |  |              |         |                                       |                                |               |        |          |                |
|     | -25                                    |              | -10     | ې<br>بې                               | d Channel @ Dec Distance (m) 1 | ی<br>۵۲۵      | 10     | 15       | 25             |
|     |  |              |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 350 m         |        |          |                |
|     |  |              |         |                                       |                                | 1             | 1      |          |                |
| 865 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          | SERVITUDE LINE |
| 864 |  |              | 1:7.00  | 0.00%                                 | 0.00%                          | 1:7.00        |        |          |                |
| 863 |  |              |         |                                       |                                |               |        |          |                |
|     | -25 -20                                | <del>ب</del> | -10     | ـــــــــــــــــــــــــــــــــــــ |                                | ب<br>بن<br>دی | 10     | <u>ې</u> | 55 20          |
|     |  |              |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 400 m         |        |          |                |
|     |  |              | 1       | 1                                     | 1                              | 1             |        | 1        |                |
| 865 |  |              |         |                                       |                                |               |        |          | SERVITUDE LINE |
| 864 |  |              | 1:7.00  | 0.00%                                 | 0.00%                          | 1:7.00        |        |          |                |
| 863 |  |              |         |                                       |                                |               |        |          |                |
|     | -29                                    | ې            | -10     | ф                                     | 0                              | ى<br>م        | 9      | <u>د</u> | 20<br>72       |
|     |  |              |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 450 m         |        |          |                |
|     |  |              |         | 1                                     |                                |               | ,<br>, |          |                |
| 865 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          | SERVITUDE LINE |
| 864 |  |              | 1:7:00  |                                       | Ω ΩΩ0                          | 1:7.00        |        |          |                |
| 863 |  |              |         | 0.00%                                 | 0.00%                          |               |        |          |                |
| -25 | -50                                    | <del>ب</del> | 2       | ф                                     | 0                              | 0             | 5<br>  |          |                |
|     |  |              |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 500 m         |        |          |                |
|     |  |              |         |                                       |                                |               |        |          |                |
| 865 | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          | SERVITUDE LINE |
| 864 |  | 1.7.0        | )       |                                       |                                | 1:7.00        |        |          |                |
| 863 |  |              |         | 0.00%                                 | 0.00%                          |               |        |          |                |
| 862 |  |              |         | ې<br>ب                                |                                |               |        |          | <br>ي          |
| 4   | ې<br>۲                                 | <b>- -</b>   |         | New Proposse                          | d Channel @ Peg Distance (m) 1 | 550 m         | ÷      | 5        | 7              |
|     |  |              |         |                                       |                                |               |        |          |                |
|     | SERVITUDE LINE                         |              |         |                                       |                                |               |        |          |                |
| 864 |  |              |         |                                       |                                |               |        |          |                |
| 863 |  |              |         | 0.00%                                 | 0.00%                          | 1:6.99        |        |          |                |
| 862 |  |              |         |                                       |                                |               |        |          |                |
| -25 | -30                                    | -10          |         | ې<br>New Pronocce                     | d Channel @ Pen Distance (m) 1 | €00 m         | 35     | 5        | 52             |
|     |  |              |         | 1101011000350                         |                                |               |        |          |                |



|                                    |                | 1                                  |                                      |                             |                |                |                |
|------------------------------------|----------------|------------------------------------|--------------------------------------|-----------------------------|----------------|----------------|----------------|
| 864                                |                | 47.00                              |                                      |                             |                |                |                |
| 863<br>862                         |                |                                    | 0.00%                                | 0.00%                       | 1:7.00         |                |                |
| , t                                | ς<br>ζ         | 5.<br>6.                           | بے<br>New Prop                       | bossed Channel @ Peg Distan | e (m) 1650 m   | 2 K            |                |
| 864                                |                |                                    |                                      |                             |                |                | SERVITUDE LINE |
| 863                                | SERVITUDE LINE | 1:7.00                             |                                      |                             | 1.7 00         |                |                |
| 862                                |                |                                    | 0.00%                                | 0.00%                       | 1.1.00         |                |                |
| -25                                |                | <u>ି</u>                           | ې<br>بې<br>د                         | >                           | ۍ<br>10 ک      | <u>ې</u>       |                |
|                                    |                |                                    | New Prop                             | possed Channel @ Peg Distan | e (m) 1700 m   |                |                |
|                                    |                |                                    |                                      |                             |                |                | SERVITUDE LINE |
| 863                                |                | 1:7.00                             |                                      |                             | 1.7.00         |                |                |
| 862                                |                |                                    | 0.00%                                | 0.00%                       |                |                |                |
| -25                                | -20            |                                    | ې بې و<br>بې                         |                             | ę              | 3 15           | 3 52           |
|                                    |                |                                    | New Prop                             | possed Channel @ Peg Distan | e (m) 1750 m   |                |                |
|                                    |                |                                    |                                      |                             |                |                |                |
| 863                                |                | 1:7.00                             |                                      |                             | 1:7.00         |                |                |
| 862                                |                |                                    | 0.00%                                | 0.00%                       |                |                |                |
| 861<br>· <sup></sup> <sup></sup> 옷 | -20            | -10                                | ې<br>۲                               |                             | ę              | <sup>15</sup>  | 30 25          |
|                                    |                |                                    | New Prop                             | possed Channel @ Peg Distan | e (m) 1800 m   |                |                |
|                                    |                |                                    |                                      |                             |                | SERVITUDE LINE |                |
| 863                                | SERVITUDE LINE |                                    |                                      | 1:7.00                      |                |                |                |
| 861                                |                | 0.00%                              | 0.00%                                |                             |                |                |                |
|                                    |                | ے۔<br>م<br>ا                       | New Propossed Channel @ Peg Distance | ç<br>e (m) 1850 m           | <del>ن</del>   | 52             |                |
|                                    |                |                                    |                                      |                             |                |                |                |
| 863                                | SERVITUDE LINE |                                    |                                      | 4.7.00                      | SERVITUDE LINE |                |                |
| 862                                | 1:7.00         | 0.00%                              | 0.00%                                | 1.7.00                      |                |                |                |
| 861                                |                | ې                                  | <br>ي                                | 10                          |                |                |                |
|                                    |                | New Propossed Channel @ Peg        | Distance (m) 1900 m                  |                             |                |                |                |
| 863                                |                |                                    |                                      |                             |                |                |                |
| 862                                | 1:7.00         | 0.00% 0.                           | 00%                                  |                             |                |                |                |
| 861                                |                |                                    |                                      |                             |                |                |                |
|                                    | -15            | ج<br>New Propossed Channel @ Peg ا | Distance (m) 1950 m                  | 10                          | 15             | 20             |                |
|                                    |                |                                    |                                      |                             |                |                |                |
| 862                                | SERVITUDE LINE |                                    | 1.7.00                               |                             | SERVITUDE LINE |                |                |
| 861                                |                | 0.00%                              |                                      |                             |                |                |                |
| <u> </u>                           |                | New Propossed Channel @ Peg I      | Distance (m) 2000 m                  | 10                          | ති දි<br>      | 3              |                |
| L                                  |                |                                    |                                      |                             |                |                |                |
| 862                                |                |                                    | 4.7.00                               |                             |                |                |                |
| 861                                |                | 0.00%                              | 1:7.00                               | -                           |                |                |                |
| -12                                | ېې<br>بې       | 0                                  |                                      | 15                          | 50             |                |                |

| 864      | SERVITUDE LINE       |                                   |                                  |                              |                |              |    | SERVITUDE LINE |
|----------|----------------------|-----------------------------------|----------------------------------|------------------------------|----------------|--------------|----|----------------|
| 863      |                      | 1:7.00                            | <br><br>Λ ΛΛψ                    | <br>                         | 1:7.00         |              |    |                |
| 862      |                      |                                   | 0.0070                           | 0.00 //                      |                |              |    |                |
| -25      |                      |                                   |                                  | 0                            | 10 20          | <del>ب</del> | 5  | 55             |
|          |                      |                                   | New Pr                           | opossed Channel @ Peg Distar | nce (m) 1650 m |              |    |                |
| 864      |                      |                                   |                                  |                              |                |              |    |                |
| 007      | SERVITUDE LINE       |                                   |                                  |                              |                |              |    | SERVITODE LINE |
| 803      |                      | 1:7.00                            | 0.00%                            | 0.00%                        | 1:7:00         |              |    |                |
| 862      |                      |                                   |                                  |                              |                |              |    |                |
| -25      | -20                  | 0-<br>-                           | ي<br>New Pr                      | opossed Channel @ Peg Distar | ⊊ ⊆ ⊂          | 15           | 20 | 25             |
|          |                      |                                   |                                  |                              |                |              |    |                |
|          | SERVITUDE LINE       |                                   |                                  |                              |                |              |    | SERVITUDE LINE |
| 863      |                      | 4:7.00                            |                                  |                              | 1:7:00         |              |    |                |
| 862      |                      |                                   | 0.00%                            | 0.00%                        |                |              |    |                |
| -25      | - <del>1</del> 5<br> |                                   | ې د                              | >                            | ۍ<br>10 ک      | <u>ې</u>     |    | 52             |
|          |                      |                                   | New Pr                           | opossed Channel @ Peg Distar | nce (m) 1750 m |              |    |                |
|          |                      |                                   |                                  |                              |                |              |    |                |
| 962      | SERVITUDE LINE       |                                   |                                  |                              |                |              |    | SERVITUDE LINE |
|          |                      | .1:7.00                           | 0.00%                            | <u>በ በቦ%</u>                 | 1:7.00         |              |    |                |
| 004      |                      |                                   |                                  | 0.00 /0                      |                |              |    |                |
| -52<br>- | -15                  | - 10                              | <u> </u>                         | ى<br>ى                       | 9              | 5            | 50 | 55             |
|          |                      |                                   | New Pr                           | opossed Channel @ Peg Distar | nce (m) 1800 m |              |    |                |
|          |                      |                                   | 1                                |                              |                | 1            |    |                |
| 863      | SERVITUDE LINE       |                                   |                                  |                              |                | SERVITUDE L  | NE |                |
| 862      | 1:7.00               | 0.00%                             | 0.00%                            | 1:7.00                       |                |              |    |                |
| 861      |                      |                                   |                                  |                              |                |              |    |                |
|          | -10                  | ې<br>Ne                           | w Propossed Channel @ Peg Distan | çe<br>uce (m) 1850 m         | 3              | 20           | 3  |                |
|          |                      |                                   |                                  |                              |                |              |    |                |
| 863      |                      |                                   |                                  |                              |                |              |    |                |
| 862      | SERVITUDE LINE       |                                   |                                  | 1:7.00                       |                |              |    |                |
| 861      |                      | 0.00%                             | 0.00%                            |                              |                |              |    |                |
|          | 9                    | ب<br>ب                            | cu<br>cu                         | 10                           | ۍ<br>ا         |              |    |                |
|          |                      | New Propossed Channel @ Peg Dis   | stance (m) 1900 m                |                              |                |              |    |                |
|          |                      |                                   |                                  |                              |                |              |    |                |
| 863      | SERVITUDE LINE       |                                   |                                  |                              | SERVITUDE LINE |              |    |                |
| 862      | 1:7.00               | 0.00% 0.00%                       | %                                |                              |                |              |    |                |
| 861      |                      |                                   |                                  |                              |                |              |    |                |
| 12       | 2 <u>9</u>           | New Propossed Channel @ Peg Dis   | stance (m) 1950 m                | 0                            | 15             | 3            |    |                |
|          |                      |                                   |                                  |                              |                |              |    |                |
|          |                      |                                   |                                  |                              |                |              |    |                |
| 862      | SERVITUDE LINE       |                                   | 1.7.00                           |                              |                |              |    |                |
| 861      |                      | 0.00%                             |                                  |                              |                |              |    |                |
| -15      |                      | ې<br>م                            | 2                                | 10                           | 20             |              |    |                |
|          |                      | New Propossed Channel @ Peg Dis   | stance (m) 2000 m                |                              |                |              |    |                |
|          |                      |                                   |                                  |                              |                | <br>         |    |                |
| 862      | SERVITUDE LINE       |                                   |                                  |                              | SERVITUDE LINE |              |    |                |
| 861      | 1:/.00               | 0.00%                             | 1:7.00                           |                              |                |              |    |                |
| 2        |                      |                                   | 22                               | , u                          |                |              |    |                |
| 7        |                      | New Pronossed Channel @ Peg Dista | ence (m) 2044 559 m              | -                            | 7              |              |    |                |

| 864   | SERVITUDE LINE | E      |                   |                           |                            |                           |                     |              |    |                |    | SERVITUDE LINE |
|-------|----------------|--------|-------------------|---------------------------|----------------------------|---------------------------|---------------------|--------------|----|----------------|----|----------------|
| 863   |                |        | 1.7.0             | )0                        | 0.00%                      | 0.00%                     |                     | 1:7.00       |    |                |    |                |
| 862   |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| Ŀ     | -20            |        | -10               |                           | ф<br>Now                   | Propossed Channel @ Peg [ | Distanco (m) 1650 m | 10           |    | <del>ب</del>   | 50 | 25             |
|       |                |        |                   |                           | INEW                       |                           |                     |              |    |                |    |                |
| 864   |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| 863   | SERVITUDE LINE | E      |                   | 1.7 10                    |                            |                           |                     | 17 00        |    |                | ~  |                |
| 862   |                |        |                   | 11.00                     | 0.00%                      | 0.00%                     |                     | 1.7.00       |    |                |    |                |
| 2     |                |        | 0 2               |                           | φ.                         | 0                         | Q                   | 0            |    | QJ             | 0  | Q              |
| 4     | 7              |        | <b>T T</b>        |                           | New                        | Propossed Channel @ Peg [ | Distance (m) 1700 m | <del>,</del> |    | -              | 5  |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| 000   |                | E      |                   |                           |                            |                           |                     |              |    |                |    | SERVITUDE LINE |
| - 803 |                |        | 1:7:00            | 0                         | 0.00%                      | 0.00%                     |                     | 1:7.00       |    |                |    |                |
| 862   |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| -25   |                |        | 9.                | ф                         | Now                        | Propossed Channel @ Peg [ | Distance (m) 1750 m | 10           |    |                | 5  |                |
|       |                |        |                   |                           | THE W                      |                           |                     |              |    |                |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    | SERVITUDE LINE |
| 863   |                | E      | 1:7.00            |                           |                            |                           |                     | 1:7.00       |    |                |    |                |
| 862   |                |        |                   |                           | 0.00%                      | 0.00%                     |                     |              |    |                |    |                |
| 861   | 8              | 2      | 0                 | ې<br>ب                    |                            | 0                         | 2                   | 0            |    | <u>م</u>       | 0  |                |
|       |                |        |                   |                           | New                        | Propossed Channel @ Peg [ | Distance (m) 1800 m |              |    |                |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| 863   |                | E      |                   |                           |                            |                           |                     |              |    | SERVITUDE LINE |    |                |
| 862   |                | 1:7.00 | 0.00%             |                           | 0.00%                      | 1;7.00                    |                     |              |    |                |    |                |
| 861   |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
|       | ې<br>بې        | 0      | φ                 |                           | proceed Channel @ Pog Dist | <br>≘                     | נ <u>ז</u>          |              | 20 | 25             |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| 863   |                |        |                   |                           |                            |                           | SERVITUDE LINE      | :            |    |                |    |                |
| 862   | SERVITUDE LINE | E      |                   |                           |                            | 1:7.00                    |                     |              |    |                |    |                |
| 861   |                |        | 0.00%             | 0.00%                     | /6                         |                           |                     |              |    |                |    |                |
|       | <u>ب</u>       | 0      | ų                 | 0                         | ي                          | 10                        | ۍ<br>ا              |              | 59 |                |    |                |
|       |                |        | New Proposse      | ed Channel @ Peg Distanc  | e (m) 1900 m               |                           |                     |              |    |                |    |                |
|       | 1              |        |                   | 1                         | 1                          | 1                         |                     |              |    |                |    |                |
| 863   | SERVITUDE LINE | E      |                   |                           |                            |                           | SERVITUDE LINE      | 1            |    |                |    |                |
| 002   |                | 1:7.00 | 0.00%             | 0.00%                     | 1.7.0                      | 0                         |                     |              |    |                |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
|       | <u>4</u>       | ÷      | New Proposse      | ed Channel @ Peg Distanc  | e (m) 1950 m               | €                         | <del>,</del>        | ·            | ~  |                |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
|       |                | E      |                   |                           |                            |                           | SERVITUDE LINE      |              |    |                |    |                |
| 862   |                | 1:7.00 | 0.00%             | 0.00%                     | 1:7.00                     |                           |                     |              |    |                |    |                |
| 861   |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| Ļ     |                |        | چ<br>New Pronosse | ed Channel @ Peg Distance | e (m) 2000 m               | 0                         | 15                  | 20 -         |    |                |    |                |
|       |                |        |                   |                           | ,                          |                           |                     |              |    |                |    |                |
| 862   |                | E      |                   |                           |                            |                           | SERVITUDE LINE      |              |    |                |    |                |
| 861   |                | 1:7.00 | 0.00%             | 0.00%                     | 1:7.00                     |                           |                     |              | —  |                |    |                |
|       |                |        |                   |                           |                            |                           |                     |              |    |                |    |                |
| -15   | -9-            | ب<br>ب | New Pronossed     | Channel @ Pen Distance /  | (m) 2044 559 m             | 9                         | 12                  | 20 -         |    |                |    |                |

| 864              | SERVITUDE LINE |        |               |                             |                              |                                |                    |        |              |    | SERVITUDE LINE |
|------------------|----------------|--------|---------------|-----------------------------|------------------------------|--------------------------------|--------------------|--------|--------------|----|----------------|
| 863              |                |        |               | 1.7.00                      |                              |                                |                    | 1:7.00 |              |    |                |
| 862              |                |        |               |                             | 0.00%                        | 0.00%                          |                    |        |              |    |                |
|                  |                |        | ۰.<br>۵       | 0                           | ے۔<br>ب                      | 0                              | <br>ي              | 0      | یں<br>ب      |    | <br>ي          |
| 5                | -5             |        | <b>T</b>      | <b>F</b>                    | New                          | Propossed Channel @ Peg D      | istance (m) 1650 m | -      | <del>~</del> | 5  | 2              |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 864              |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 863              | SERVITODE LINE |        |               | 47.0A                       |                              |                                |                    |        |              |    |                |
| 962              |                |        |               | 1.7.00                      | 0.00%                        | 0.00%                          |                    | 1.7.00 |              |    |                |
| 002              |                |        |               |                             |                              |                                |                    |        |              |    |                |
| -25              | -20            | 12     | ç             | 2                           | ې<br>New                     | ⊂<br>Propossed Channel @ Peg F | istance (m) 1700 m | 10     | 15           | 50 | 25             |
|                  |                |        |               |                             | THEW .                       |                                |                    |        |              |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 863              | SERVITUDE LINE |        |               | 4.7.00                      |                              |                                |                    |        |              |    | SERVITODE LINE |
| 862              |                |        |               |                             | 0.00%                        | 0.00%                          |                    | 1:7.00 |              |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| -25              | -20            | -15    | 0             |                             | ф<br>Мал.                    |                                |                    | - 01   | 15           | 50 | 25             |
|                  |                |        |               |                             | New                          | Propossed Channel @ Peg L      | Istance (m) 1750 m |        |              |    |                |
|                  |                |        |               | ſ                           |                              | 1                              |                    |        |              | ï  |                |
| 863              | SERVITUDE LINE |        |               |                             |                              |                                |                    |        |              |    | SERVITUDE LINE |
| 000              |                |        |               | 00                          | Ω ΩΩΨ.                       | Ω.000/                         |                    | 1:7.00 |              |    |                |
| 862              |                |        |               |                             | 0.00%                        | 0.00%                          |                    |        |              |    |                |
| <u>861</u><br>इन | -20            | -15    | -10           | γ                           | ?                            | 0                              | 2<br>2             | 10     | 5            | 20 | <br>25         |
|                  |                |        |               |                             | New                          | Propossed Channel @ Peg D      | istance (m) 1800 m |        |              |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 000              |                |        |               |                             |                              |                                |                    |        | SERVIT       |    |                |
| 803              | SERVITODE LINE | 1:7.00 |               |                             |                              | 1:7.00                         |                    |        |              |    |                |
| 862              |                |        | 0.00          | %                           | 0.00%                        |                                |                    |        |              |    |                |
| 861              |                |        |               |                             |                              |                                |                    |        |              |    |                |
| ÷.               | 5              | -10    | ų             | New F                       | Propossed Channel @ Peg Dist | ance (m) 1850 m                | 55                 |        | 20           | 56 |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 863              |                |        |               |                             |                              |                                |                    |        |              |    |                |
|                  | SERVITUDE LINE | 1.7.00 |               |                             |                              | 1.7.00                         |                    |        |              |    |                |
| 862              |                |        | 0.00%         | 0.0                         | 00%                          |                                |                    |        |              |    |                |
| 861              |                |        |               |                             |                              |                                |                    |        |              |    |                |
| -15              |                | -10    | به<br>New Pro | oossed Channel @ Peg Distar | nce (m) 1900 m               | 10                             | 15                 | S      | 87           |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| 863              |                |        |               |                             |                              |                                |                    |        | 1            |    |                |
| 962              | SERVITUDE LINE | 1700   |               |                             |                              |                                | SERVITUDE LINE     |        |              |    |                |
| 002              |                | 1:7.00 | 0.00%         | 0.00%                       | 1;7;1                        | 00                             |                    |        |              |    |                |
| 861              |                |        |               |                             |                              |                                |                    |        |              |    |                |
| -15              | -10            |        | ්<br>Now Pro  | Channel @ Deg Distar        | noo (m) 1050 m               | 10                             | 5                  | 20     |              |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
|                  |                |        | 1             | 1                           | 1                            | 1                              | 1                  |        | 1            |    |                |
| 862              | SERVITUDE LINE |        |               |                             |                              |                                | SERVITUDE LINE     |        |              |    |                |
| 001              |                | 1:7.00 | 0.00%         | 0.00%                       | 1:7.00                       |                                |                    |        |              |    |                |
|                  |                | ~      |               |                             |                              |                                |                    |        |              |    |                |
| -15              | -10            | L      | ې<br>بې       |                             |                              | 10                             | 12                 | 20     |              |    |                |
|                  |                |        | New Pro       | oossed Unannel @ Peg Distar | nce (m) 2000 m               |                                |                    |        |              |    |                |
|                  | i i            |        | 1             |                             |                              |                                |                    |        | 1            |    |                |
| 862              | SERVITUDE LINE | 1.7.00 |               |                             |                              |                                |                    |        |              |    |                |
| 861              |                |        | 0.00%         | 0.00%                       | 1:7.00                       |                                |                    |        |              |    |                |
|                  |                |        |               |                             |                              |                                |                    |        |              |    |                |
| -15              | -10            | ф      | New Propo     | ssed Channel @ Peg Distance | ∽<br>∞ (m) 2044 559 m        | 0                              | 15                 | 50     |              |    |                |

| 864        | SERVITUDE LINE |        |               |                              |                                 |                              |                     |              |    |              |      | SERVI  |  |
|------------|----------------|--------|---------------|------------------------------|---------------------------------|------------------------------|---------------------|--------------|----|--------------|------|--------|--|
| 863        |                |        |               | 1:7:00                       | 0.00%                           | 0.00%                        |                     | 1:7.00       |    | <b>`</b>     |      |        |  |
| 862        |                |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| -25        | -20            |        | <u>ہ</u><br>د | -10                          | ې<br>New F                      | Pronossed Channel @ Peg      | Distance (m) 1650 m |              | 10 | <del>ر</del> | 50   | - 25   |  |
|            |                |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| 864        |                |        |               |                              |                                 |                              |                     |              |    |              |      | \$ERVI |  |
| 863        |                |        |               | 1:7.00                       |                                 |                              |                     | 1:7.00       |    |              |      |        |  |
| 862        |                |        |               |                              | 0.00%                           | 0.00%                        |                     |              |    |              |      |        |  |
| -25        |                |        |               |                              | <u>ب</u>                        | 0                            | ي<br>ب              | ç            | 2  | 22           | 50   | 25     |  |
|            |                |        |               |                              | New F                           | Propossed Channel @ Peg      | Distance (m) 1700 m |              |    |              |      |        |  |
|            |                |        |               |                              |                                 |                              |                     |              |    |              |      | OFDV   |  |
| _863       |                |        |               | 1.7.00                       |                                 |                              |                     | 4.7.00       |    |              |      | SERVI  |  |
| 862        |                |        |               |                              | 0.00%                           | 0.00%                        |                     | 1.7.00       |    |              |      |        |  |
| 25         | 50             | ų      | 2             | 0                            | <br>ب                           | 0                            | 2                   | 0            |    |              | 50   | 55     |  |
|            | ۲× ۲           |        |               |                              | New F                           | Propossed Channel @ Peg      | Distance (m) 1750 m | -            |    |              | ~ ~  |        |  |
| I          | ſ              |        |               |                              |                                 |                              | Ĩ                   |              |    |              | Ĩ    |        |  |
| 863        | SERVITUDE LINE |        |               |                              |                                 |                              |                     |              |    |              |      | SERVI  |  |
| 862        |                |        |               | 1:7.00                       | 0.00%                           | 0.00%                        |                     | 1.7.00       |    |              |      |        |  |
| 861        |                |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| -25        | -20            | -15    | Ę             | 2                            | چ<br>New F                      | ><br>Propossed Channel @ Peg | Distance (m) 1800 m | 10           |    | 15           | 50   | 25     |  |
|            |                |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| 230        |                |        |               |                              |                                 |                              |                     |              |    | SERVITUDE    | LINE |        |  |
| 862        |                | 1:7.00 |               | 0.000/                       |                                 | 1:7.00                       |                     |              |    |              |      |        |  |
| 861        |                |        |               | 0.00%                        | 0.00%                           |                              |                     |              |    |              |      |        |  |
|            | ج<br>ب         | -10    | φ             | 0                            |                                 | e<br>e                       |                     | <del>ئ</del> | 20 |              | 25   |        |  |
|            |                |        |               | New                          | v Propossed Channel @ Peg Dista | ince (m) 1850 m              |                     |              |    |              |      |        |  |
| 863        |                |        |               |                              |                                 |                              | SERVITUDE           |              |    |              |      |        |  |
| 862        | SERVITUDE LINE | 1:7.00 |               |                              |                                 | 1:7.00                       |                     |              |    |              |      |        |  |
| 861        |                |        | 0.00%         |                              | 0.00%                           |                              |                     |              |    |              |      |        |  |
|            | ب<br>ب         | -10    | φ             | 0                            | ى<br>ب                          | 10                           | 15                  |              |    |              |      |        |  |
|            |                |        | New F         | Propossed Channel @ Peg Dist | tance (m) 1900 m                |                              |                     |              |    |              |      |        |  |
| 863        |                |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| 862        | SERVITUDE LINE | 1.7 00 |               |                              | 4.7.00                          |                              | SERVITUDE           | LINE         |    |              |      |        |  |
| 861        |                |        | 0.00%         | 0.00%                        |                                 |                              |                     |              |    |              |      |        |  |
| ری<br>در   |                |        | φ             | 0                            | ي<br>ب                          | 10                           | 15                  |              | 50 |              |      |        |  |
|            |                |        | New F         | Propossed Channel @ Peg Dist | tance (m) 1950 m                |                              |                     |              |    |              |      |        |  |
|            | 1              |        |               |                              |                                 |                              |                     |              |    |              |      |        |  |
| 862        | SERVITUDE LINE |        |               |                              |                                 |                              | SERVITUDE           | LINE         |    |              |      |        |  |
| 861        |                | 1:7.00 | 0.00%         | 0.00%                        | 1:7.00                          |                              |                     |              |    |              |      |        |  |
| -12<br>-12 | 10             |        | ې<br>بې       | 0                            | ص<br>س                          |                              | 15                  |              | 50 |              |      |        |  |
|            | •              |        | New F         | Propossed Channel @ Peg Dist | tance (m) 2000 m                |                              |                     |              |    |              |      |        |  |
|            | ï              | Ť      |               | 1                            |                                 | 1                            |                     |              |    |              |      |        |  |
| 862        |                | 1:7.00 |               |                              | 1.7 00                          |                              | SEKVITUDE           |              |    |              |      |        |  |
| 861        |                |        | 0.00%         | 0.00%                        | 1,1,1,00                        |                              |                     |              |    |              |      |        |  |
| -15        | -10            | ې      |               | >                            | 2                               | 2                            | 15                  | 20           |    |              |      |        |  |
|            |                |        | Now Pro       | nossed Channel @ Peg Distar  | nce (m) 2044 559 m              |                              |                     |              |    |              |      |        |  |

| 864                    | SERVITUDE LINE |                   |                     |                                    |                      |                            |                |    |                |    | SERVITUDE LINE |
|------------------------|----------------|-------------------|---------------------|------------------------------------|----------------------|----------------------------|----------------|----|----------------|----|----------------|
| 863                    |                |                   | 1:7.00              |                                    |                      |                            | 1:7.00         |    |                |    |                |
| 862                    |                |                   |                     |                                    | 0.00%                | 0.00%                      |                |    |                |    |                |
| -25                    |                | <del>ب</del><br>م | -10                 | γ                                  | New Pro              | possed Channel @ Peg Dista |                | 9  | <del>ن</del>   | 20 | 25             |
|                        |                |                   |                     |                                    |                      | ,                          |                |    |                |    |                |
| 864                    |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| 863                    |                |                   | 1.7 00              |                                    |                      |                            | 4.7.00         |    |                |    |                |
| 862                    |                |                   | 1.1.00              |                                    | 0.00%                | 0.00%                      | 1.7.00         |    |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| -25                    | -50            | 5 <u>-</u>        |                     | ų                                  | New Pro              | possed Channel @ Peg Dista | ice (m) 1700 m | 22 | £              | 50 | 55             |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
|                        | SERVITUDE LINE |                   |                     |                                    |                      |                            |                |    |                |    | SERVITUDE LINE |
| 863                    |                |                   | 1:7.00              |                                    |                      |                            | 1:7.00         |    |                |    |                |
| 862                    |                |                   |                     |                                    | 0.00%                | 0.00%                      |                |    |                |    |                |
| 25                     |                | 2                 |                     | ې<br>ب                             | 0                    |                            | ç <u>6</u>     | ų  | 2 8            | 07 |                |
| ·                      |                |                   |                     |                                    | New Pro              | possed Channel @ Peg Dista | ice (m) 1750 m |    |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
|                        | SERVITUDE LINE |                   |                     |                                    |                      |                            |                |    |                |    | SERVITUDE LINE |
| 863                    |                |                   | 1:7.00              |                                    | 0.000/               | 0.000/                     | 1:7.00         |    |                |    |                |
| 862                    |                |                   |                     |                                    | 0.00%                | 0.00%                      |                |    |                |    |                |
| 861<br>\$ <del>?</del> | -20            | -15               | -10                 | ф                                  | 0                    | <u>ب</u>                   | 10             | 15 | 20             |    | 25             |
|                        |                |                   |                     |                                    | New Pro              | possed Channel @ Peg Dista | ice (m) 1800 m |    |                |    |                |
|                        |                |                   |                     | ,                                  |                      |                            |                |    |                |    |                |
| 863                    | SERVITUDE LINE |                   |                     |                                    |                      |                            |                |    | SERVITUDE LINE |    |                |
| 862                    |                | 1:7.00            | 0.00%               | <br><br>                           |                      | 1:7.00                     |                |    |                |    |                |
| 861                    |                |                   | 0.00 /0             | 0.0070                             |                      |                            |                |    |                |    |                |
|                        |                | <u>م</u>          |                     |                                    | 22<br>22             | 9                          | 5              | 20 | 55             |    |                |
|                        |                |                   |                     | New Propossed C                    | hannel @ Peg Distanc | e (m) 1850 m               |                |    |                |    |                |
|                        |                |                   |                     | 1                                  |                      |                            |                |    |                |    |                |
| 863                    | SERVITUDE LINE | 7.00              |                     |                                    |                      | 1.7.00                     |                |    |                |    |                |
| 862                    |                | 1:7.00            | 0.00%               | 0.00%                              |                      | 1.7.00                     |                |    |                |    |                |
| 861                    |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
|                        | -9             | γ                 | New Propossed Ch    | ∽<br>annel @ Peg Distance (m) 1900 | ) m                  | 0                          | Ŕ              | 58 |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| 863                    |                |                   |                     |                                    |                      |                            | SERVITUDE LINE |    |                |    |                |
| 862                    | 1.7            | 7.00              | 0.00%               | 0.00%                              | 1:7.00               |                            |                |    |                |    |                |
| 861                    |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
|                        |                | φ                 | 0                   | 2<br>Z                             |                      | 10                         | ŕ              | 20 |                |    |                |
|                        |                |                   | New Propossed Ch    | annel @ Peg Distance (m) 1950      | ) m                  |                            |                |    |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| 862                    | SERVITUDE LINE |                   |                     |                                    |                      |                            | SERVITUDE LINE |    |                |    |                |
| 861                    | 1              | 7.00 0.0          | 0%                  | 0.00%                              | 1:7.00               |                            |                |    |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| -15                    | 2 Q-           | ф                 | New Propossed Ch    | annel @ Peg Distance (m) 2000      | ) m                  | 0                          | <del>5</del>   | 20 |                |    |                |
|                        |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| 862                    |                |                   |                     |                                    |                      |                            | SERVITUDE LINE | ]  |                |    |                |
| 002                    | 1:7.00         | 0.00%             |                     | 0.00%                              | 1:7.00               |                            |                |    |                |    |                |
| 001                    |                |                   |                     |                                    |                      |                            |                |    |                |    |                |
| -15                    |                | ې                 |                     |                                    |                      | Ļ                          | 2 8            |    |                |    |                |
|                        |                |                   | New Propossed (Chan | mer wir Pen Liistance (m) 2044 h   | NN 11                |                            |                |    |                |    |                |

| 864 | SERVITUDE LI | NE      |                         |                            |                              |                            |                  |        |                |               |    | SERVITUDE LINE |
|-----|--------------|---------|-------------------------|----------------------------|------------------------------|----------------------------|------------------|--------|----------------|---------------|----|----------------|
| 863 |              |         | 1:7.00                  |                            | 0.00%                        | 0.00%                      |                  | 1:7.00 |                |               |    |                |
| 862 |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| -25 | 5            | Ę.      |                         |                            | ي<br>New Pi                  | ropossed Channel @ Peg Dis | tance (m) 1650 m | 10     | 5              | 2             | 20 | 52             |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| 864 | SERVITUDE LI | NE      |                         |                            |                              |                            |                  |        |                |               |    | SERVITUDE LINE |
| 863 |              |         |                         | .00                        |                              |                            |                  | 1:7.00 |                |               |    |                |
| 862 |              |         |                         |                            | 0.00%                        | 0.00%                      |                  |        |                |               |    |                |
| -25 | -5<br>-5     |         | -;-<br>- ;5<br>         |                            | ц.                           | 0                          | 2                | 10     | 15             |               | 50 | 33             |
|     |              |         |                         |                            | New Pi                       | ropossed Channel @ Peg Dis | tance (m) 1700 m |        |                |               |    |                |
|     |              | NE      |                         |                            |                              |                            |                  |        |                |               |    |                |
| 863 |              |         | 1:7.00                  |                            |                              |                            |                  | 1:7.00 | -              |               |    |                |
| 862 |              |         |                         |                            | 0.00%                        | 0.00%                      |                  |        |                |               |    |                |
| -25 | -70          |         | <u>ି</u><br>ଜୁନା କୁନ୍ଦି | ې                          | ?                            | 0                          | 2<br>2           | 0      | 15             |               | 20 | 55             |
|     |              |         |                         |                            | New Pi                       | ropossed Channel @ Peg Dis | tance (m) 1750 m |        |                |               |    |                |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| 863 | SERVITUDE LI | NE      | 1.7.00                  |                            |                              |                            |                  | 1.7 00 |                |               |    | SERVITUDE LINE |
| 862 |              |         |                         |                            | 0.00%                        | 0.00%                      |                  |        |                |               |    |                |
| 861 |              |         |                         |                            |                              |                            | 5                |        |                |               |    |                |
| 4   | -2-          | ÷       | ÷                       | r                          | New Pi                       | ropossed Channel @ Peg Dis | tance (m) 1800 m | =      | <del>~</del>   |               | 5  | 2              |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| 863 | SERVITUDE LI | NE      |                         |                            |                              |                            |                  |        | SE             | ERVITUDE LINE |    |                |
| 862 |              | 1:7.00  | 0.00%                   |                            | 0.00%                        | 1:7.00                     |                  |        |                |               |    |                |
| 861 |              |         |                         |                            |                              |                            |                  |        |                |               |    | -              |
|     |              | -<br>9- | φ                       | New Pro                    | opossed Channel @ Peg Distar | ຼຼ<br>nce (m) 1850 m       | 15               |        | 20             | 25 -          |    |                |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| 863 | SERVITUDE I  | NE      |                         |                            |                              |                            | SERVITUDE LINE   |        |                |               |    |                |
| 862 |              | 1:7.00  | ስ በቦራ                   |                            | 0/                           | 1:7.00                     |                  |        | _              |               |    |                |
| 861 |              |         | 0.0070                  | 0.00                       |                              |                            |                  |        | _              |               |    |                |
|     | <u> </u>     | 01-     | ې<br>New Pronosser      | Channel @ Peg Distanc      | re (m) 1900 m                | 10                         | 15               |        | <del>3</del> 9 |               |    |                |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| 863 |              |         |                         |                            |                              |                            |                  |        | _              |               |    |                |
| 862 | SERVITODE    | 1:7.00  | 0.000/                  | 0.000/                     | 1.7.00                       |                            |                  |        | _              |               |    |                |
| 861 |              |         | 0.00%                   | 0.00%                      |                              |                            |                  |        | _              |               |    |                |
|     |              | -10     | ې<br>بې<br>Now Proposed | ,<br>Channal @ Pag Distanc |                              | 0                          | 15               | 20     | -              |               |    |                |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
|     |              |         |                         |                            |                              |                            |                  |        | 7              |               |    |                |
| 862 |              | 1:7.00  | 0.000/                  | 0.00%                      | 1:7.00                       |                            |                  |        | _              |               |    |                |
| 861 |              |         | U.VU /U                 | V.UU /0                    |                              |                            |                  |        | -              |               |    |                |
| -15 | ç            | 2       | маш Dronoccor           | Channel @ Peo Distance     |                              | 10                         | 15               | 20     | 1              |               |    |                |
|     |              |         | 116W 1 100035C          |                            |                              |                            |                  |        |                |               |    |                |
| 862 | SERVITUDE LI | NE      |                         |                            |                              |                            | SERVITUDE LINE   |        | 7              |               |    |                |
| 861 |              | 1:7.00  | 0.00%                   | 0.00%                      | 1:7.00                       |                            |                  |        |                |               |    |                |
|     |              |         |                         |                            |                              |                            |                  |        |                |               |    |                |
| -15 | 9            |         | New Pronoceed (         | hannel @ Peg Distance      | (m) 2044 559 m               | 2                          | 72               | 50     |                |               |    |                |

| 864 |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  |                |    |                |    | SERVITUDE LINE |
|-----|-----|-------------|----------|-------------------|---------------------------------|-----------------------------------|----------------------------------|----------------|----|----------------|----|----------------|
| 863 |     |             |          |                   | 1.7.00                          |                                   |                                  | 1:7.00         |    |                |    |                |
| 862 |     |             |          |                   |                                 | 0.00%                             | 0.00%                            |                |    |                |    |                |
| 2   |     |             | 0        | <br>ي             | 0                               | <br>م                             | 0                                | Q              | 0  | <br>ي          | 0  | <br>ب          |
| 4   |     |             | <b>?</b> | <b>T</b>          | <b>T</b>                        | New Pro                           | oossed Channel @ Peg Distar      | ce (m) 1650 m  | ~  | ~              | 5  | 7              |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| 864 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| 863 |     | SERVITODEL  |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| 000 |     |             |          |                   | 1.7.00                          | 0.00%                             | 0.00%                            | 1:7.00         |    |                |    |                |
| 802 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| -25 |     | - 20        | 2        | -22               | -10                             | ې<br>مې<br>Now Pro                | ><br>Doccod Channal @ Dog Dictor |                | 9  | 3              | 20 | 52             |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     |     |             |          | 1                 |                                 |                                   |                                  | 1              |    |                |    |                |
| 863 |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  |                |    |                |    | SERVITUDE LINE |
| 060 |     |             |          |                   | 1:7:00                          | 0.00%                             | 0.00%                            | 1:7.00         |    |                |    |                |
| 002 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| -25 |     | -20         |          | <del>င်</del><br> | 2<br>-                          | ç 0                               |                                  | ° Ç            | 2  | <del>5</del>   | 50 | 25             |
|     |     |             |          |                   |                                 | New Pro                           | oossed Channel @ Peg Distar      | ce (m) 1750 m  |    |                |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  |                |    |                |    | SERVITUDE LINE |
| 863 |     |             |          |                   | 1:7.00                          |                                   |                                  | 1:7.00         |    |                |    |                |
| 862 |     |             |          |                   |                                 | 0.00%                             | 0.00%                            |                |    |                |    |                |
| 861 |     | 0           | 2        | 0                 | ۍ<br>۲                          | 0                                 | Q                                | 0              |    | 2              | 0  |                |
|     |     |             | <b>T</b> |                   |                                 | New Pro                           | oossed Channel @ Peg Distar      | ce (m) 1800 m  |    | -              |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    | SERVITUDE LINE |    |                |
| 863 |     | SERVITUDE L | 1:7.00   |                   |                                 |                                   | 1.7.00                           |                |    |                |    |                |
| 862 |     |             |          | (                 | .00%                            | 0.00%                             | 1.7.50                           |                |    |                |    |                |
| 861 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     | -15 |             | -10      | မု                |                                 | ranges and Channel @ Pag Distance | ⊊<br>(m) 1850 m                  | 15             | 50 | 55             |    |                |
|     |     |             |          |                   | INEW F                          | opossed Channel @ Fey Distance    |                                  |                |    |                |    |                |
|     |     |             |          | 1                 |                                 |                                   |                                  |                |    |                |    |                |
| 863 |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  | SERVITODE LINE |    |                |    |                |
| 862 |     |             | 1:7.00   | 0.00%             | 0.0                             | )%                                | 1:7.00                           |                |    |                |    |                |
| 861 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     | -15 |             |          | ې لړ<br>۲         |                                 |                                   | 10                               | <u>ې</u>       | 3  |                |    |                |
|     |     |             |          | New P             | opossed Channel @ Peg Distan    | ce (m) 1900 m                     |                                  |                |    |                |    |                |
|     | ï   |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| 863 |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  | SERVITUDE LINE |    |                |    |                |
| 862 |     |             | 1:7.00   | 0.00%             | 0.00%                           | 1:7.00                            |                                  |                |    |                |    |                |
| 861 |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     | -15 |             | -10      | <br>မှ            | 0                               | ىر<br>بى                          | 1                                | 15             | 50 |                |    |                |
|     |     |             |          | New P             | opossed Channel @ Peg Distan    | ce (m) 1950 m                     |                                  |                |    |                |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
|     |     |             | INE      |                   |                                 |                                   |                                  |                |    |                |    |                |
| 862 |     |             | 1:7.00   | n nnø/            | Δ. Δ00/                         | 1:7.00                            |                                  |                |    |                |    |                |
| 861 |     |             |          | 0.00 /0           | 0.0070                          |                                   |                                  |                |    |                |    |                |
| -15 |     |             | -10      | φ                 | 6                               | 2                                 | 10                               |                | 20 |                |    |                |
|     |     |             |          | New P             | opossed Channel @ Peg Distan    | ce (m) 2000 m                     |                                  |                |    |                |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| 862 |     | SERVITUDE L | INE      |                   |                                 |                                   |                                  | SERVITUDE LINE |    |                |    |                |
| 861 |     |             | 1:7.00   | 0.00%             | 0.00%                           | 1:7.00                            |                                  |                |    |                |    |                |
|     |     |             |          |                   |                                 |                                   |                                  |                |    |                |    |                |
| -15 |     | -10         | La       | p                 |                                 | 2<br>() 0044 552                  | ų                                | 50             |    |                |    |                |
|     |     |             |          | New Pro           | nossea Channel (a) Pea Distance | (m) 2044 559 m                    |                                  |                |    |                |    |                |

| 864 | SERVITUDE LINE |                   |                               |                           |                           |                       |    |                |    | SERVITUDE LINE |
|-----|----------------|-------------------|-------------------------------|---------------------------|---------------------------|-----------------------|----|----------------|----|----------------|
| 863 |                | 1:7:00            |                               |                           |                           | 1:7.00                |    |                |    |                |
| 862 |                |                   |                               | 0.00%                     | 0.00%                     |                       |    |                |    |                |
| -25 | \$             | -15<br>           | γ                             | 0                         |                           | ى<br>س                | 9  | <u>3</u>       | 50 | 55             |
|     |                |                   |                               | New Propos                | sed Channel @ Peg Distanc | e (m) 1650 m          |    |                |    |                |
|     |                |                   |                               |                           |                           |                       |    |                |    |                |
| 864 | SERVITUDE LINE |                   |                               |                           |                           |                       |    |                |    | SERVITUDE LINE |
| 863 |                | 1:7.00            |                               | 0.000/                    | 0.000/                    | 1.7.00                |    |                |    |                |
| 862 |                |                   |                               | 0.00%                     | 0.00%                     |                       |    |                |    |                |
| -25 |                | -1-               | ې                             | 0                         |                           | 0                     | 2  | 15             | 50 | 55             |
|     |                |                   |                               | New Propos                | sed Channel @ Peg Distanc | e (m) 1700 m          |    |                |    |                |
|     |                |                   |                               |                           |                           |                       |    |                |    |                |
| 863 | SERVITUDE LINE |                   |                               |                           |                           |                       |    |                |    | SERVITUDE LINE |
| 060 |                | 1.7.00            |                               | 0.00%                     | 0.00%                     | 1:7.00                |    |                |    |                |
| 002 |                |                   |                               |                           |                           |                       |    |                |    |                |
| -25 |                |                   | ကို                           |                           |                           | ₽ (ma) <b>4750</b> ma |    | 5              | 5  | 25             |
|     |                |                   |                               | New Propos                | seu Unannei @ Peg Distanc | e (III) 1750 M        |    |                |    |                |
|     |                |                   | 1                             |                           |                           |                       |    |                |    |                |
| 863 | SERVITUDE LINE |                   |                               |                           |                           |                       |    |                |    | SERVITUDE LINE |
| 862 |                | 1:7.00            |                               | 0.00%                     | 0.00%                     | 1:7.00                |    |                |    |                |
| 861 |                |                   |                               |                           |                           |                       |    |                |    |                |
| -72 | -15            | -10               | ې<br>ا                        | Naw Prese                 |                           | ę<br>(ma) 1000 m      |    | 15             | 50 | 32             |
|     |                |                   |                               | New Propos                |                           | e (m) 1600 m          |    |                |    |                |
|     |                |                   |                               |                           |                           |                       | 1  |                |    |                |
| 863 | SERVITUDE LINE |                   |                               |                           |                           |                       |    | SERVITUDE LINE |    |                |
| 862 | 1:7.00         | 0.00%             | 0.00%                         |                           | 1:7.00                    |                       |    |                |    |                |
| 861 |                |                   |                               |                           |                           |                       |    |                |    |                |
|     |                | ц<br>Ср           | New Propossed (               | Channel @ Peg Distance (r | ⇔<br>≈                    | <u>3</u>              |    |                |    |                |
|     |                |                   | New Propossed                 |                           | n) 1000 m                 |                       |    |                |    |                |
| 060 |                |                   |                               |                           |                           |                       |    |                |    |                |
| 000 | SERVITUDE LINE |                   |                               |                           | 1:7.00                    |                       |    |                |    |                |
| 862 | 1.1.0          | 0.00%             | 0.00%                         |                           |                           |                       |    |                |    |                |
| 861 |                |                   |                               |                           |                           |                       |    |                |    |                |
|     | ¥              | New Propossed C   | hannel @ Peg Distance (m) 190 | 00 m                      | ÷.                        | ~                     | ζ, |                |    |                |
|     |                |                   |                               |                           |                           |                       |    |                |    |                |
| 863 |                |                   |                               |                           |                           |                       |    |                |    |                |
| 862 | 17.00          |                   |                               | 1:7.00                    |                           |                       |    |                |    |                |
| 861 |                | 0.00%             | 0.00%                         |                           |                           |                       |    |                |    |                |
|     | -10 -12        | 0                 | ىي<br>ا                       |                           | 10                        | 5                     | 20 |                |    |                |
|     |                | New Propossed C   | hannel @ Peg Distance (m) 198 | 50 m                      |                           |                       |    |                |    |                |
|     |                |                   |                               |                           |                           |                       |    |                |    |                |
| 000 |                |                   |                               |                           |                           |                       |    |                |    |                |
| 802 | 1:7.00         | 0.00%             | 0.00%                         | 1:7.00                    | <b>_</b>                  |                       |    |                |    |                |
| 001 |                |                   |                               |                           |                           |                       |    |                |    |                |
| -15 | -19            |                   | hannal @ Dag Distance (m) 20( | <br>ج                     |                           | 15                    | 20 |                |    |                |
|     |                | inew Propossed C  | nannei @ Peg Distance (m) 200 |                           |                           |                       |    |                |    |                |
|     |                |                   | 1                             | 1                         |                           |                       | ]  |                |    |                |
| 862 | SERVITUDE LINE |                   |                               | 1:7.00                    |                           |                       |    |                |    |                |
| 861 |                | 0.00%             | 0.00%                         |                           |                           |                       |    |                |    |                |
| -15 |                | 0                 | ې                             | 10                        | 15                        | 3                     |    |                |    |                |
|     | ·              | New Propossed Cha | nnel @ Peg Distance (m) 2044  | l.559 m                   |                           |                       |    |                |    |                |



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   ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST DELEVANT CARDO DECUMPEMENTS
- RELEVANT SABS REQUIREMENTS. 3. ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE
- ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
   NO SCALING OF DIMENSIONS FROM DRAWINGS ALLOWED.
   ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED ON SITE BY THE CONTRACTOR BEFORE COMMENCING ANY WORK.
- 6. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2005 AND THE STANDARD DRAWINGS.
   THESE DRAWINGS MUST BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS. (IF APPLICABLE)

GENERAL NOTES:

| А  | 27/06/2016 | FOR APPROVAL | A.J.S   |
|----|------------|--------------|---------|
| No | Date       | Details      | Checked |
|    |            | Revisions    |         |

|                 | A.J. SMITH PrENG. (900262) |      |               |
|-----------------|----------------------------|------|---------------|
| <b>Addition</b> | NAME                       |      |               |
| CONCEPT         |                            | 27-0 | 06-2016       |
| DRAWING         | SIGNATURE                  | C    | DATE          |
| $\bigcap$       | ·····                      |      |               |
| $\bigcirc$      | NAME                       |      |               |
| TENDER          |                            |      |               |
| DRAWING         | SIGNATURE                  | C    | DATE          |
| $\bigcap$       |                            |      |               |
| $\bigcirc$      | NAME                       |      |               |
| APPROVED FOR    |                            |      |               |
| DRAWING         | SIGNATURE                  | C    | DATE          |
|                 |                            |      |               |
| $\bigcirc$      | NAME                       |      |               |
| AS BUILT        |                            |      |               |
| DRAWING         | SIGNATURE                  | С    | DATE          |
|                 |                            |      |               |
|                 |                            |      |               |
|                 |                            |      |               |
| <               | 80mm ON ORIGINAL DRAWING   |      | $\rightarrow$ |
| ORIG            | SINAL DRAWING SIZE         |      | A1            |
| 00              |                            |      |               |

Client

EXXARO

AVON ENGINEERS (Pty) Ltd CONSULTING CIVIL & STRUCTURAL ENGINEERS PRETORIA HERMANUS 473 KAY AVENUE MENLO PARK 0086

POSTNET SUITE 26 PRIVATEBAG X16 HERMANUS 7200 Tel: 082 456 5145

## Project Title

Project No

E0505

PO BOX 36384 MENLO PARK 0102

TEL: (012) 348 5066 Fax : (086) 685 4303

NELSONSKOP TOWNSHIP DEVELOPMENT Drawing Title MAIN CHANNEL CROSS SECTIONS SHEET 5 OF 5 Checked Designed Drawn WCA VAN STADEN A.J.Smith Scale Date AS SHOWN 27-06-2016

Drawing No.

002.5

Rev.

Α

| 870.0                         |   |          |        |
|-------------------------------|---|----------|--------|
| SECONDARY CHANNEL 868.0       | $ \sim \sim$ |          |        |
| SECTION 1 OF 2                |   |          |        |
| SCALE Vert 1 500 DATUM 202 00 |   |          |        |
| Hor 1: 500                    |   |          |        |
| Pog Distance (m)              |   |          | 0      |
| Fey Distance (III)            | 0   | 20       | 9      |
|                               |   |          |        |
| Grade (1 <sup>+</sup> )       |   | 34       | 12 020 |
|                               |   | 5        | 2.020  |
|                               | Ŋ   | 2        | Q      |
| Ground Level (m) (@GLO)       | 8.7   | 2.6<br>Z | 7.5    |
|                               | 8   | 80       | 86     |
|                               |   |          |        |
| Design Level (m)              | 8   |          |        |
|                               | 867   | 367      | 367    |
|                               |   | ~        | ~      |

| SECONDARY CHANNEL         868.0           SECTION 2 OF 2         866.0           864.0         864.0 |         |        |        |        | END OF AS-BUILT S/W CHANNEL | MAIN<br>865 | N CHANNEL        |        |
|--|---------|--------|--------|--------|-----------------------------|-------------|------------------|--------|
| SCALE : Vert 1 : 500 DATUM : 862.00<br>Hor 1 : 500<br>Peg Distance (m)                               | 0       | 20     | 1.03   | 00     | 20                          | 3.26        | 00               | 1.66   |
| Grade (1:_)  | 312.020 | 71.061 | 59     | ю<br>  | ా<br>191.354                | 37,         | 4                | 42,    |
| Ground Level (m) (@GLO)  | 867.18  | 866.76 | 866.24 | 866.31 | 866.82                      | 866.92      | 866.78<br>867.09 | 867.51 |
| Design Level (m)   | 867.18  | 866.48 | 865.90 | 865.85 | 865.59                      | 865.47      |                  |        |

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|---|---------|------------------------------------|--|------------------|--|
| A 27-06-2<br>No Date  | 016 FOF | R APPROVAL<br>Details<br>Revisions |  | A.J.S<br>Checked |  |
| A.J. SMITH PrENG. (900262)<br>NAME<br>CONCEPT<br>DRAWING<br>SIGNATURE<br>DATE<br>NAME<br>TENDER<br>DRAWING<br>SIGNATURE<br>DATE<br>NAME<br>APPROVED FOR<br>CONSTRUCTION<br>DRAWING<br>SIGNATURE<br>DATE<br>NAME<br>APPROVED FOR<br>CONSTRUCTION<br>DRAWING<br>SIGNATURE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>DATE<br>A2 |         |                                    |  |                  |  |
| EXXARO EXXARO EXXARO EXXARO EXXARO EXXARO EXACON ENGINEERS (Pty) Ltd CONSULTING CIVIL & STRUCTURAL ENGINEERS PRETORIA HERMANUS A73 KAY AVENUE POSTNET SUITE 28 MENLO PARK 0008 PRIVATEBAG X16 PO BOX 36384 MENLO PARK 0102 Tet: 082 456 5145 TEt: (02) 348 5066 Fax: (060) 665 4303 Project Title NELSONSKOP TOWNSHIP DEVELOPMENT Drawing Title SECONDARY CHANNEL LONG SECTIONS Designed Drawn Checked A.J.Smith WCA VAN STADEN Scale Date AS SHOWN 27-06-2016  |         |                                    |  |                  |  |
| E050  | )5      | 003                                |  | А                |  |

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|             | SERVITUDE LINE |  | SERVITUDE LIN  | NE             |    |
|-------------|----------------|--|----------------|----------------|----|
| 869         |                |  |                |                |    |
| 868         |                |  |                |                |    |
| 867<br>E    | 2              | ç – – – – – – – – – – – – – – – – – – –                  | 0              | 00             | 15 |
|             |                | Existing Channel @ Peg Distance (m) 0 m                  |                |                |    |
|             |                |  |                |                |    |
| 869 SER     | VITUDE LINE    |  | SERVITUDE LINE |                |    |
| 868         |                |  |                |                |    |
| 867         |                |  |                |                |    |
|             | 0, u           | ρ — μ  | 0              |                | 5  |
|             |                | Existing Channel @ Peg Distance (m) 50 m                 |                |                |    |
|             |                |  | SERVITUDE LIN  | t <b>F</b>     |    |
| 869         | SERVITUDE LINE |  |                |                |    |
| 868         |                |  |                |                |    |
| 867         |                |  |                |                |    |
| <u>ب</u>    | 2              |  | 2              |                | 15 |
|             |                | Existing Channel @ Peg Distance (m) 100 m                |                |                |    |
|             |                |  | SERVI          |                |    |
| 868         |                |  |                |                |    |
| 867         |                |  |                |                |    |
| <u>م</u>    |                | ç – – – – –  | 0              | -0<br>-        | 15 |
|             |                | Existing Channel @ Peg Distance (m) 150 m                |                |                |    |
| Ĩ           | 1              |  |                | SERVITIDE LINE | 1  |
| 868         | SERVITUDE LIN  |  |                |                |    |
| 867         |                | 1:2.49 0.00% 0.00%                                       |                |                |    |
|             |                |  |                |                |    |
| -<br>       | 2              | Existing Channel to be Built Up @ Peg Distance (m) 200 m | 0              | Q 4            | 15 |
|             |                |  |                |                |    |
| 868         | SERVITUDE LI   | NE   |                | SERVITUDE LINE |    |
| 867         |                | 1:2:50   |                |                |    |
| 866         |                | 0.00% 0.00%  |                |                |    |
|             | 2              | ç 0 u  | 0              | 0              | 15 |
|             |                | Existing Channel to be Built Up @ Peg Distance (m) 250 m |                |                |    |
|             | Ĩ              | 1 I  |                | NE             | 1  |
| 868         | SERVITUDE LINE |  | SERVITODE LI   |                |    |
| 867         |                | 1:2,50   |                |                |    |
| 866         |                | 0.00% 0.00%  |                |                |    |
| 865         |                |  |                |                |    |
| -<br>-<br>- | -<br>-         | Existing Channel to be Built Up @ Peg Distance (m) 300 m | 0              | 10             | 15 |
|             |                |  |                |                |    |
| 808         |                |  |                |                |    |
| 807         |                | 1250   |                |                |    |
| 866         |                | 0.00% 0.00%  |                |                |    |
| 865         |                |  |                |                |    |
| ب<br>ب      | -              | New Pronossed Channel @ Peg Distance (m) 350 m           | 0              | 0<br>-         | 15 |
|             |                | now i roposed onannel w rey distance (III) 300 III       |                |                |    |

| 869      | SERVITUDE LINE                   |  | SERVITUDE LINE |              |    |
|----------|----------------------------------|--|----------------|--------------|----|
| 868      |                                  |  |                |              |    |
| 867      |                                  |  |                |              |    |
| L        | 9.<br>9.<br>9.                   | Existing Channel @ Peg Distance (m) 0 m                  | 0              | 2            | 15 |
|          |                                  |  |                |              |    |
| 869      | SERVITUDE LINE                   |  | SERVITUDE LINE |              |    |
| 868      |                                  |  |                |              |    |
| 867      |                                  |  |                |              |    |
| Ļ        | <u>-</u><br><u>-</u><br><u>-</u> | Existing Channel @ Peg Distance (m) 50 m                 | n ç            | 2            | 15 |
|          |                                  |  |                |              |    |
| 000      |                                  |  | SERVITUDE LINE |              |    |
| 868      |                                  |  |                |              |    |
| 867      |                                  |  |                |              |    |
| ţ        |                                  | φ c  | 0              | 2            | 15 |
|          |                                  | Existing Channel @ Peg Distance (m) 100 m                |                |              |    |
|          | SERVITUDE LINE                   |  | SERVITU        |              |    |
| 868      |                                  |  |                |              |    |
| 867      |                                  |  |                |              |    |
| L        | ද<br>ද                           | Existing Channel @ Peg Distance (m) 150 m                | n ç            | 2            | 15 |
|          |                                  |  | SE             | RVITUDE LINE |    |
| 868      | SERVITUDE LI                     | NE 1:250   |                |              |    |
| 867      |                                  | 1:2.49 0.00% 0.00%                                       |                |              |    |
| L        |                                  |  | o. ç           | 2            | 15 |
|          |                                  | Existing Channel to be Built Up @ Peg Distance (m) 200 m |                |              |    |
| 868      | SERVITUDE L                      | NE   | SI             |              |    |
| 867      |                                  | 1:2.50   |                |              |    |
| 866      |                                  | 0.00% 0.00%  |                |              |    |
| L        | ç. ç.                            | 27 O   | 0              | 2            | 15 |
|          |                                  | Existing Channel to be Built Up @ Peg Distance (m) 250 m |                |              |    |
| 868      |                                  |  | SERVITUDE LIN  | E            |    |
| 867      |                                  |  |                |              |    |
| 866      |                                  | 1:2:50   |                |              |    |
| 865      |                                  |  |                |              |    |
| L        | <u> </u>                         | Existing Channel to be Built Up @ Peg Distance (m) 300 m | 0 4            | 2            | 15 |
|          |                                  |  |                |              |    |
| 000      |                                  | 5  |                |              |    |
| 866      |                                  | 1:2:50   |                |              |    |
| 865      |                                  | 0.00% 0.00%  |                |              |    |
| 000<br>L | <u> </u>                         | φ ο ι  | n c            | 2            | 15 |
|          |                                  | New Propossed Channel @ Peg Distance (m) 350 m           | Ť              |              | ~  |
|          |                                  |  |                |              |    |

| 869 | SERVITUDE LINE  | SERVITUDE LINE |                |               |
|-----|---|----------------|----------------|---------------|
| 868 |   |                |                |               |
| 867 |   |                |                |               |
| L   | ج ج کې<br>Existing Channel @ Peg Distance (m) 0 m                                     |                | 2              | 15            |
|     |   |                |                |               |
| 869 | SERVITUDE LINE  | SERVITUDE LINE |                |               |
| 868 |   |                |                |               |
| 867 |   |                |                |               |
| L   | င္ ငို ငို Existing Channel @ Peg Distance (m) 50 m                                   |                | 2              | 15            |
|     |   |                |                | 1             |
| 869 | SERVITUDE LINE  | SERVITUDE LINE |                |               |
| 868 |   |                |                |               |
| 867 |   |                |                |               |
| L   | ද ද ද Existing Channel @ Peg Distance (m) 100 m                                       | > c            | 2              | 15            |
|     |   |                |                |               |
| 000 | SERVITUDE LINE  | SERVITU        | DE LINE        |               |
| 867 |   |                |                |               |
|     |   | ) c            |                | 22            |
| *   | Existing Channel @ Peg Distance (m) 150 m   |                |                | <del>~~</del> |
|     |   | SE             | RVITUDE LINE   |               |
| 868 | SERVITODE LINE  |                |                |               |
| 867 | 1:2:49 0.00% 0.00%  |                |                |               |
| L   | به مربع ب<br>به مربع ب<br>به مربع ب   | >              | 2              | 15            |
|     | Existing Channel to be Built Up @ Peg Distance (m) 200 m                              |                |                |               |
| 000 | SERVITUDE LINE  | SI             |                |               |
| 867 | 1250  |                |                |               |
| 866 | 0.00%   |                |                |               |
| L   |   | >              | 2              | 15            |
|     | Existing Channel to be Built Up @ Peg Distance (m) 250 m                              |                |                |               |
| 000 |   | SERVITUDE LINI | ₹ <sub>1</sub> |               |
| 868 |   |                |                |               |
| 866 | 1:2:50  |                |                |               |
| 865 |   |                |                |               |
| L   | ې چې چې د کې د کې د کې کې د کې کې د کې کې کې د کې | 2 C            | 2              | 15            |
|     |   |                |                |               |
| 808 | <u> </u>  |                |                |               |
| 867 | 1:2:50  |                |                |               |
| 866 | 0.00%   |                |                |               |
| 865 |   | 2              |                |               |
| L   | ج ج مح المح المح المح المح المح المح المح ا   |                | <u> </u>       | 1             |
|     |   |                |                |               |

| 869        |                       | SERVITUDE LINE |                                     |                                  | SERVITUDE LINE |   |    |
|------------|-----------------------|----------------|-------------------------------------|----------------------------------|----------------|---|----|
| 868        |                       |                |                                     |                                  |                |   |    |
| 867        |                       |                |                                     |                                  |                |   |    |
| L          | -<br>-<br>-           |                | Existing Channel @ F                | ⊳<br>Peg Distance (m) 0 m        | 2              | 2 | 15 |
|            |                       |                |                                     |                                  |                |   |    |
| 869        | SER                   | VITUDE LINE    |                                     |                                  | SERVITUDE LINE |   |    |
| 368        |                       |                |                                     |                                  |                |   |    |
| 867        |                       |                |                                     |                                  |                |   |    |
| L          | <u> </u><br><u> -</u> |                | Existing Channel @ P                | eg Distance (m) 50 m             | ດ<br>ຊ         |   | 15 |
|            | 1                     |                |                                     |                                  |                |   |    |
| 869        |                       | SERVITUDE LINE |                                     |                                  | SERVITUDE LINE |   |    |
| 868        |                       |                |                                     |                                  |                |   |    |
| 867        |                       |                |                                     |                                  |                |   |    |
| L          | <u>6</u>              | 2              | ې<br>مې                             |                                  | ۍ<br>د         | 2 | 15 |
|            |                       |                | Existing Channel @ Po               | eg Distance (m) 100 m            |                |   |    |
|            |                       | SERVITUDE LINE |                                     |                                  | SERVITU        |   |    |
| 868        |                       |                |                                     |                                  |                |   |    |
| 867        |                       |                |                                     | ~                                |                |   |    |
|            |                       |                | Existing Channel @ Po               | eg Distance (m) 150 m            |                | 2 | 15 |
|            |                       |                |                                     |                                  | SE             |   |    |
| 868        |                       |                |                                     | 1:2:50                           |                |   |    |
| 867        |                       |                | 1:2.49 0.00%                        | 0.00%                            |                |   |    |
| L          | <u>,</u>              | 2<br>          | لم<br>م<br>                         |                                  |                | 2 | 15 |
|            |                       |                | Existing Channel to be Built U      | p @ Peg Distance (m) 200 m       |                |   |    |
|            |                       |                | NE                                  |                                  | SE             |   |    |
| 868        |                       |                | 1.2 50                              | 1250                             |                |   |    |
| 866        |                       |                | 0.00%                               | 0.00%                            |                |   |    |
| L          | 6-<br>-               |                | ф c                                 | 2                                | 2              | 2 | 15 |
|            |                       |                | Existing Channel to be Built L      | p @ Peg Distance (m) 250 m       |                |   |    |
|            |                       |                |                                     |                                  | SERVITUDE LINE | - |    |
| 868        |                       |                |                                     |                                  |                |   |    |
| 866        |                       |                | 4:2.50                              | 1:2,50                           |                |   |    |
| 865        |                       |                | 0.00%                               | 0.00%                            |                |   |    |
| L          | <u> </u>              | 2              | ي<br>Existing Channel to be Built L | ⊳<br>lp @ Peg Distance (m) 300 m |                | 2 | 15 |
| 000        |                       |                |                                     |                                  |                |   |    |
| 000<br>867 |                       |                |                                     |                                  | SERVITUDE LINE |   |    |
| 866        |                       |                | 1:2:50                              | 1.2 50                           |                |   |    |
| 865        |                       |                | 0.00%                               | 0.00%                            |                |   |    |
| L          | <u>0</u>              | 2              | ې<br>بې                             | 2                                | ۵۵ و۲          | 2 | 15 |
|            |                       |                | New Propossed Channel (             | Peg Distance (m) 350 m           |                |   |    |
|            |                       |                |                                     |                                  |                |   |    |

| 869 |              | SERVITUDE LINE |                                | SERVITUDE LINE              |              |  |  |
|-----|--------------|----------------|--------------------------------|-----------------------------|--------------|--|--|
| 868 |              |                |                                |                             |              |  |  |
| 867 |              |                |                                |                             |              |  |  |
| L   | ې<br>بې<br>د | 2              | P                              |                             | 5 10         |  |  |
|     |              |                | Existing Channel @ F           | Peg Distance (m) 0 m        |              |  |  |
|     | ISER         |                |                                | SERVITUDE LINE              |              |  |  |
| 869 |              |                |                                |                             |              |  |  |
| 868 |              |                |                                |                             |              |  |  |
| 867 |              |                |                                |                             |              |  |  |
|     |              | -              | Existing Channel @ P           | Peg Distance (m) 50 m       | 2 W          |  |  |
|     |              |                |                                |                             |              |  |  |
|     |              |                |                                | SERVITUDE LINE              |              |  |  |
| 869 |              |                |                                |                             |              |  |  |
| 868 |              |                |                                |                             |              |  |  |
| 00/ | <u>va</u> c  | 2              | ç, c                           |                             |              |  |  |
|     | `r           | 1              | Existing Channel @ P           | eg Distance (m) 100 m       |              |  |  |
|     |              |                |                                |                             |              |  |  |
| 868 |              | SERVITUDE LINE |                                | SERVITU                     |              |  |  |
| 867 |              |                |                                |                             |              |  |  |
|     |              |                | 0                              |                             | 2 40         |  |  |
|     | τ.<br>1      | <del>,</del>   | Existing Channel @ P           | eg Distance (m) 150 m       |              |  |  |
|     |              |                |                                |                             |              |  |  |
| 868 |              | SERVITUDE LIN  |                                | SE                          | RVITUDE LINE |  |  |
| 867 |              |                | 1:2.49 0.00%                   | 0.00%                       |              |  |  |
|     |              |                |                                |                             |              |  |  |
| Ļ   | ς.<br>ζ      | 2              | Existing Channel to be Built L | Jp @ Peg Distance (m) 200 m | ·            |  |  |
|     |              |                |                                |                             |              |  |  |
| 868 |              | SERVITUDE LI   | NE                             | SE                          |              |  |  |
| 867 |              |                | 1:2,50                         |                             |              |  |  |
| 866 |              |                | 0.00%                          |                             |              |  |  |
| L   |              | 2              | ç<br>ç                         |                             | 2 2          |  |  |
|     |              |                | Existing Channel to be Built L | up @ Peg Distance (m) 250 m |              |  |  |
|     |              |                |                                | SERVITUDE LINE              | Ξ <u>Ι</u>   |  |  |
| 868 |              |                |                                |                             |              |  |  |
| 867 |              |                | 1:2.50                         | 1:2,50                      |              |  |  |
| 866 |              |                | 0.00%                          | 0.00%                       |              |  |  |
| 865 | ۲ <u>۲</u>   | 2              | ρ                              | ې<br>م                      | <u>5</u>     |  |  |
|     |              |                | Existing Channel to be Built L | Jp @ Peg Distance (m) 300 m |              |  |  |
| 868 |              |                |                                |                             |              |  |  |
| 867 |              |                |                                | SERVITUDE LINE              |              |  |  |
| 866 |              |                | 1:2:50                         | 1.2.50                      |              |  |  |
| 865 |              |                | 0.00%                          | 0.00%                       |              |  |  |
| L   | -<br>        | 2              | ი<br>ი                         | ې<br>ې<br>د                 | 2 <u>0</u>   |  |  |
|     |              |                | New Propossed Channel (        | @ Peg Distance (m) 350 m    |              |  |  |
|     |              |                |                                |                             |              |  |  |

| 869     | SERVITUDE LINE |  | SERVITUDE LINE |          |
|---------|----------------|--|----------------|----------|
| 868     |                |  |                |          |
| 867     |                |  |                |          |
|         |                | Existing Channel @ Peg Distance (m) 0 m                        |                | 2 2      |
|         | 1              |  |                |          |
| 869 SEF | RVITUDE LINE   |  |                |          |
| 868     |                |  |                |          |
| 867     |                |  |                |          |
| -<br>2  | -<br>-         | Existing Channel @ Peg Distance (m) 50 m                       |                | 2 2      |
|         |                |  |                |          |
| 869     | SERVITUDE LINE |  | SERVITUDE LINE |          |
| 868     |                |  |                |          |
| 867     |                |  |                |          |
|         |                | ج<br>ج<br>Existing Channel @ Peg Distance (m) 100 m            |                | 2 6      |
|         |                |  |                |          |
|         | SERVITUDE LINE |  | SERVITU        | DE LINE  |
| 868     |                |  |                |          |
| 867     |                |  |                |          |
| μ.<br>L |                | Existing Channel @ Peg Distance (m) 150 m                      | ιο ς           | 2) 23    |
|         |                |  | SE             |          |
| 868     |                | NE 1:250   |                |          |
| 867     |                | 1:2.49 0.00% 0.00%   |                |          |
| <br>۲   |                | Ŷ ⊂  | ىم<br>م        | 5 6      |
|         |                | Existing Channel to be Built Up @ Peg Distance (m) 200 m       |                |          |
|         |                | NF   | SI             |          |
| 868     |                | 1:250  |                |          |
| 866     |                | 0.00% 0.00%  |                |          |
|         | <u>6</u>       | ç, O   | ىم<br>و        | 5 6      |
|         |                | Existing Channel to be Built Up @ Peg Distance (m) 250 m       |                |          |
|         |                |  | SERVITUDE LIN  |          |
| 868     |                |  |                |          |
| 867     |                | 4:2.50 1:2.50  |                |          |
| 865     |                | 0.00% 0.00%  |                |          |
|         |                | P<br>Cuinting Channel to be Duilt Lin @ Dag Distance (m) 200 m | ۰<br>۵         | <u>ې</u> |
|         |                | Existing Channel to be Built Op @ Peg Distance (m) 300 m       |                |          |
| 808     |                |  |                |          |
| 867     |                | 1950   |                |          |
| 866     |                | 0.00% 0.00%  |                |          |
| 865     |                |  |                |          |
| τΩ.     | -<br>-         | New Propossed Channel @ Peg Distance (m) 350 m                 | n 5            | 2 0      |
|         |                |  |                |          |

| 869 |              | SERVITUDE LINE |                                | SERVITUDE LINE              |                |  |  |
|-----|--------------|----------------|--------------------------------|-----------------------------|----------------|--|--|
| 868 |              |                |                                |                             |                |  |  |
| 867 |              |                |                                |                             |                |  |  |
| L   | ې<br>بې<br>د | 2              | P                              |                             | 5 10           |  |  |
|     |              |                | Existing Channel @ F           | Peg Distance (m) 0 m        |                |  |  |
|     | ISER         |                |                                | SERVITUDE LINE              |                |  |  |
| 869 |              |                |                                |                             |                |  |  |
| 868 |              |                |                                |                             |                |  |  |
| 867 |              |                |                                |                             |                |  |  |
|     |              | -              | Existing Channel @ P           | Peg Distance (m) 50 m       | 2 <del>(</del> |  |  |
|     |              |                |                                |                             |                |  |  |
|     |              |                |                                | SERVITUDE LINE              |                |  |  |
| 869 |              |                |                                |                             |                |  |  |
| 868 |              |                |                                |                             |                |  |  |
| 00/ | <u>va</u> c  | 2              | ç, c                           |                             |                |  |  |
|     | `r           | 1              | Existing Channel @ P           | eg Distance (m) 100 m       |                |  |  |
|     |              |                |                                |                             |                |  |  |
| 868 |              | SERVITUDE LINE |                                | SERVITU                     |                |  |  |
| 867 |              |                |                                |                             |                |  |  |
|     |              |                | 0                              |                             | 2 40           |  |  |
|     | τ.<br>1      | <del>,</del>   | Existing Channel @ P           | eg Distance (m) 150 m       |                |  |  |
|     |              |                |                                |                             |                |  |  |
| 868 |              | SERVITUDE LIN  |                                | SE                          | RVITUDE LINE   |  |  |
| 867 |              |                | 1:2.49 0.00%                   | 0.00%                       |                |  |  |
|     |              |                |                                |                             |                |  |  |
| Ļ   | ς.<br>ζ      | 2              | Existing Channel to be Built L | Jp @ Peg Distance (m) 200 m | ·              |  |  |
|     |              |                |                                |                             |                |  |  |
| 868 |              | SERVITUDE LI   | NE                             | SE                          |                |  |  |
| 867 |              |                | 1:2,50                         | 1:2:50                      |                |  |  |
| 866 |              |                | 0.00%                          |                             |                |  |  |
| L   |              | 2              | ç<br>ç                         |                             | 2 2            |  |  |
|     |              |                | Existing Channel to be Built L | up @ Peg Distance (m) 250 m |                |  |  |
|     |              |                |                                | SERVITUDE LINE              | Ξ <u>Ι</u>     |  |  |
| 868 |              |                |                                |                             |                |  |  |
| 867 |              |                | 1:2.50                         | 1:2,50                      |                |  |  |
| 866 |              |                | 0.00%                          | 0.00%                       |                |  |  |
| 865 | ۲ <u>۲</u>   | 2              | ρ                              | ې<br>م                      | <u>5</u>       |  |  |
|     |              |                | Existing Channel to be Built L | Jp @ Peg Distance (m) 300 m |                |  |  |
| 868 |              |                |                                |                             |                |  |  |
| 867 |              |                |                                | SERVITUDE LINE              |                |  |  |
| 866 |              |                | 1:2:50                         | 1.2.50                      |                |  |  |
| 865 |              |                | 0.00%                          | 0.00%                       |                |  |  |
| L   | -<br>        | 2              | ი<br>ი                         | ې<br>ې<br>د                 | 2 <u>0</u>     |  |  |
|     |              |                | New Propossed Channel (        | @ Peg Distance (m) 350 m    |                |  |  |
|     |              |                |                                |                             |                |  |  |

| 869   |  | SERVITUDE LINE  |                                     |   | SERVITUDE LINE |               |          |
|-------|--|-----------------|-------------------------------------|---|----------------|---------------|----------|
| 868   |  |                 |                                     |   |                |               |          |
| 867   |  |                 |                                     |   |                |               |          |
| L     | 0  | 2               | ۰<br>۲                              |   | 0              | 2             | C        |
|       |  |                 | Existing Channel @ I                | Peg Distance (m) 0 m  |                |               |          |
|       |  |                 |                                     |   |                |               |          |
| 869   | SER'   |                 |                                     |   |                |               |          |
| 868   |  |                 |                                     |   |                |               |          |
| 867   |  |                 |                                     |   |                |               |          |
| Li v  | <u>6</u> <u></u> <u></u>                                 | 2               | Fxisting Channel @ F                | eq Distance (m) 50 m  | 0              | 2             | <u>.</u> |
|       |  |                 |                                     |   |                |               |          |
|       |  |                 |                                     |   | SERVITUDE LINE |               |          |
| 869   |  | SERVITUDE LINE  |                                     |   |                |               |          |
| 868   |  |                 |                                     |   |                |               |          |
| 867   |  |                 |                                     |   |                |               |          |
| 15    | <u>0</u>   | 2               | ې<br>۲ د د مې د مې                  |   | 0              | 2             | <u>c</u> |
|       |  |                 |                                     | eg Distance (m) 100 m   |                |               |          |
|       |  |                 |                                     |   | SERVITI        |               |          |
| 868   |  | SLIVII ODE LINE |                                     |   |                |               |          |
| 867   |  |                 |                                     |   |                |               |          |
| 15    | <u>0</u>   | 2               | ې<br>ب                              | >   | n ç            | 5<br>         | C        |
|       |  |                 | Existing Channel @ P                | eg Distance (m) 150 m   |                |               |          |
|       |  | 1               | 1                                   | 1   |                |               | 1        |
| 868   |  | SERVITUDE LIN   |                                     |   | 55             | RVITUDE LINE  |          |
| 867   |  |                 | 1:2.49 0.00%                        | 0.00%   |                |               |          |
|       |  |                 |                                     |   |                |               |          |
| L F   | <u>0</u>   | 2               | ہ<br>Existing Channel to be Built L | $\stackrel{\scriptstyle{\scriptscriptstyle >}}{}$ Jp @ Peg Distance (m) 200 m | 0              | 5             | <u>c</u> |
|       |  |                 |                                     |   |                |               |          |
| 868   |  | SERVITUDE LI    | NE                                  |   | SI             | ERVITUDE LINE |          |
| 967   |  |                 | 1:2 50                              | 1:2:51  |                |               |          |
| 866   |  |                 | 0.00%                               | 0.00%   |                |               |          |
| - 000 | <u>c</u>   | 2               | ρ c                                 |   | 0              |               | C.       |
| Ň     | Existing Channel to be Built Up @ Peg Distance (m) 250 m |                 |                                     |   |                |               |          |
|       |  |                 |                                     |   |                |               |          |
| 868   |  | SERVITUDE LINE  |                                     |   | SERVITUDE LIN  | E             |          |
| 867   |  |                 | 1.9.50                              | 1:2,50  |                |               |          |
| 866   |  |                 | 0.00%                               | 0.00%   |                |               |          |
| 865   |  |                 |                                     |   |                |               |          |
| L     | -<br>-<br>-  | 2               | Existing Channel to be Built I      | b @ Peg Distance (m) 300 m  | n ç            |               | <u>c</u> |
|       |  |                 |                                     |   |                |               |          |
| 888   |  |                 |                                     |   |                |               |          |
| 867   |  |                 |                                     |   |                |               |          |
| 866   |  |                 | 1:2:50                              | 1:2:50  |                |               |          |
| 865   |  |                 | 0.00%                               | 0.00%   |                |               |          |
| L T   | <u> </u>   | 2               | <br>იი                              |   | 0              | 0             | <u>c</u> |
|       |  |                 | New Propossed Channel (             | @ Peg Distance (m) 350 m  |                |               |          |
|       |  |                 |                                     |   |                |               |          |

| 867  |           |        |       |  |  |
|--|-----------|--------|-------|--|--|
| 866  | 1:2.50    | 1:2:50 |       |  |  |
| 865  | 0.00%     | 0.00%  |       |  |  |
|  |           |        |       |  |  |
| -15-   | -1<br>-10 | 22     | 15 10 |  |  |
| New Propossed Channel @ Peg Distance (m) 378.263 m |           |        |       |  |  |

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   ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)

- ALL DIMENSIONS ARE IN METERS. (UNLESS OTHERWISE SPECIFIED)
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GENERAL NOTES:

| А  | 27-06-2016 | FOR APPROVAL | A.J.S   |
|----|------------|--------------|---------|
| No | Date       | Details      | Checked |
|    |            | Revisions    |         |

|                              | A.J. SMITH PrENG. (900262) |       |
|------------------------------|----------------------------|-------|
|                              |                            |       |
|                              | SIGNATURE                  |       |
|                              | <i>V</i>                   |       |
|                              | NAME                       |       |
| TENDER<br>DRAWING            | SIGNATURE                  |       |
|                              |                            | 2/112 |
|                              | NAME                       |       |
| APPROVED FOR<br>CONSTRUCTION |                            |       |
| DRAWING                      | SIGNATURE                  | DATE  |
|                              | NAME                       |       |
| AS BUILT                     |                            |       |
| DRAWING                      | SIGNATURE                  | DATE  |
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|                              |                            |       |
| <                            | 80mm ON ORIGINAL DRAWING   |       |
| ORIG                         | SINAL DRAWING SIZE         | A1    |
|                              |                            |       |
| Client                       |                            |       |
|                              |                            |       |
|                              | EXXARO                     |       |
|                              |                            |       |
|                              |                            |       |

AVON ENGINEERS (Pty) Ltd CONSULTING CIVIL & STRUCTURAL ENGINEERS PRETORIA HERMANUS POSTNET SUITE 26 PRIVATEBAG X16 HERMANUS 7200 473 KAY AVENUE MENLO PARK 0086 PO BOX 36384 MENLO PARK 0102 Tel: 082 456 5145 TEL: (012) 348 5066 Fax : (086) 685 4303

Project Title

NELSONSKOP TOWNSHIP DEVELOPMENT

Drawing Title

| <b>3</b>                             |   |               |         |      |  |  |  |  |  |
|--------------------------------------|---|---------------|---------|------|--|--|--|--|--|
| SECONDARY CHANNEL<br>CROSS SECTIONS' |   |               |         |      |  |  |  |  |  |
| Designed                             | [ | Drawn         | Checked |      |  |  |  |  |  |
| A.J.Smith Wo                         |   | CA VAN STADEN |         |      |  |  |  |  |  |
| Scale                                | [ | Date          |         |      |  |  |  |  |  |
| AS SHOWN                             |   |               |         |      |  |  |  |  |  |
|                                      |   |               |         | 10   |  |  |  |  |  |
| Project No                           |   | Drawing No.   |         | Rev. |  |  |  |  |  |
| E0505                                |   | 004           | 004 A   |      |  |  |  |  |  |

# ANNEXURE C RATIONAL DESIGN FOR STORMWATER RUN-OFF

| Description of Catchment: |             |           |   |            | NELSON                                 | SKOP           |          | 4 IZ       | ONE        | NGD          | FEDG                | $(P_{tr})I + J$           |                |                       |
|---------------------------|-------------|-----------|---|------------|--|----------------|----------|------------|------------|--------------|---------------------|---------------------------|----------------|-----------------------|
| Project No:               |             |           |   |            | E0505                                  |                |          | Αν         |            | <b>WIN</b>   | EERC                | Reg No 1998/020126/07     |                |                       |
| Calculated By:            |             |           |   | A J Smith  | ı                                      |                | CONSU    | ILTING C   | IVIL & S   | TRUCTU       | RAL ENGINEERS       |                           |                |                       |
| Date:                     |             |           |   | 26-Jun-10  | 6                                      |                |          |            |            |              |                     |                           |                |                       |
|                           |             |           |   |            | PRE-DEV                                | ELOPME         | NT       | J          |            |              |                     |                           |                |                       |
| Physical Character        | ristics     |           |   |            |  | 1              | 1        |            |            |              |                     |                           |                |                       |
| Mean annual rainf         | all (P)     |           | ****                                    | P =        | 470                                    | mm             | ~        | Area Dis   | stribution | Factors      | ٦                   |                           |                |                       |
| Size of Catchment         |             |           | ****                                    | A =        | 2147060                                | m²             | ~        | α          | :+β+γ=<br> | 1            | _                   | Table 3: Suggestee        | d values o     | ofr                   |
| Longest water cou         | irse        |           |   | L =        | 3188                                   | m              | -        | Rural      | Urban      | Lakes        | _                   | Paved area                |                | 0.02                  |
| Height Difference         | ~~~~~~~~~~~ | =         | 32.0                                    | m          |  |                | α =      | β =        | γ =        |              | Clean soil          |                           | 0.1            |                       |
| Average slope of v        | water cour  | 'S        |   | S =        | 0.0100 m/m 1.00 0.00 0.00 Sparse grass |                |          |            |            | Sparse grass | grass 0             |                           |                |                       |
|                           |             | [         |   |            |  | r              |          | 1          | 1          | 1            |                     | Moderate grass            |                |                       |
| Overland flow             |             | =         | 0.591                                   | Hours      | Use Tc =                               |                |          | 0.591      | Hours      |              |                     | Thick bush 0              |                |                       |
| Watercourse               |             | =         | 0.952                                   | Hours      |  |                |          |            |            | J            |                     | Use r =                   |                | 0.03                  |
|                           |             |           |   |            |  |                |          |            |            |              |                     |                           |                |                       |
|                           |             |           |   |            | Rural C1                               |                |          |            |            |              |                     | Urba                      | n C2           |                       |
| Surface Slope             | %           | Cs        | Perme                                   | ability    | %                                      | C <sub>p</sub> | · · · ·  | Vegetatio  | n          | %            | Cv                  | Use                       | %              | <b>C</b> <sub>2</sub> |
| Vlei's and pans           | 10%         | 0.03      | Very Peri                               | meable     |  |                | Thick bu | sh and pl  | antation   |              | <u> </u>            | Lawns and parks           |                |                       |
| Flat areas                | 90%         | 0.08      | Permeab                                 | le         | 40%                                    | 0.08           | Light bu | sh and fai | m-lands    | 20%          | 0.11                | Industrial areas          |                |                       |
| Hilly                     | 0%          | 0.16      | Semi-Per                                | meable     | 50%                                    | 0.16           | Grass-la | nds        |            | 80%          | 0.21                | City/Residential          |                |                       |
| Steep areas               |             |           | Imperme                                 | able       | 10%                                    | 0.26           | No veget | ation      |            |              |                     | Streets                   |                |                       |
| TOTAL                     | 1.00        |           | TOTAL                                   |            | 1.00                                   |                | TOTAL    |            |            | 1.00         |                     | TOTAL                     | 0.00           |                       |
|                           |             |           |   |            |  |                |          |            |            |              |                     |                           |                |                       |
|                           |             | Table     | 1: Rural ru                             | unoff-coef | ficients                               |                |          |            | 1          |              | T:                  | able 2: Urban runoff      | -coefficie     | nts                   |
| Component                 |             | Classi    | fication                                |            |  | MAR            | (mm)     |            |            |              |                     | Use Coefficient           |                |                       |
|                           |             |           |   |            | 600                                    | 600 600-900    |          |            |            |              |                     | Lawns & Parks             |                |                       |
|                           | Vleis and   | l pans (< | 3%)                                     |            | 0.01                                   | 0              | .03      | 0.05       |            |              | Sandy, f            | flat (<2%)                | 0.05-0.10      |                       |
| Surface slope C.          | Flat area   | s (3-10%) |   |            | 0.06                                   | 0              | .08      | 0.11       |            |              | Sandy, s            | steep (>7%) 0.1           |                | -0.20                 |
|                           | Hilly (10-  | 30%)      |   |            | 0.12                                   | 0              | .16      | 0.20       |            |              | Heavy s             | oil, steep (>7%) 0.13     |                | -0.17                 |
| Steep areas (>30%)        |             |           |   |            | 0.22                                   | 0              | .26      | 0.30       |            |              | Heavy s             | oil, flat (<2%) 0.25-0.35 |                |                       |
|                           | Very per    | neable    | ****                                    | ****       | 0.03                                   | 0.04           |          |            |            |              |                     | Residential a             | reas           |                       |
| Surface slope C           | Permeab     | le        |   |            | 0.06                                   | 0.06 0.0       |          | 0.10       |            |              | Houses              |                           | 0.30-0.50      |                       |
|                           | Semi per    | meable    | ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~ | ~~~~~~     | 0.12                                   | 0.             | .16      | 0.20       |            |              | Flats               |                           | 0.50           | -0.70                 |
| Impermeable               |             |           |   |            | 0.21                                   | 0              | .26      | 0.30       |            |              |                     | Industry                  |                |                       |
|                           | Thick bu    | sh and p  | lantation                               |            | 0.03                                   | 0.             | .04      | 0.05       |            |              | Light In            | dustry                    | 0.50-0.80      |                       |
| Surface slope C.          | Light bus   | sh and fa | and farm-lands                          |            |  | 0              | .11      | 0.15       |            |              | Heavy Ir            | ndustry                   | 0.60-0.90      |                       |
|                           | Grass-lar   | nds       | ****                                    | ****       | 0.17                                   | 0.17 0.21      |          | 0.25       |            |              |                     | Business                  | 5              |                       |
|                           | No veget    | ation     |   |            | 0.26 0.28                              |                | 0.30     |            |            | City cen     | tre                 | 0.70-0.95                 |                |                       |
|                           |             |           |   |            |  |                |          | Surburb    | an         | 0.50         | -0.70               |                           |                |                       |
| Summer rainfall re        | gion        |           |   |            | r                                      |                |          |            | r          | 1            | Streets             |                           | 0.70           | -0.95                 |
| Return period T (y        | ears)       |           |   | 2          | 5                                      | 10             | 25       | 50         | 100        |              |                     |                           |                |                       |
| Point rainfall (mm)       |             |           | 12                                      | 19         | 22                                     | 31             | 42       | 51         |            | Notes:       |                     |                           |                |                       |
| Point intensity (mm/h) 20 |             |           |   |            | 32                                     | 37             | 52       | 71         | 86         |              | No Dolor            | mitic areas present in    | Catchmer       | nt                    |
|                           |             |           |   |            |  |                |          |            |            | Pre-Deve     | elopment Stormwater | drainage                  |                |                       |
| Run-off factor            |             |           |   |            |  | 1              |          |            |            | 1            | Catcmen             | nt is in a summer rainf   | all region     |                       |
| Return period T (y        | ears)       |           |   | 2          | 5                                      | 10             | 25       | 50         | 100        |              |                     |                           |                |                       |
| Rural C1 0.4              |             |           |   | 0.40       | 0.40                                   | 0.40           | 0.40     | 0.40       | 0.40       |              |                     |                           |                |                       |
| Urban C2 0.00             |             |           |   | 0.00       | 0.00                                   | 0.00           | 0.00     | 0.00       | 0.00       |              |                     |                           |                |                       |
| Lakes C3 1.00             |             |           | 1.00                                    | 1.00       | 1.00                                   | 1.00           | 1.00     |            |            |              |                     |                           |                |                       |
| Combined C = C1           | + C2 + C3   |           |   | 0.40       | 0.40                                   | 0.40           | 0.40     | 0.40       | 0.40       |              |                     | ****                      | ~~~~~~~~~~~    |                       |
|                           |             |           |   |            |  |                |          |            |            |              |                     |                           |                |                       |
| Peak flow -Catchm         | nents       |           |   |            |  |                |          |            |            | 1            |                     | ****                      |                |                       |
| Determine and a diff to   | ears)       |           |   | 2          | 5                                      | 10             | 25       | 50         | 100        |              |                     |                           |                |                       |
| Return period 1 (y        | ,           |           | _                                       |            |  |                |          |            |            |              |                     |                           | ************** |                       |

|  |                 |            |             |            | 1                   |           |          |                   |                               |                  |                        |                        |             |                |  |
|--|-----------------|------------|-------------|------------|---------------------|-----------|----------|-------------------|-------------------------------|------------------|------------------------|------------------------|-------------|----------------|--|
| Description of Catchment:                      |                 |            |             |            | NELSON              | SKOP      |          |                   | our                           | Tan              |                        |                        |             |                |  |
| Project:                                       |                 |            |             |            | E0505               |           |          | AV                | ONE                           | NGIN             | EERS                   | (Pty) Ltd              |             |                |  |
| Calculated By:                                 |                 |            |             |            | A J Smith           | ı         |          | CONSU             | ILTING C                      | IVIL & S         | TRUCTU                 | RAL ENGINEERS          |             |                |  |
| Date:  |                 |            |             |            | 26-Jun-16           | 6         |          |                   |                               |                  |                        |                        |             |                |  |
|  |                 |            |             |            | POST-DE             | VELOPM    | ENT      |                   |                               |                  |                        |                        |             |                |  |
| Physical Character                             | ristics         |            |             |            | -                   |           | -        |                   |                               |                  |                        |                        |             |                |  |
| Mean annual rainf                              | all (P)         |            |             | P =        | 470                 | mm        |          | Area Dis          | stribution                    | Factors          | _                      |                        |             |                |  |
| Size of Catchment                              | t               |            |             | A =        | 2147060             | m²        |          | α                 | $\alpha + \beta + \gamma = 1$ |                  |                        | Table 3: Suggestee     | d values o  | of r           |  |
| Longest water cou                              | urse            |            |             | L =        | 3188                | m         |          | Rural Urban Lakes |                               | Paved area       |                        |                        | 0.02        |                |  |
| Height Difference                              |                 | =          | 32.0        | m          |                     |           |          | α =               | β =                           | γ =              |                        | Clean soil             |             | 0.1            |  |
| Average slope of v                             | water cou       | s          |             | S =        | = 0.0100 <b>m/m</b> |           |          | 0.00              | 1.00                          | 0.00             |                        | Sparse grass           |             | 0.3            |  |
|  |                 |            |             |            |                     |           |          | -                 |                               | _                | Moderate grass         |                        |             | 0.4            |  |
| Overland flow                                  |                 | =          | 0.591       | Hours      |                     | lleo      | To -     | 0.501             | Hours                         | Thick bush       |                        |                        |             | 0.8            |  |
| Watercourse                                    |                 | =          | 0.952       | Hours      |                     | 038       | 10 -     | 0.591             | Hours                         |                  |                        | Use r =                |             | 0.03           |  |
|  |                 |            |             |            |                     |           |          |                   |                               | -                |                        |                        |             |                |  |
|  |                 |            |             |            | Rural C1            |           |          |                   |                               |                  |                        | Urba                   | in C2       |                |  |
| Surface Slope                                  | %               | Cs         | Perme       | ability    | %                   | Cp        | ,        | Vegetatio         | n                             | %                | Cv                     | Use                    | %           | C <sub>2</sub> |  |
| Vlei's and pans                                |                 |            | Very Perr   | neable     |                     |           | Thick bu | sh and pl         | antation                      |                  |                        | Lawns and parks        | 0.45        | 0.20           |  |
| Flat areas                                     |                 |            | Permeab     | le         |                     |           | Light bu | sh and fai        | m-lands                       |                  |                        | Industrial areas       |             |                |  |
| Hilly  | Ĺ               |            | Semi-Per    | meable     |                     |           | Grass-la | nds               |                               |                  | L                      | City/Residential       | 0.30        | 0.50           |  |
| Steep areas                                    |                 |            | Imperme     | able       |                     |           | No veget | ation             |                               |                  |                        | Streets                | 0.25        | 0.95           |  |
| TOTAL  | 0.00            |            | TOTAL       |            | 0.00                |           | TOTAL    |                   |                               | 0.00             |                        | TOTAL                  | 1.00        |                |  |
|  |                 |            |             |            |                     |           |          |                   |                               |                  |                        |                        |             |                |  |
|  |                 | Table      | 1: Rural ru | inoff-coef | ficients            |           |          |                   | _                             |                  | Та                     | able 2: Urban runoff   | -coefficie  | nts            |  |
| Component                                      |                 | Classi     | fication    |            |                     | MAR       | (mm)     |                   |                               |                  |                        | Use Coefficient        |             |                |  |
| Component                                      |                 | Classi     | ncation     |            | 600                 | 600       | -900     | 900               |                               |                  |                        | Lawns & Parks          |             |                |  |
|  | Vleis and       | l pans (<3 | 3%)         |            | 0.01                | 0.        | 03       | 0.05              |                               |                  | Sandy, f               | lat (<2%) 0.05-0       |             | -0.10          |  |
| Fla  | Flat area       | s (3-10%)  |             |            | 0.06                | 0.08      |          | 0.11              |                               |                  | Sandy, s               | steep (>7%)            | 0.15-0.20   |                |  |
| Surface slope C <sub>s</sub><br>Hilly (10-30%) |                 |            | 0.12        | 0.         | 16                  | 0.20      |          |                   | Heavy s                       | oil, steep (>7%) | 0.13                   | -0.17                  |             |                |  |
| Steep areas (>30%)                             |                 |            |             |            | 0.22                | 0.        | 26       | 0.30              |                               |                  | Heavy soil, flat (<2%) |                        |             | -0.35          |  |
|  | Very per        | neable     |             |            | 0.03                | 0.        | 04       | 0.05              |                               |                  |                        | Residential a          | reas        |                |  |
| Surface class C                                | Permeab         | le         |             |            | 0.06                | 0.        | 08       | 0.10              |                               |                  | Houses                 |                        | 0.30-0.50   |                |  |
| Surface slope C <sub>p</sub>                   | Semi per        | meable     |             |            | 0.12                | 0.        | 16       | 0.20              |                               |                  | Flats                  |                        | 0.50        | -0.70          |  |
|  | Imperme         | able       |             |            | 0.21                | 0.        | 26       | 0.30              |                               |                  | Industry               |                        |             |                |  |
| Thick bush and plantation                      |                 |            |             |            | 0.03                | 0.        | 04       | 0.05              |                               |                  | Light In               | dustry                 | 0.50-0.80   |                |  |
| Surface class C                                | Light bu        | sh and fa  | rm-lands    |            | 0.07                | 0.        | 11       | 0.15              |                               |                  | Heavy In               | dustry                 | 0.60        | 0.60-0.90      |  |
| Surface slope C <sub>v</sub>                   | Grass-la        | nds        |             |            | 0.17                | 0.17 0.21 |          | 0.25              |                               |                  |                        | Business               | 5           |                |  |
|  | 0.26            | 0.28       |             | 0.30       |                     | City ce   |          | ity centre        |                               | 0.70-0.95        |                        |                        |             |                |  |
|  | 4               |            |             | -          | •                   |           | Surburb  | an                | 0.50-0.70                     |                  |                        |                        |             |                |  |
| Summer rainfall re                             | gion            |            |             |            |                     |           |          |                   |                               | Streets          |                        | 0.70                   | -0.95       |                |  |
| Return period T (y                             | ears)           |            |             | 2          | 5                   | 10        | 25       | 50                | 100                           |                  |                        |                        |             |                |  |
| Point rainfall (mm)                            |                 |            |             | 12         | 19                  | 22        | 31       | 42                | 51                            |                  | Notes:                 |                        |             |                |  |
| Point intensity (mm/h) 20                      |                 |            |             |            | 32                  | 37        | 52       | 71                | 86                            |                  | No Dolor               | nitic areas present in | Catchmer    | nt             |  |
|  |                 |            |             |            |                     |           |          | Post-Dev          | •                             |                  |                        |                        |             |                |  |
| Run-off factor                                 |                 |            |             |            |                     |           |          |                   |                               |                  | Catcmen                | t is in a summer rainf | fall region |                |  |
| Return period T (y                             | ears)           |            |             | 2          | 5                   | 10        | 25       | 50                | 100                           |                  |                        |                        |             |                |  |
| Rural C1 0.00                                  |                 |            |             | 0.00       | 0.00                | 0.00      | 0.00     | 0.00              | 0.00                          |                  |                        |                        |             |                |  |
| Urban C2 0.48                                  |                 |            |             | 0.48       | 0.48                | 0.48      | 0.48     | 0.48              |                               |                  |                        |                        |             |                |  |
| Lakes C3 1.00                                  |                 |            |             | 1.00       | 1.00                | 1.00      | 1.00     | 1.00              |                               |                  |                        |                        |             |                |  |
| Combined C = C1 + C2 + C3 0.48                 |                 |            | 0.48        | 0.48       | 0.48                | 0.48      | 0.48     | 0.48              |                               |                  |                        |                        |             |                |  |
|  |                 |            |             | 1          |                     | 1         | 1        |                   | 1                             | 1                |                        |                        | ~~~~~       |                |  |
|  |                 |            |             |            |                     |           |          |                   |                               |                  |                        |                        |             |                |  |
| Peak flow -Catchm                              | nents           |            |             |            |                     |           |          |                   |                               |                  |                        |                        |             |                |  |
| Peak flow -Catchrr<br>Return period T (y       | nents<br>rears) |            |             | 2          | 5                   | 10        | 25       | 50                | 100                           |                  |                        |                        |             |                |  |

