Archaeological Impact Assessment

Sedgefield Water Supply Augmentation Scheme: Erf 3517, Galjoen Road, Erf 1634, Erf 2445, Bitou Street, Oestervanger Road, Melkhout Street, Erf 3859, Erf 3858 and Erf 3518, Sedgefield, Knysna Municipality, Western Cape Province

prepared for

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by

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Executive Summary

An Archaeological Impact Assessment (AIA) was conducted for the above-named development on 30 October 2009. Apart from previously developed areas, the proposed extent for the water pipeline is cleared of vegetation. As a result, the entire study area was accessible and ground surfaces were exposed for archaeological inspection. Parts of the study area were examined by the author during an AIA for Erf 1634 in 2006, including the proposed locality of the desalination plant.

The bulk of the study area is disturbed by a range of recent human activities including; roads, structures, services, sewer line, parking lot and vegetation clearing.

Like found during an earlier AIA in part of the current study area, no archaeological traces of either pre-historic or colonial origin were identified during fieldwork. No palaeontological remains or other heritage related resources were observed.

Given the lack of above-ground heritage related resources and the extent of previous disturbance and development, it is recommended that the proposed project be approved.

Nevertheless, it is suggested that;

- *Because the presence of sub surface archaeological remains cannot be ruled out, earthmoving activities on Erven 1634 and 3517 should be monitored by - or under the supervision of - a professional archaeologist. Archaeological monitoring will ensure that negative impact on subterranean archaeological and paleontological materials is avoided or minimized.*

Note that;

- *If archaeological materials are exposed during vegetation clearing and/or earth moving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer. In the event of exposing human remains during construction, the matter will fall into the domain of Heritage Western Cape (Mr. Nick Wiltshire) or the South African Heritage Resources Agency (Ms Mary Leslie) and will require a professional archaeologist to undertake mitigation if needed.*

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1. Introduction

1.1 Background

Regarding the proposed Sedgefield Water Supply Augmentation Scheme affecting Erf 3517, Galjoen Road, Erf 1634, Erf 2445, Bitou Street, Oestervanger Road, Melkhout Street, Erf 3859, Erf 3858 and Erf 3518, Sedgefield, Knysna Municipality, Western Cape Province (Figures 1 through 4), Ms Melissa Mackay of Cape Environmental Assessment Practitioners (Cape EAPRAC) appointed CHARM to conduct an Archaeological Impact Assessment (AIA) of the affected property as required by Heritage Western Cape (HWC). Section 38 of the National Heritage Resources Act (Act 25 of 1999) was triggered because pipelines for the proposed development exceed 300m. Relevant parts of a HWC Notice of Intent to Develop (NID) form were also completed and signed by the author.

The study focused on affected portions of the above-named properties and not their entire extents. An earlier AIA conducted on a portion of the current study area is pertinent to the current study (Nilssen 2006).

"The proposal is being initiated in terms of Section 24F(3) of NEMA in order to address the critical water shortage experienced by Sedgefield. This is an emergency scheme designed to provide water assurance. The pipeline forms part of the Desalination Plant for Sedgefield. A 2,5km water pipeline will be laid from Myoli Beach parking area to the Blombosnek Reservoir in Sedgefield. The pipe are between 100mm and 150mm and will be placed underground up to a depth of 1,2m within the existing sewer line servitude, adjacent to the sewer line. The pipeline will transport potable water from the Desalination Plant at the parking area to the Blombosnek Reservoir where the water will be distributed via existing infrastructure to the people of Sedgefield" (Ms Melissa Mackay of Cape EAPRAC – see submitted HWC NID form).

Proposed development activities that potentially affect archaeological resources in the study area include:

- Earthmoving activities for the construction and installation of:
    1. a 2.5km pipeline of 150mm diameter laid at a depth of up to 1.2m
    2. a platform (brick paving) of 200m^2 for the desalination plant standing 2m high
    3. a mini substation
    4. beach wells feeding desalination plant

The layout plan is shown in Figure 3, but details and specifications can be obtained from Knysna Municipality or Ms Mackay of Cape EAPRAC.

1.2. Purpose and Scope of the Study

Objectives of the Archaeological Impact Assessment are:

- To assess the study area for traces of archaeological and heritage related resources;
- To identify options for archaeological mitigation in order to minimize potential negative impacts; and
- To make recommendations for archaeological mitigation where necessary.

Terms of Reference (ToR):
a) Locate boundaries and extent of the study area.
b) Conduct a foot survey of the study area to identify and record archaeological and heritage related resources.

c) Assess the impact of the proposed development on above-named resources.
d) Recommend mitigation measures where necessary.
e) Prepare and submit a report to the client that meets standards required by Heritage Western Cape (HWC) in terms of the National Heritage Resources Act, No. 25 of 1999.

Relevant parts of a HWC NID form were completed and signed by the author.

1.3 Study Area

The study area is situated in the coastal town of Sedgefield on the Cape South coast (Figures 1 & 2). The study area was accessed by vehicle on the N2 from Mossel Bay and – once in Sedgefield - by turning right into Makou Street, left into Cycad Circle, left into Kosmos Street and then right toward the Blombosnek Reservoir (Figure 1 – follow arrows). The south western extent of the study area is adjacent to Myoli beach and some 400m east of the Swartvlei lagoon mouth (Figures 1 & 2).

The proposed water pipeline route from the desalination plant at Myoli beach to The Blombosnek Reservoir is as follows (see Figures 1 through 4): from the desalination plant on Erf 3517 the line runs east to Galjoen road and turns north along the western side of Galjoen road where it turns east at the south west corner of Erf 1634 and then runs roughly diagonally across Erf 1634 in a north easterly direction and across the southern boundary of Erf 2445 and then on the same property it runs west along the southern boundary and north along the western boundary then east along the northern boundary into Bitou street, west into Oestervanger Road, north into Melkhout Street and continues north through the length of Erf 3859, north into Erf 3858 and north along its eastern boundary into Erf 3518 where it turns west and runs to Blombosnek reservoir on the southern boundary of Erf 3518. Coordinate data for the pipeline route are given in Table 1 (A through AC).

The entire study area is located on a mostly ancient coastal parabolic dune system including three large east-west aligned dunes and a dune field makes up the bulk of Erf 1634 (Hellström & Randall, 2006; Figures 1, 2 & 3). The height of the dunes range from around 40 to 80m and sediments, other than those associated with recent developments, consist exclusively of wind blown sands.

The immediate environment – development, vegetation, topography and so on - bordering the proposed development is varied and examples are shown in Plates 1 through 4. The localities of photographs are established by matching the numbers on photographs with those of waypoints in Figure 4. The images show that most of the northern route runs through previously developed areas while the southern portion is dominated by undeveloped land except for the existing sewer line next to which the proposed pipeline will be installed. In undeveloped areas, vegetation has been cleared along the pipeline route in a tract of around 5 to 8m wide (Plates 1 through 4).

1.4 Approach to the Study

Previous archaeological work conducted in the study area or immediate surroundings is restricted to an AIA conducted by the author (Nilssen 2006). Since very dense to impenetrable vegetation covered the bulk of Erf 1634 in 2006, thereby significantly restricting that study, no expectations were carried into the present AIA.

On behalf of the Knysna Municipality, Ms Melissa Mackay of Cape Environmental Assessment Practitioners (Pty) Ltd (Cape EAPRAC) provided background information and documents as well as plans and coordinate data for the study area (Figure 3 and Table 1). The study area was located by means of this information.

In previously undeveloped areas – besides the sewer line - the proposed extent for the water pipeline is cleared of vegetation as a strip of 5 to 8m wide. As a result, the entire study area was accessible and ground surfaces were exposed for archaeological inspection. Undeveloped areas were surveyed on foot while developed areas were surveyed - at very low speed - by vehicle where appropriate.

Survey tracks were fixed with a hand held Garmin Camo GPS to record the search area (Figure 4, gpx tracking file submitted to HWC and is available from author). Observations and photo localities were also fixed by GPS (Figure 4, Plates 1 through 4 and Table 1). Digital audio notes and a high quality, comprehensive digital photographic record were also made (full data set available from author).

2. Results

In approximately 2.5 hours of survey a distance of 6.5km was traversed, covering an area of about 2.6ha, of which – in undeveloped areas - an average of around 70% provided good archaeological visibility (Figure 4 and Plates 1 through 4). No archaeological materials were identified during the study. Neither mole heaps nor previous human disturbances revealed a trace of subsurface archaeological material. A recently excavated trench adjacent to the car park at Myoli beach showed a profile of sterile dune sand (Plate 4 – 013).

Table 1. Coordinate data for observations and study area.

Name	Description img=image file snd=sound file	Datum: WGS 84 Lat/Lon dec.degrees	Datum: WGS 84 Grid: SA National
1	img 5558-63 snd 5563	S34.02348 E22.81224	23 Y0017342 X3766282
2	img 5564-5 snd 5565	S34.02368 E22.81283	23 Y0017287 X3766304
3	img 5572-3 snd 5573	S34.02445 E22.81290	23 Y0017280 X3766389
4	img 5574-7 snd 5575	S34.02458 E22.81265	23 Y0017303 X3766404
5	img 5578-9 snd 5579	S34.02656 E22.81219	23 Y0017345 X3766623
6	img 5582-3 snd 5583	S34.02760 E22.81212	23 Y0017351 X3766739
7	img 5586-8 snd 5588	S34.02889 E22.81212	23 Y0017352 X3766881
8	img 5590-91 snd 5591	S34.02918 E22.81293	23 Y0017277 X3766914
9	img 5592-3 snd 5593	S34.02960 E22.81213	23 Y0017350 X3766961
10	img 5594-5 snd 5595	S34.03001 E22.81079	23 Y0017474 X3767007
11	img 5597-8, 5601 snd 5601	S34.03070 E22.80887	23 Y0017651 X3767084
12	img 5608-9	S34.03324 E22.80148	23 Y0018333 X3767367
13	img 5611-7 snd 5612	S34.03313 E22.80144	23 Y0018337 X3767354
14	img 5621-2	S34.03310 E22.80437	23 Y0018067 X3767351
15	img 5623-5 snd 5625	S34.03327 E22.80551	23 Y0017961 X3767369
16	img 5626-8 snd 5628	S34.03257 E22.80630	23 Y0017888 X3767291
17	img 5629-30 snd 5630	S34.03162 E22.80873	23 Y0017664 X3767185
18	img 5631-2 snd 5630	S34.03086 E22.80880	23 Y0017658 X3767102

Table 1 (continued)**. Coordinate data for observations and study area.**

Name	Description img=image file snd=sound file	Datum: WGS 84 Lat/Lon dec.degrees	Datum: WGS 84 Grid: SA National
AA	waterline route point	S34.02657 E22.81265	23 Y0017303 X3766624
AB	waterline route point	S34.02653 E22.81232	23 Y0017334 X3766620
AC	waterline route point	S34.02365 E22.81280	23 Y0017290 X3766301
E	waterline route point	S34.03312 E22.80138	23 Y0018342 X3767353
F	waterline route point	S34.03337 E22.80190	23 Y0018294 X3767380
G	waterline route point	S34.03232 E22.80255	23 Y0018234 X3767264
H	waterline route point	S34.03337 E22.80503	23 Y0018005 X3767380
I	waterline route point	S34.03312 E22.80538	23 Y0017973 X3767352
J	waterline route point	S34.03328 E22.80608	23 Y0017908 X3767370
K	waterline route point	S34.03315 E22.80628	23 Y0017890 X3767355
L	waterline route point	S34.03190 E22.80630	23 Y0017888 X3767217
M	waterline route point	S34.03173 E22.80647	23 Y0017873 X3767198
N	waterline route point	S34.03168 E22.80677	23 Y0017845 X3767193
O	waterline route point	S34.03173 E22.80867	23 Y0017670 X3767198
P	waterline route point	S34.03120 E22.80872	23 Y0017665 X3767139
Q	waterline route point	S34.03067 E22.80883	23 Y0017655 X3767080
R	waterline route point	S34.03062 E22.80903	23 Y0017636 X3767074
S	waterline route point	S34.03052 E22.80918	23 Y0017622 X3767063
T	waterline route point	S34.03017 E22.81067	23 Y0017485 X3767024
U	waterline route point	S34.02975 E22.81152	23 Y0017407 X3766977
V	waterline route point	S34.02930 E22.81263	23 Y0017304 X3766927
W	waterline route point	S34.02923 E22.81293	23 Y0017276 X3766920
X	waterline route point	S34.02885 E22.81203	23 Y0017359 X3766877
Y	waterline route point	S34.02762 E22.81223	23 Y0017341 X3766741
Z	waterline route point	S34.02762 E22.81247	23 Y0017320 X3766741
A	Start Myoli Beach Parking	S34.03307 E22.80142	23 Y0018339 X3767347
B	Manhole	S34.03325 E22.80533	23 Y0017977 X3767367
C	Smutsville	S34.02873 E22.81290	23 Y0017279 X3766864
D	Blombosnek Reservoir	S34.02360 E22.81183	23 Y0017379 X3766295

3. Sources of Risk, Impact Identification and Assessment

- The proposed development will involve earthmoving activities that could have a permanent negative impact on archaeological resources.
- Development activities will penetrate sediments unaffected by previous disturbances as well as previously undisturbed areas. The presence of subsurface archaeological materials cannot be ruled. Archaeological monitoring of earthmoving activities associated with the proposed project will avoid and/or minimize negative impacts.

Table 2 summarizes the potential impact of the proposed development on archaeological and palaeontological resources with and without mitigation.

Table 2. Potential impact on and loss of archaeological resources

	With Mitigation	Without Mitigation
Extent	Local	Local
Duration	Permanent	Permanent
Intensity	Low	Medium
Probability	Low	Medium
Significance	unknown	unknown
Status	unknown	unknown
Confidence	High	High

Provided that mitigatory measures as approved by Heritage Western Cape are implemented, it is recommended that the proposed project be approved.

4. Required and Recommended Mitigation Measures

The following measures are required:

- In the event that vegetation clearing and earthmoving activities expose archaeological or paleontological materials, such activities must stop and Heritage Western Cape must be notified immediately.
- If archaeological materials are exposed through earthmoving activities, then they must be dealt with in accordance with the National Heritage Resources Act (No. 25 of 1999) and at the expense of the developer(s) and/or property owner(s).
- Unmarked human burials may occur anywhere in the landscape and are often exposed during earthmoving activities. Human remains are protected by law and, if older than 60 years, are dealt with by Heritage Western Cape (Mr. Nick Wiltshire 021 483 9685) or the State Archaeologist at the South African Heritage Resources Agency (Mrs. Mary Leslie who can be reached at 021 462 4502).

It is recommended that:

- Because the presence of sub surface archaeological remains cannot be ruled out, earthmoving activities on Erven 1634 and 3517 should be monitored by - or under the supervision of - a professional archaeologist. Archaeological monitoring will ensure that negative impact on subterranean archaeological and paleontological materials is avoided or minimized.

References

Hellström, G.B. & Randall, J. 2006 (In Prep). Recent changes to a coastal parabolic dune system, Southern Cape Coast, South Africa.

Nilssen, P.J. 2006. Archaeological Heritage Impact Assessment: Erf 1634, Sedgefield, Western Cape Province: Proposed Rezoning, Subdivision and Development. Report submitted to Heritage Western Cape.

Figures and Plates (on following pages)

Figure 1. General location of the study area (red line in enlarged portion) in Sedgefield, Western Cape Province. Arrows indicate access route to Blombosnek Reservoir. Map courtesy Surveys and Mapping.

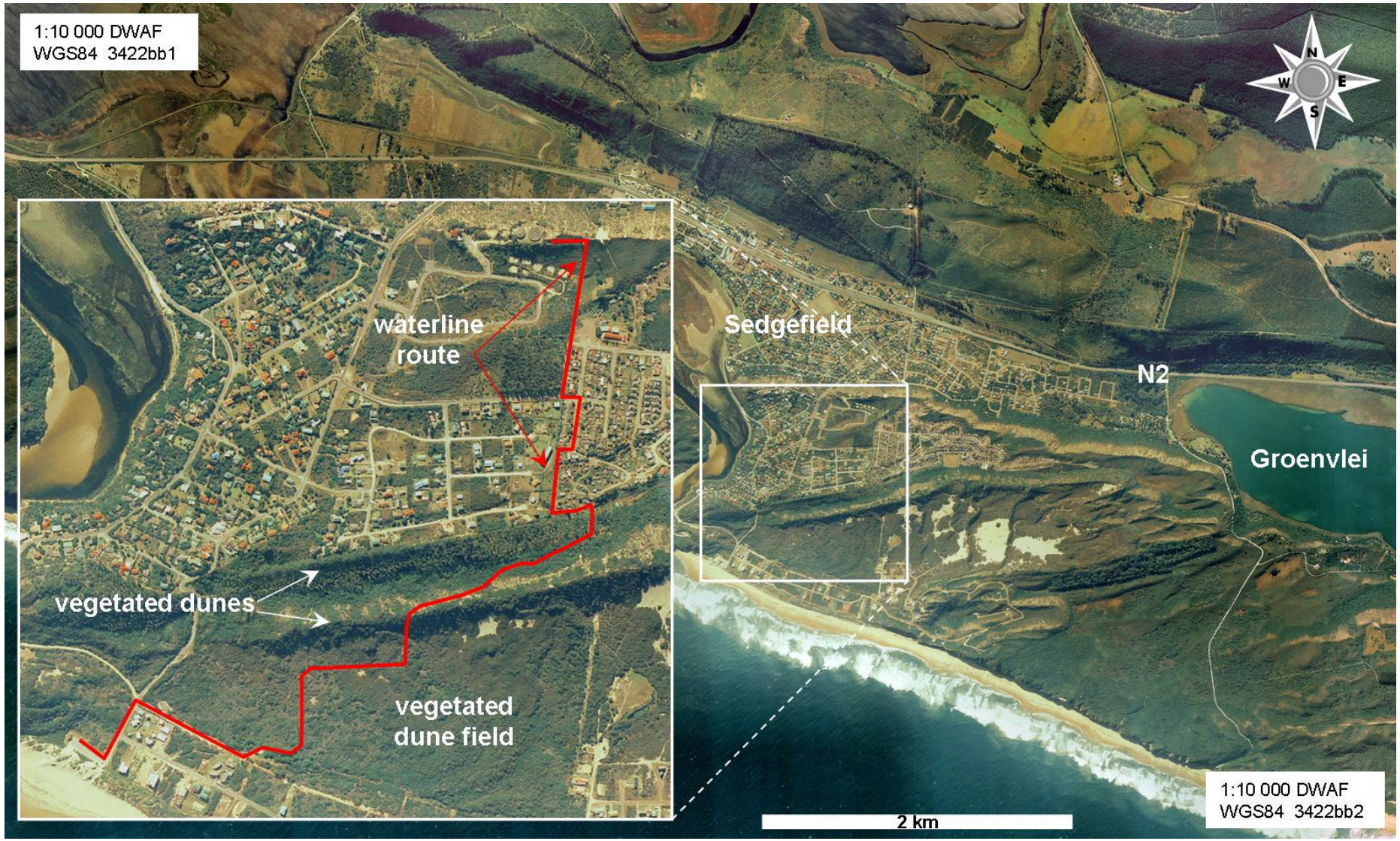

Figure 2. General location of the study area (red line in enlarged portion) in Sedgefield, Western Cape Province. The extensive parabolic dune system is seen in the main image and the enlarged portion shows the vegetated large parallel dunes as well as the vegetated dune field. Aireal photo courtesy Surveys and Mapping

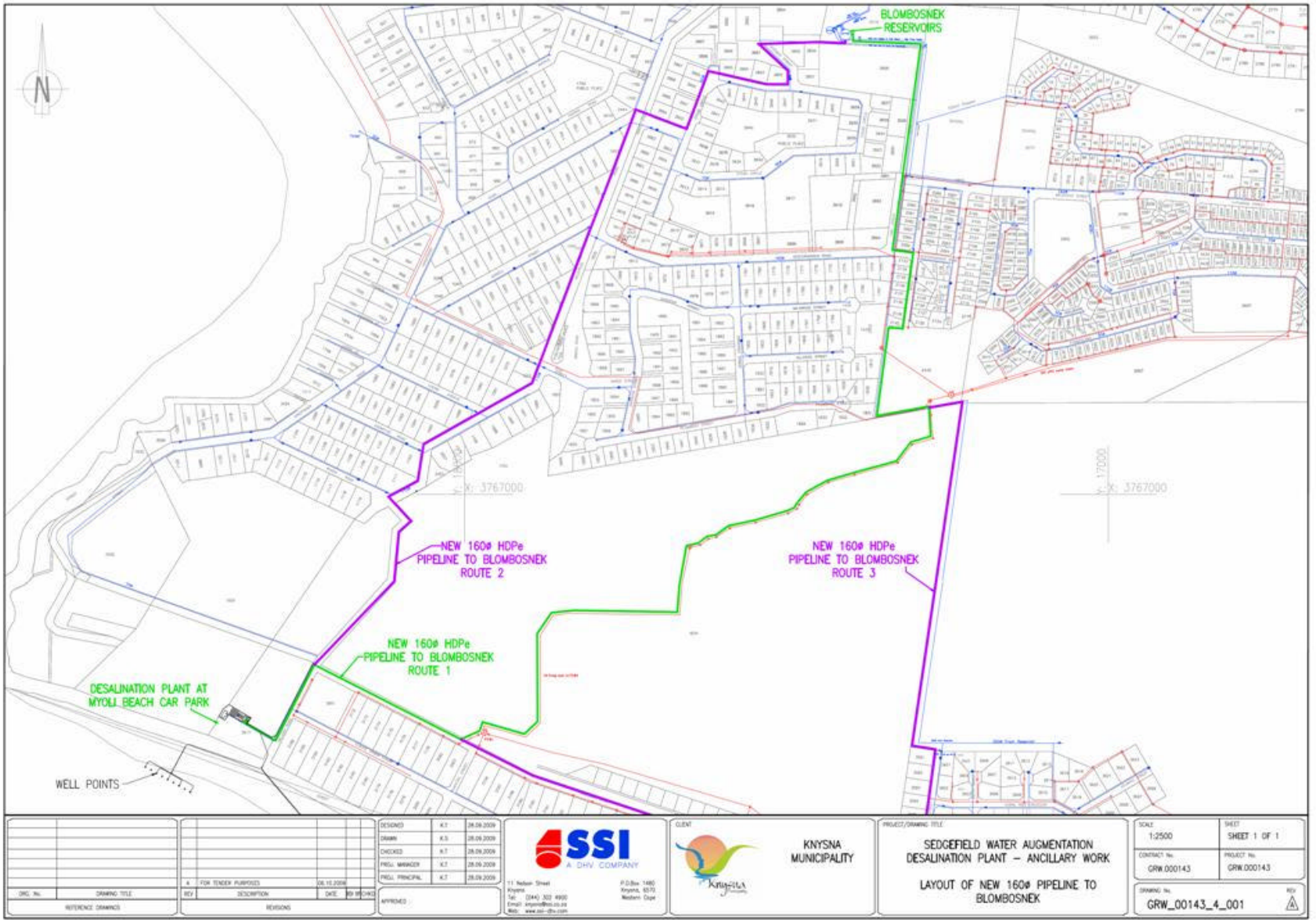

Figure 3. Layout plan of proposed development with green indicating selected option (courtesy Knysna Municipality)

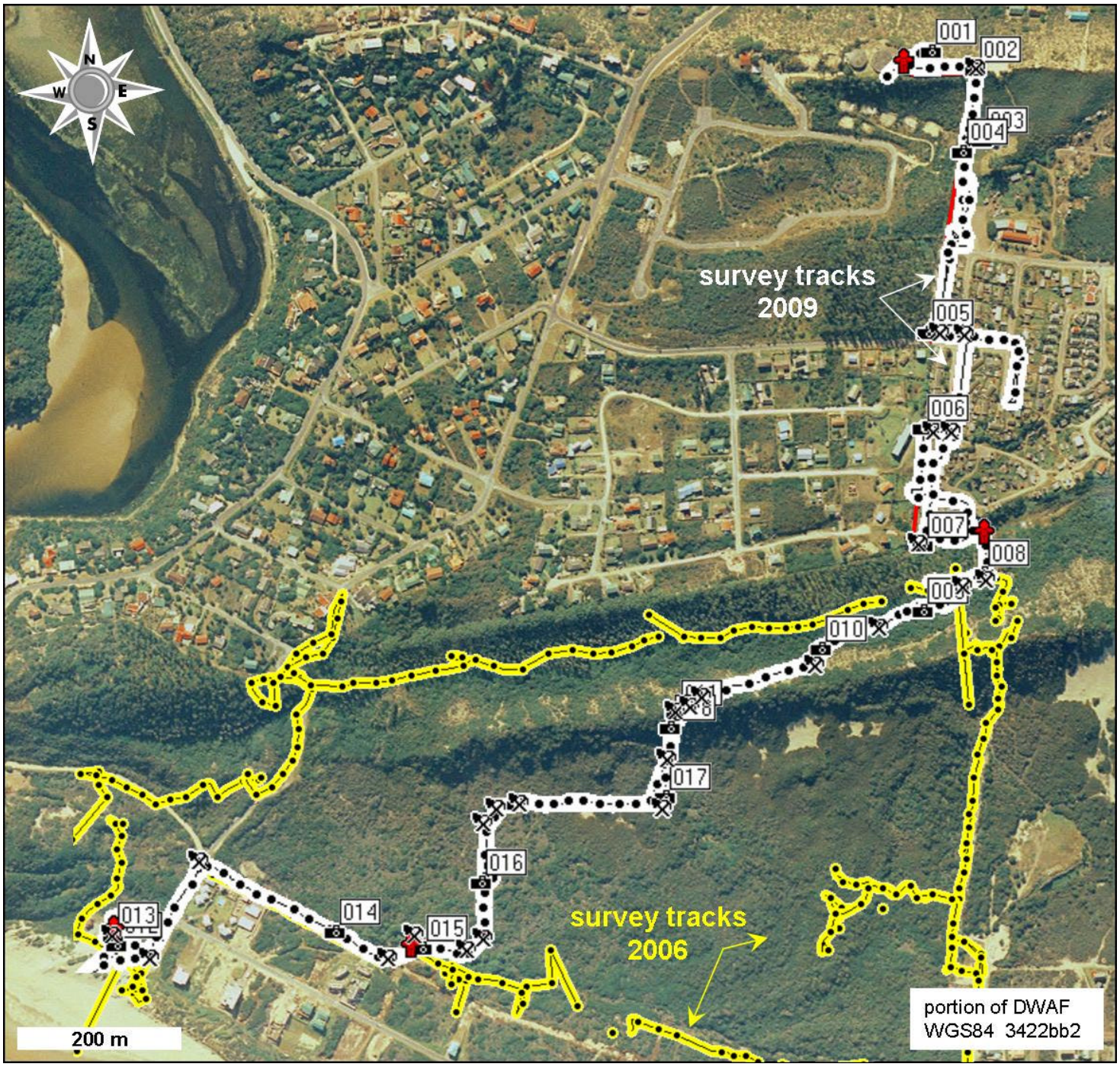

Figure 4. Enlargement of inset in Figure 2 showing the 2006 and 2009 survey tracks in yellow and white respectively. Camera icons represent photo localities and are numbered 1 through 18 in Table 1 (not 001 to 018 as above). Red fire hydrants represent structural features along pipeline route while shovel and pick axe icons represent points along the pipeline (named A to AC in Table 1). Aireal photo courtesy Surveys and Mapping

Plate 1. Panoramas - study area & features discussed in text. See locality of images in Figure 4. Letters indicate direction of view.

Plate 2. Views of various sections along the pipeline route. See locality of images in Figure 4. Letters indicate direction of view.

Plate 3. Views of various sections along the pipeline route. See locality of images in Figure 4. Letters indicate direction of view.

Plate 4. Views of various sections along the pipeline route. 013 shows an excavated trench and a part of its exposed profile of sterile aeolian sand. See locality of images in Figure 4. Letters indicate direction of view.