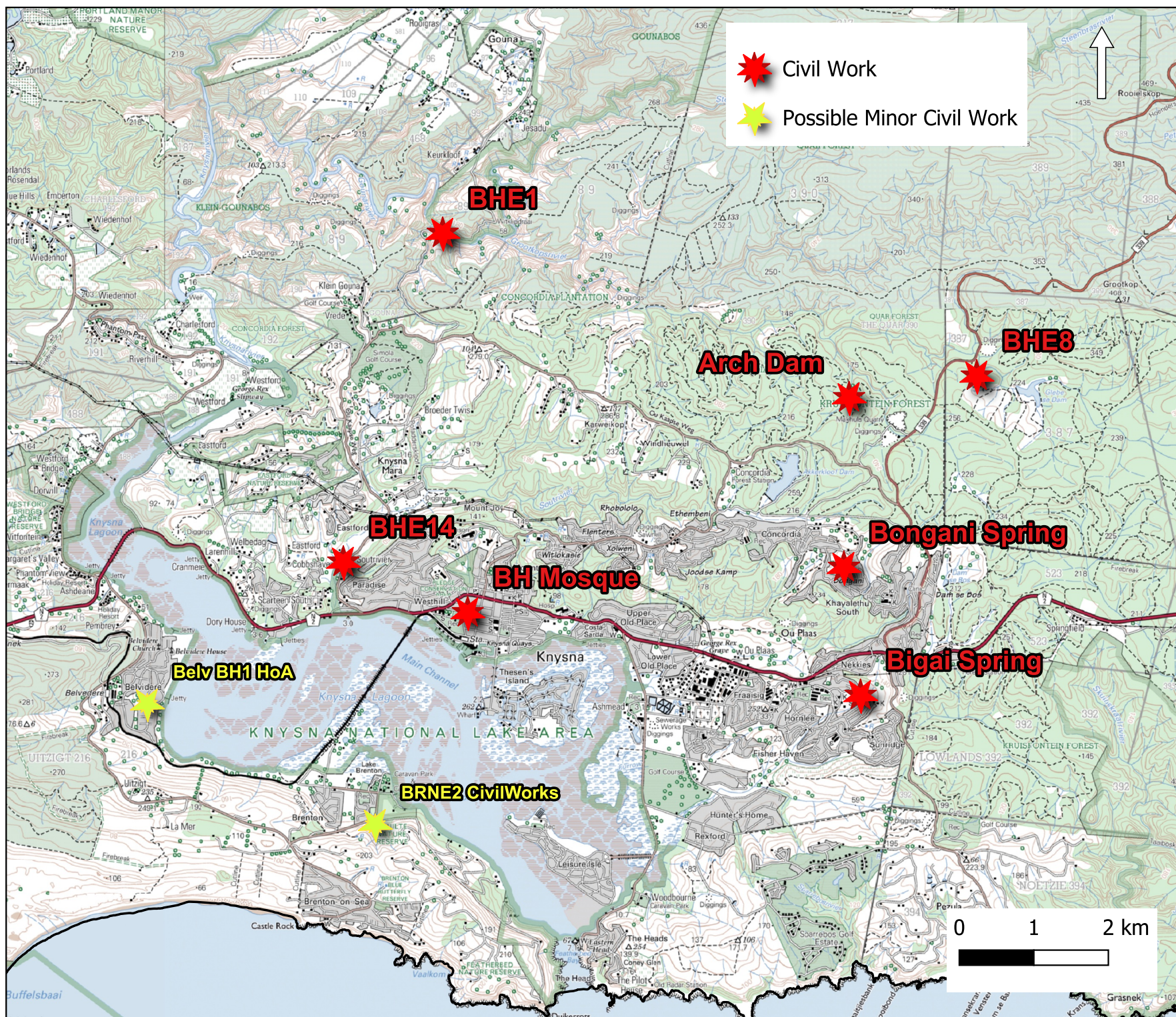
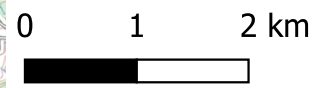




 Civil Work

 Possible Minor Civil Work



KNYSNA EMERGENCY GROUNDWATER SUPPLY PROJECT

CONNECTING INFRASTRUCTURE AND CIVIL WORKS

LOCALITY PLAN

PREPARED FOR:



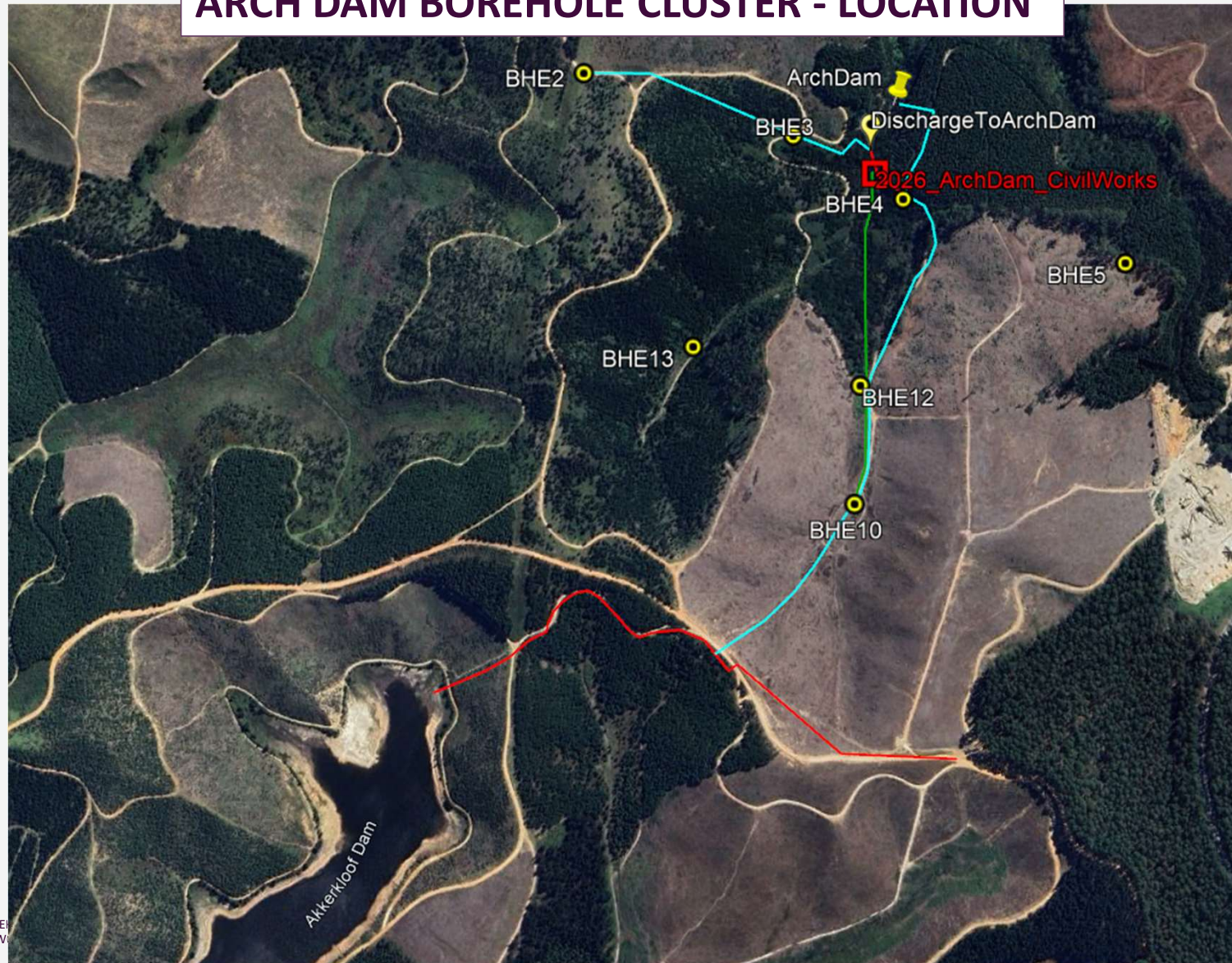
PREPARED BY:



22 January 2026

FIGURE 1

ARCH DAM BOREHOLE CLUSTER - LOCATION

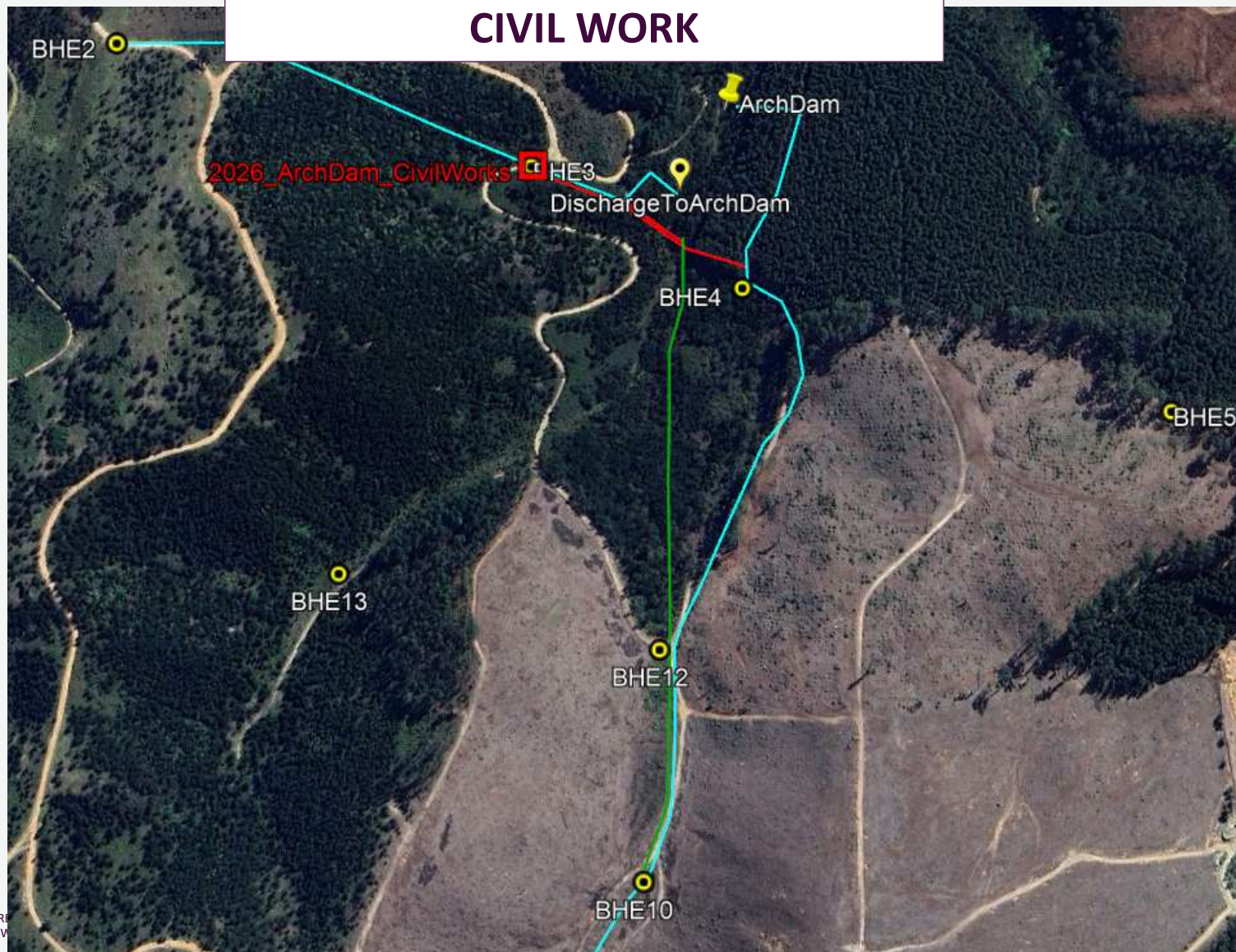


26 January 2026 - BORE
CONNECTIONS - CIVIL W

FIGURE 2.1



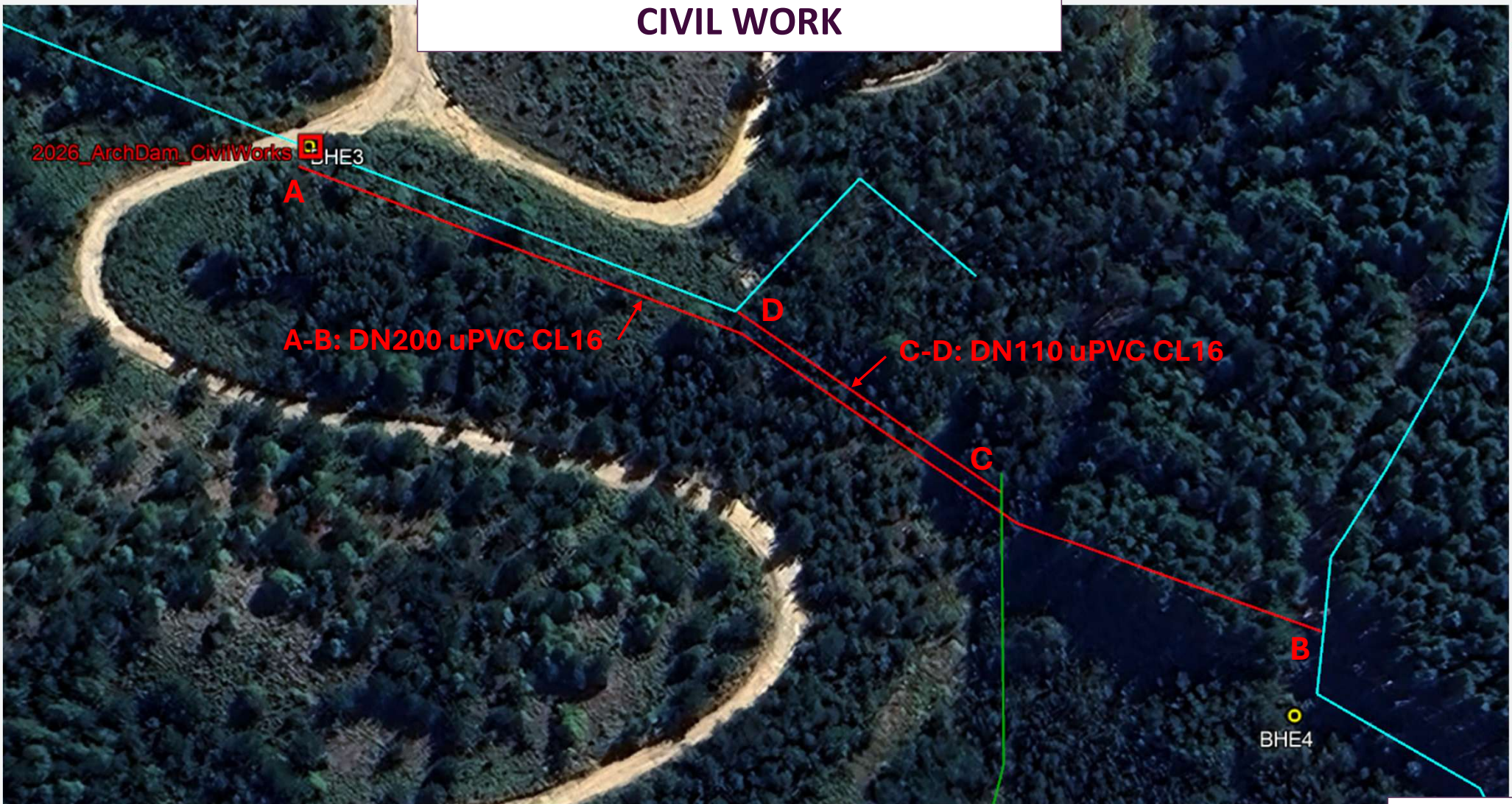
ARCH DAM BOREHOLE CLUSTER CIVIL WORK



26 January 2026 - BOREHOLE
CONNECTIONS - CIVIL WORK

FIGURE 2.2

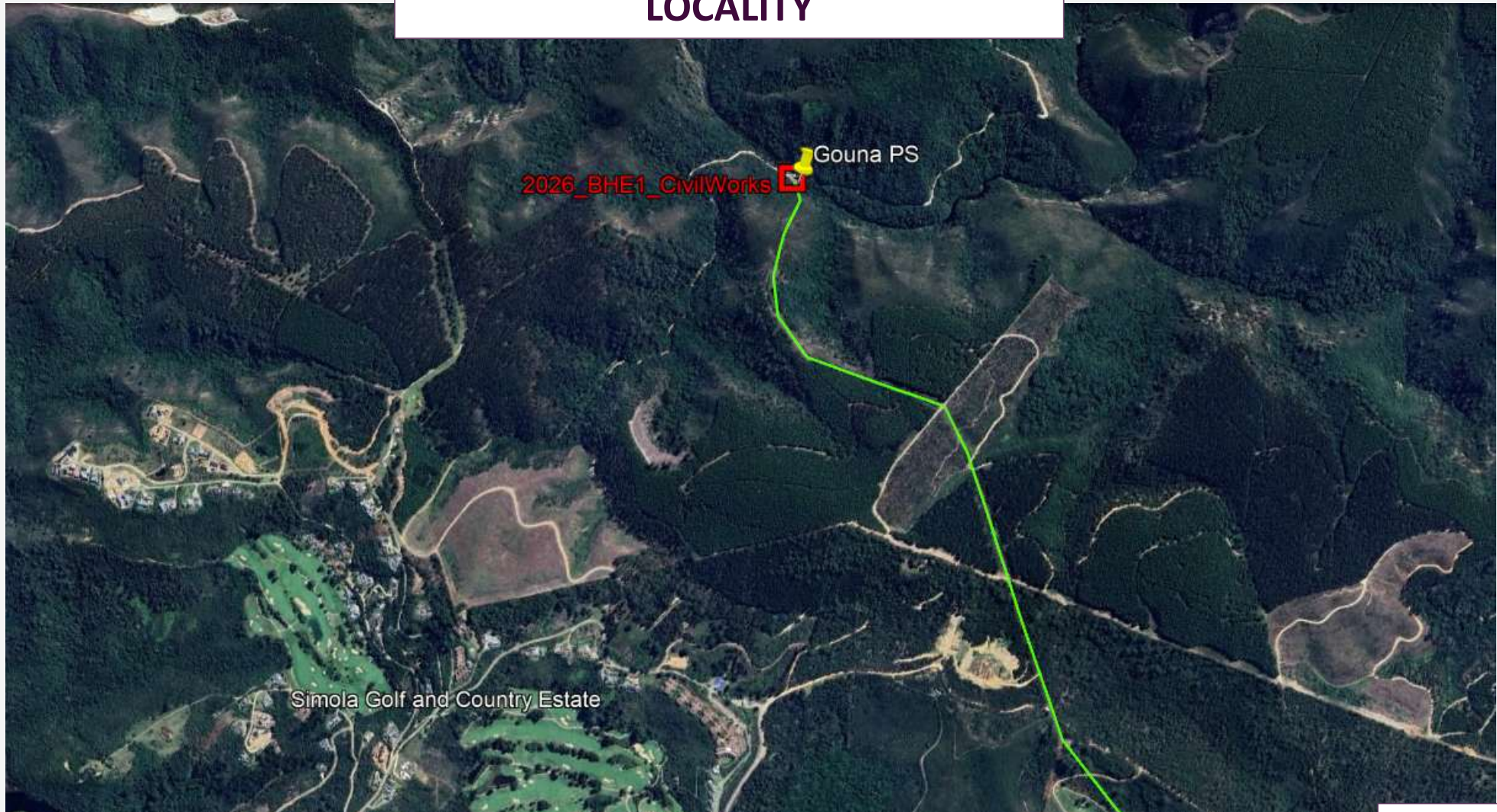
ARCH DAM BOREHOLE CLUSTER CIVIL WORK



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 2.3

GOUNA BOREHOLE BHE1 LOCALITY



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 3.1

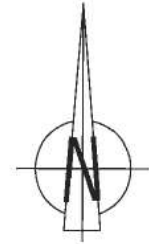
GOUNA BOREHOLE BHE1 CONNECTING AND CIVIL WORK



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 3.2

GOUNA BOREHOLE BHE1 CONNECTING AND CIVIL WORK



**REINSTATE OR REPLACE
DN75 HDPE PN10 RISING
MAIN TO PS BUFFER TANK**

BHE1

BHE9

GOUNA RIVER

GRAVEL ROAD

BRIDGE

WEIR

NEW ARTESIAN PIPE
FROM BOREHOLE
(40mmØ HDPE)

NEW 40mmØ
HDPE PIPE

NEW PIPELINE
FROM BOREHOLES
(75mmØ HDPE)

EXISTING
RAMP

ELECTRICAL
KIOSK

GENERATOR

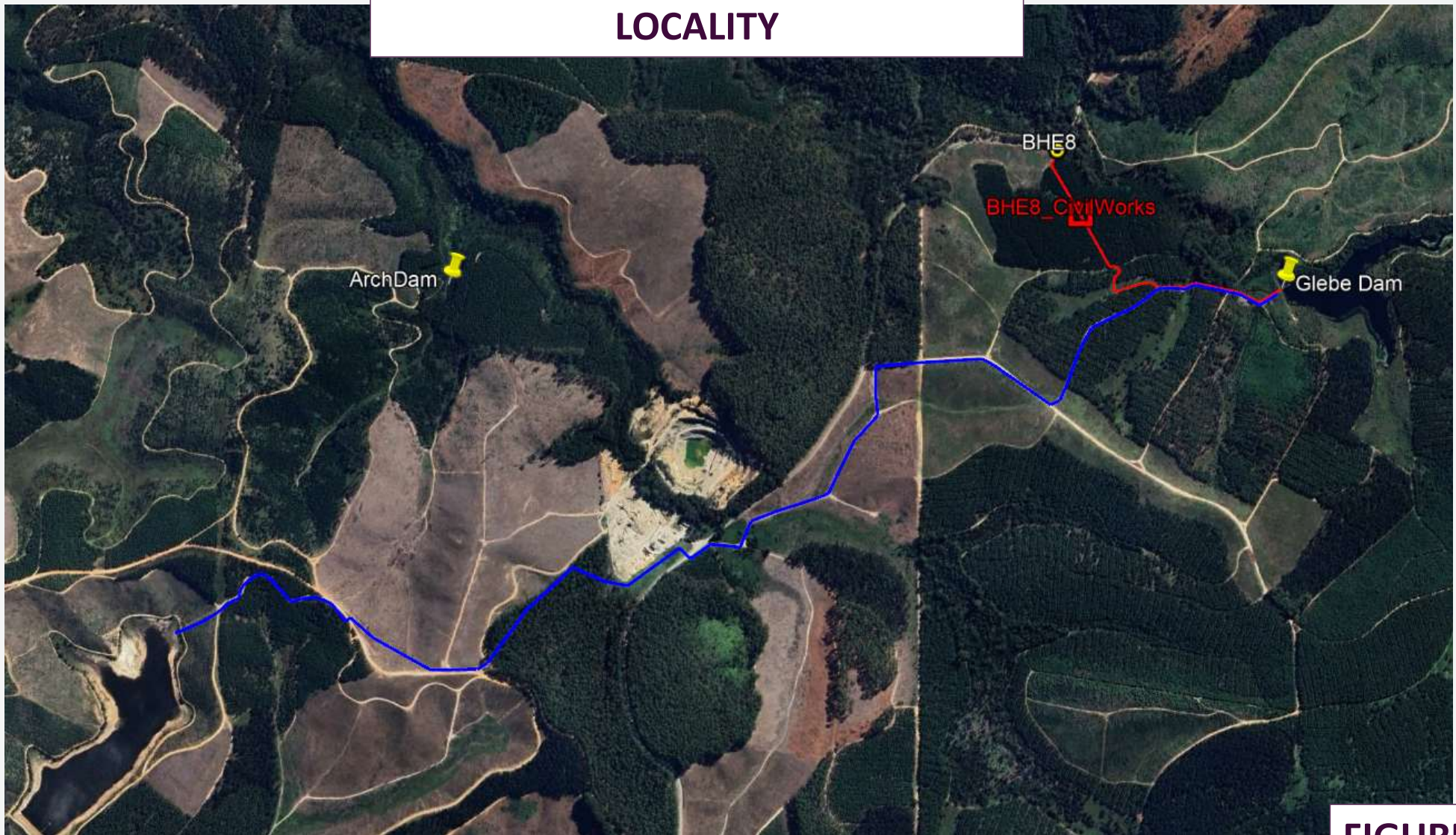
EXISTING
MUNICIPAL
300KVA
TRANSFORMER

PUMP
STATION

NEW FLOW
METER

FIGURE 3.3

GLEBE DAM BOREHOLE BHE8b LOCALITY



CONNECTIONS - CIVIL WORK

FIGURE 4.1

GLEBE DAM BOREHOLE BHE8b CIVIL WORK

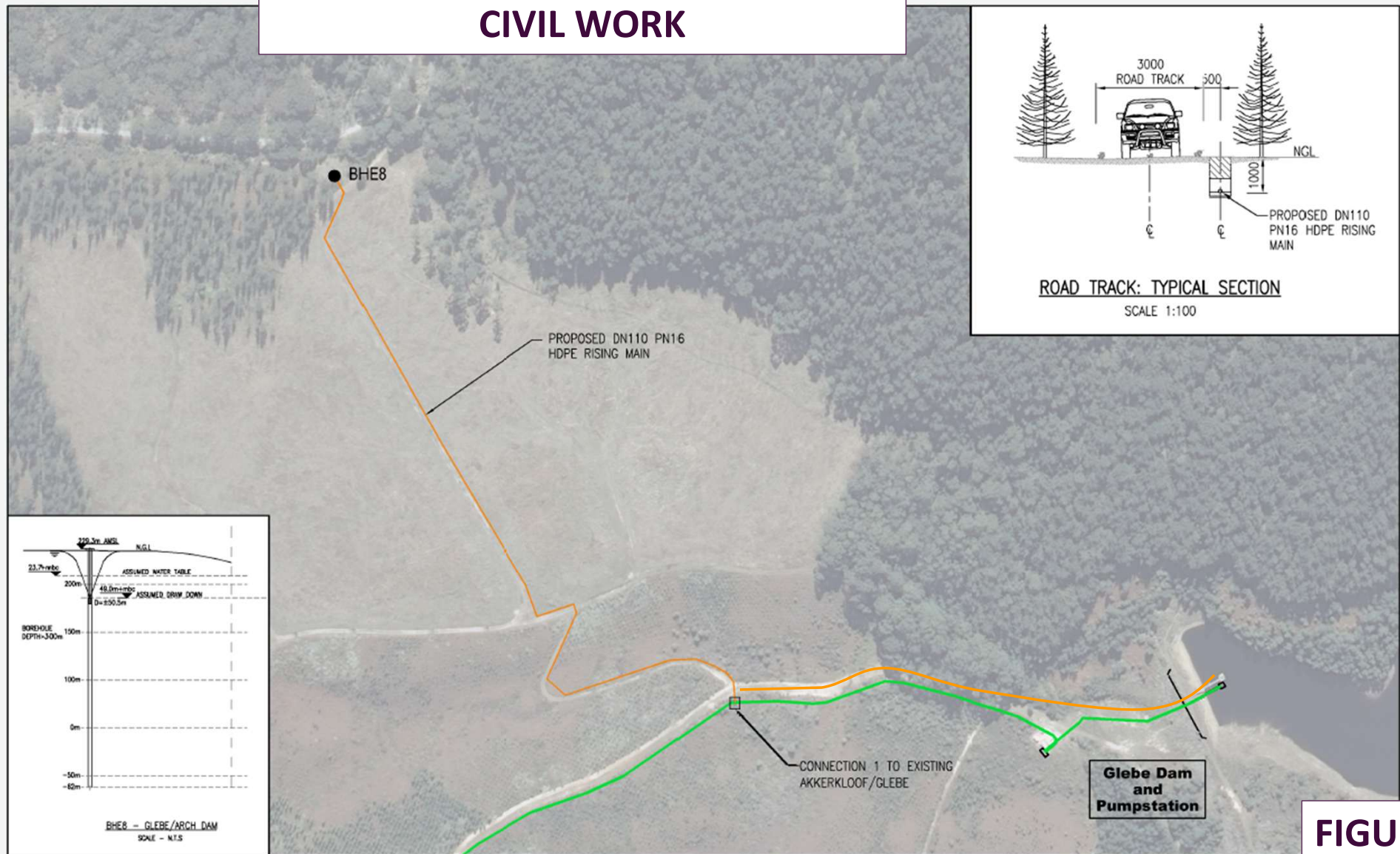


FIGURE 4.2

OLD CAPE ROAD BOREHOLE BHE14 LOCATION



26 January 20
CONNECTION

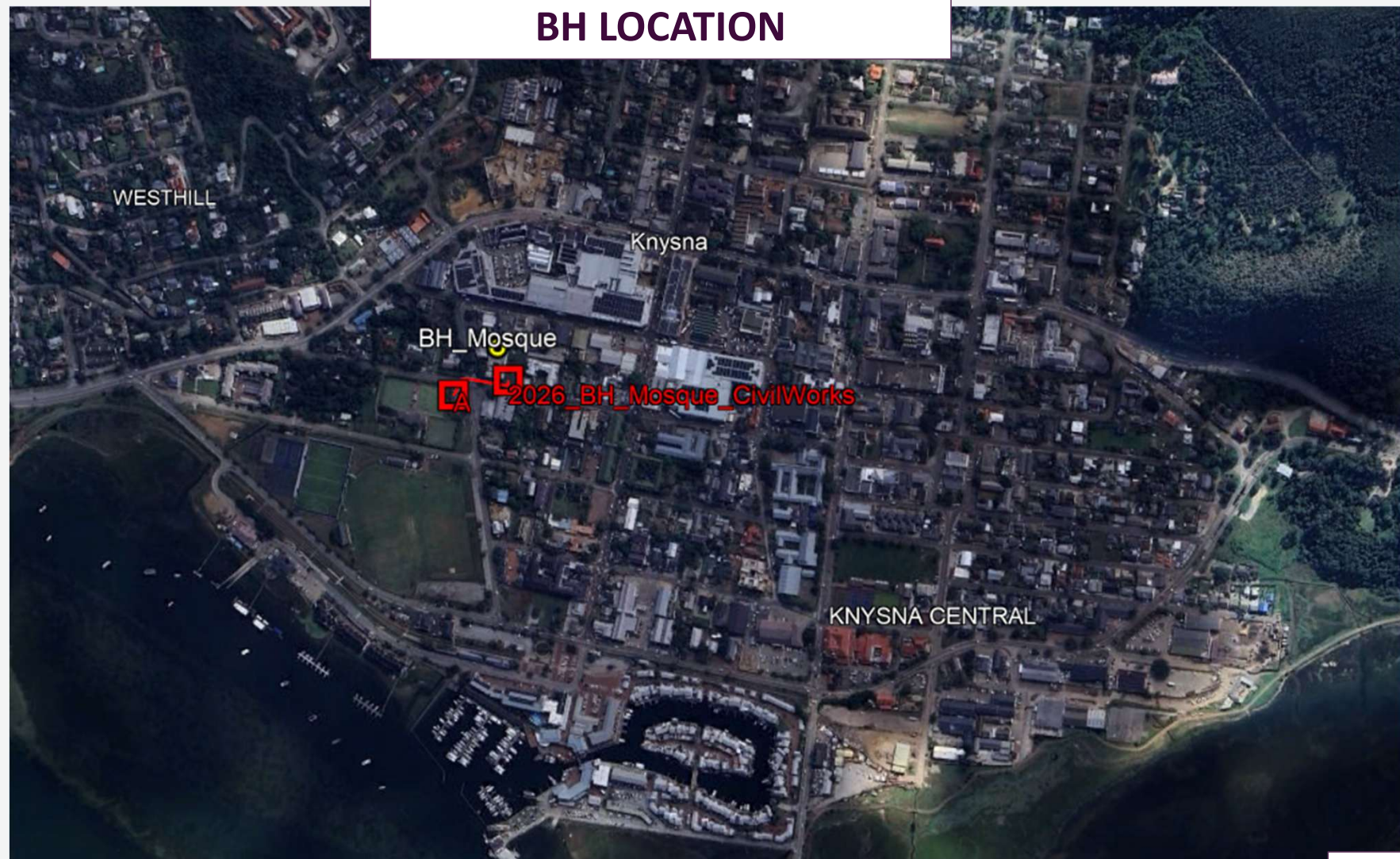
FIGURE 5.1

OLD CAPE ROAD BOREHOLE BHE14 CIVIL WORKS



FIGURE 5.2

MOSQUE BOREHOLE BH LOCATION



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 6.1

MOSQUE BOREHOLE CIVIL WORK



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 6.2

BRENTON BOREHOLE BRNE2 LOCATION



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 7.1

BRENTON BH BRNE2 CIVIL WORK



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 7.2

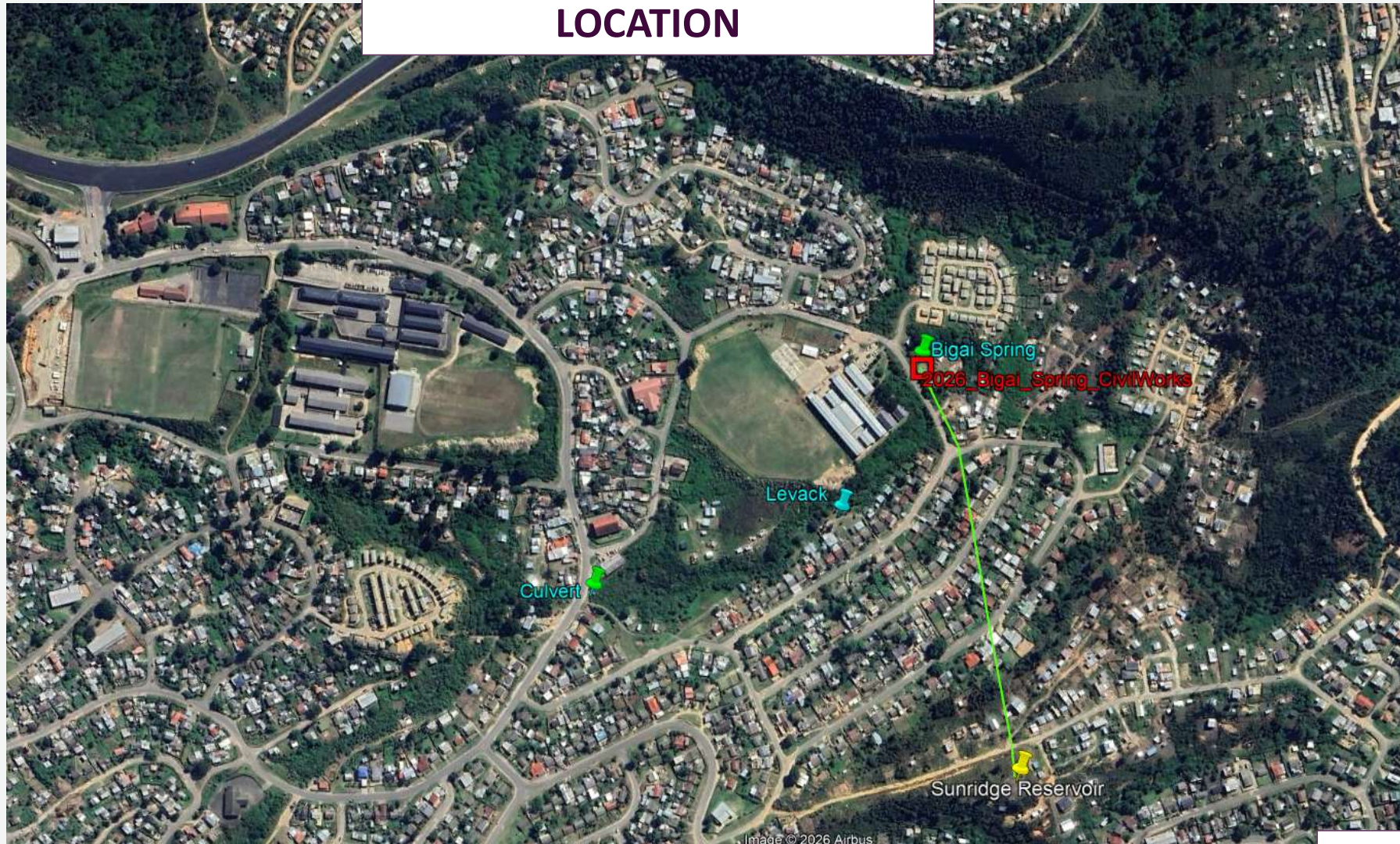
BELVIDERE BOREHOLE BH1 LOCATION



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 8.1

BIGAI SPRING LOCATION



26 January 2026 - BOREHOLES AND SPRINGS -
CONNECTIONS - CIVIL WORK

FIGURE 9.1

Bigai Spring Interventions

- Test flow and water quality
- Check pumps and chamber
- Install Disinfection system
- Spring cleanup/protect (community project)
- New house on Spring 2 (check and survey, move house off spring infrastructure)

BIGAI SPRING CIVIL WORK

NEW HOUSE ON SPRING 2

SURVEY EXACT POSITIONS
(HOUSE AND SPRING 2)

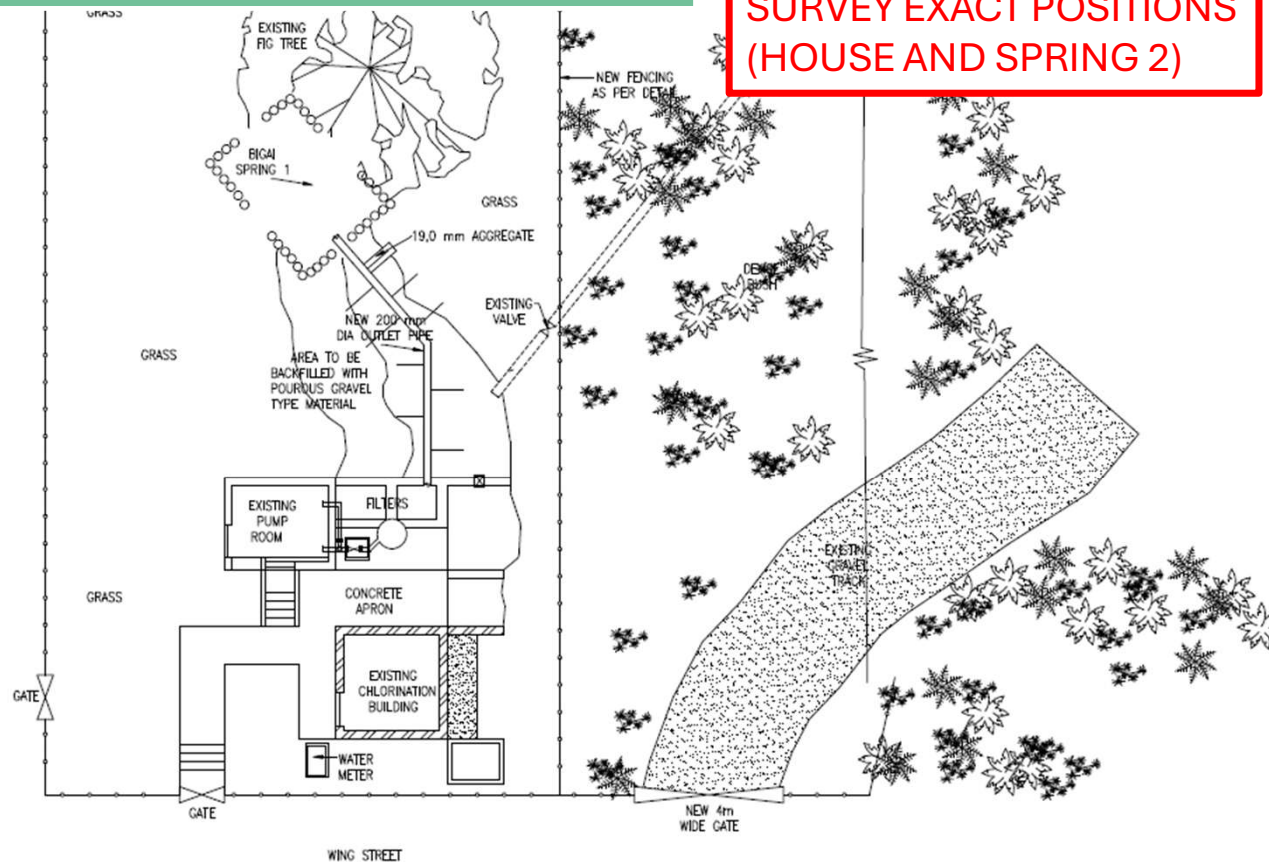
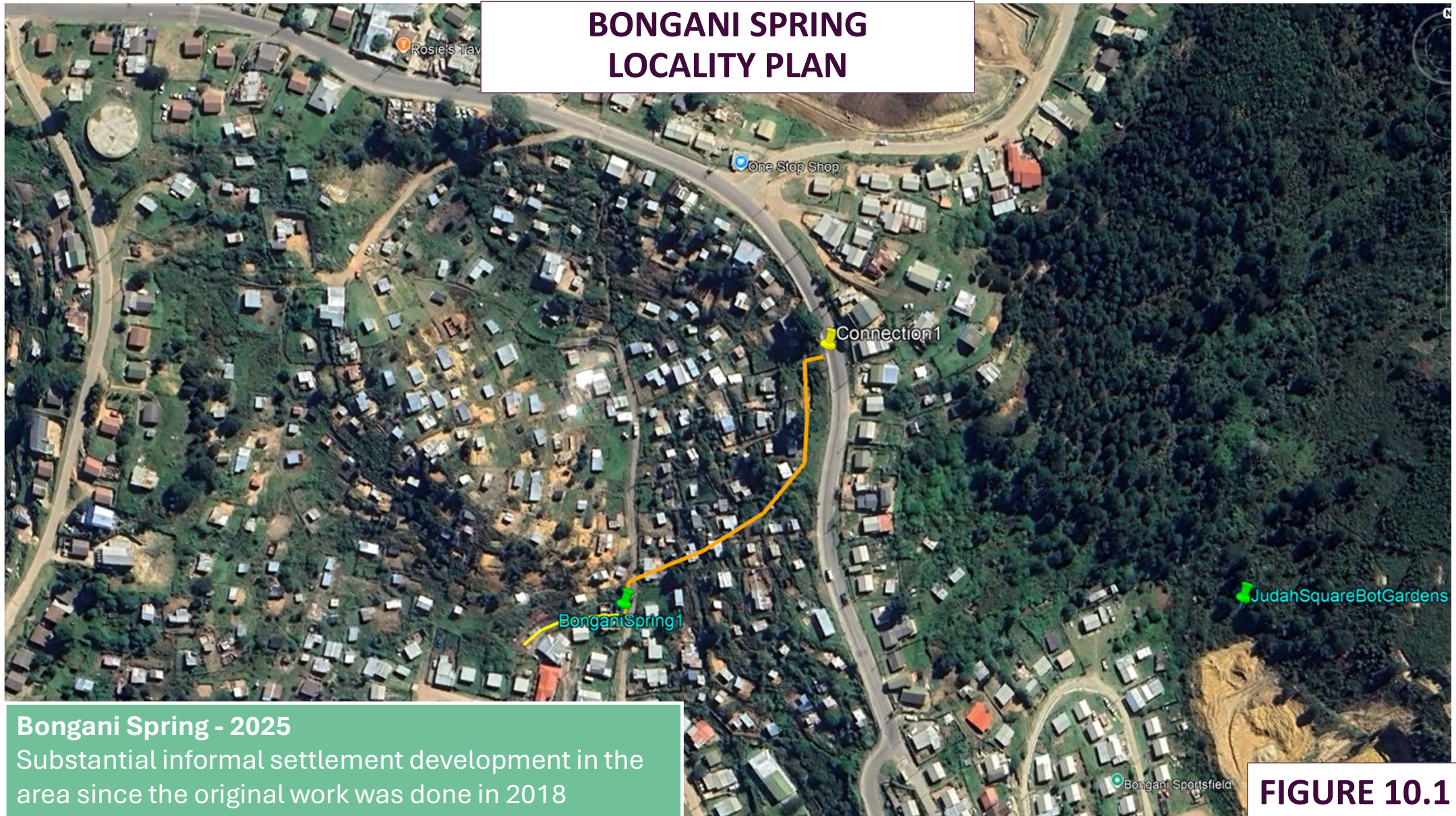


FIGURE 9.2

BONGANI SPRING LOCALITY PLAN



Bongani Spring - 2025

Substantial informal settlement development in the area since the original work was done in 2018

FIGURE 10.1

Bongani Spring

- Yield = 0.3 ML/d (Est)
- Water quality good (TBC)
- Pump into DN250 pipeline form Concordia to Khayaletu Reservoir

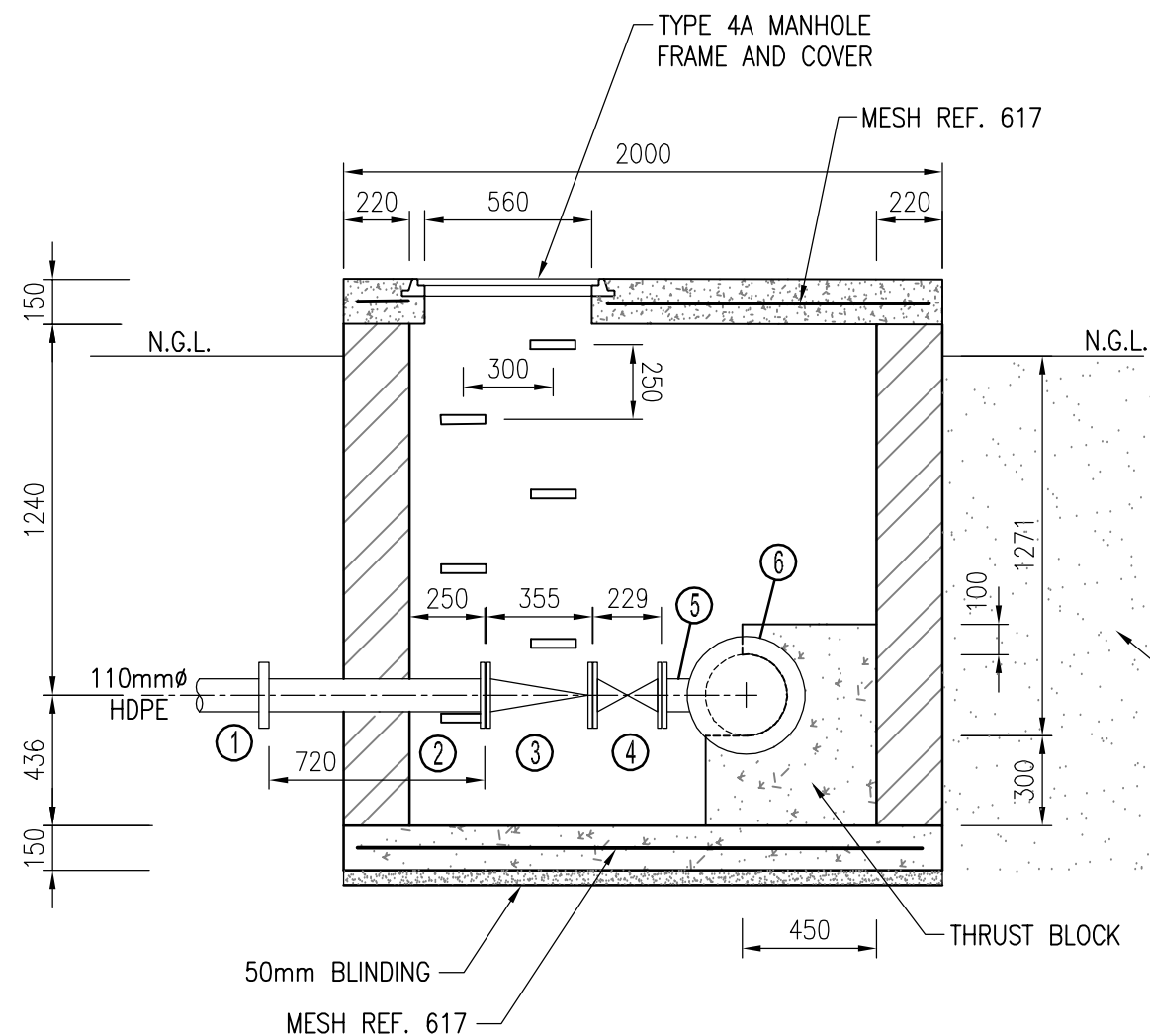
Interventions required:

- Test flow and water quality
- Replace pumps and repair chamber (vandalized)
- Check and test pipeline
- Install Disinfection system
- Spring cleanup and protection community project

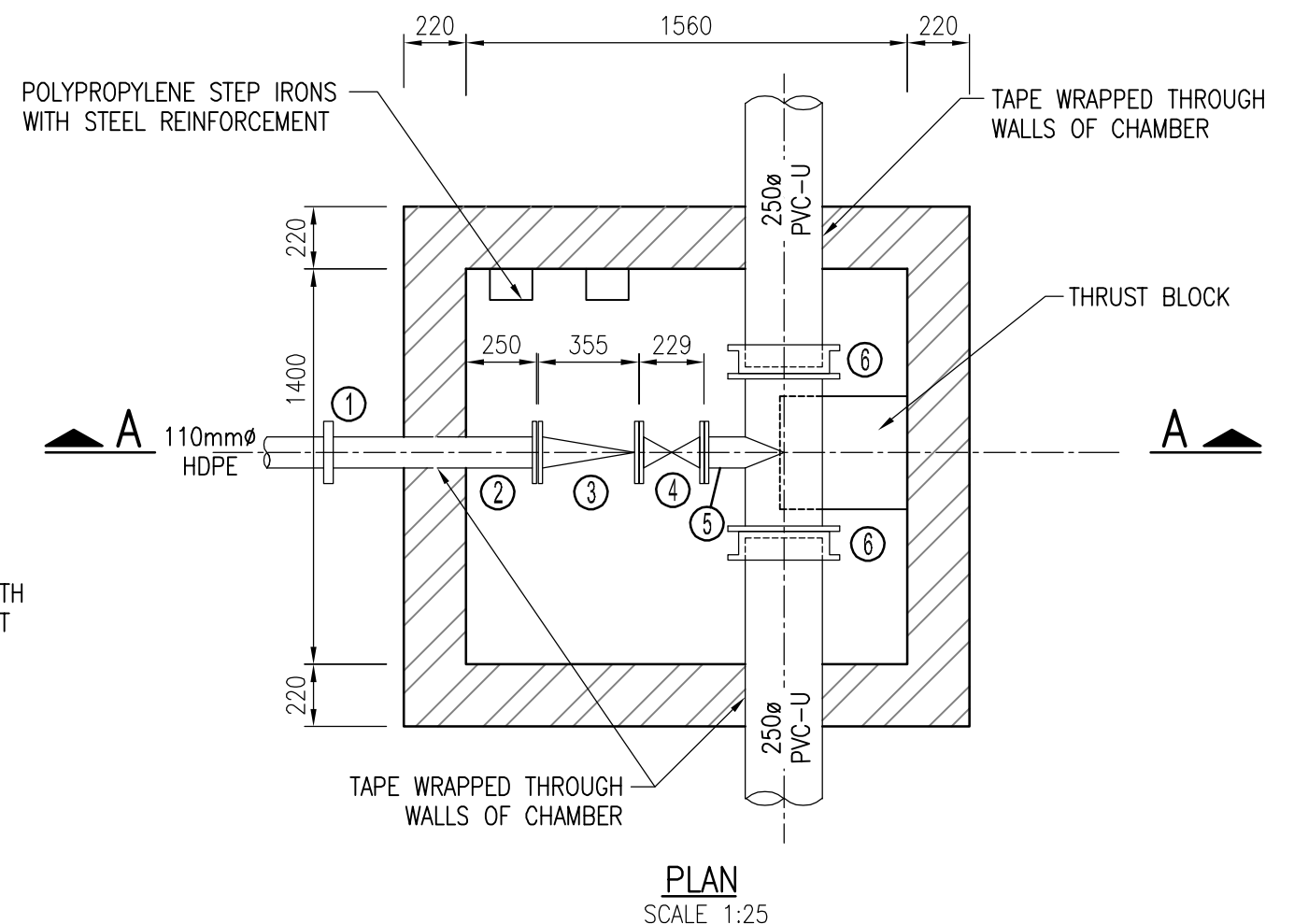
BONGANI SPRING CIVIL WORK



FIGURE 10.2



SECTION A-A
SCALE 1:25



PLAN
SCALE 1:25

PIPEWORK SCHEDULE

- ① FLEXIBLE COUPLING TO SUIT DN100mm MS AND DN110mm HDPE
- ② DN100mm GMS STRAIGHT PIPE (720mm LONG)(FOE)
- ③ DN100mm NON-RETURN VALVE (FBE)
- ④ DN100mm GATE VALVE (FBE)
- ⑤ DN250x100mm GMS TEE (FBE)
- ⑥ DN250 FLANGE ADAPTOR TO SUIT PVC-U (2No.)

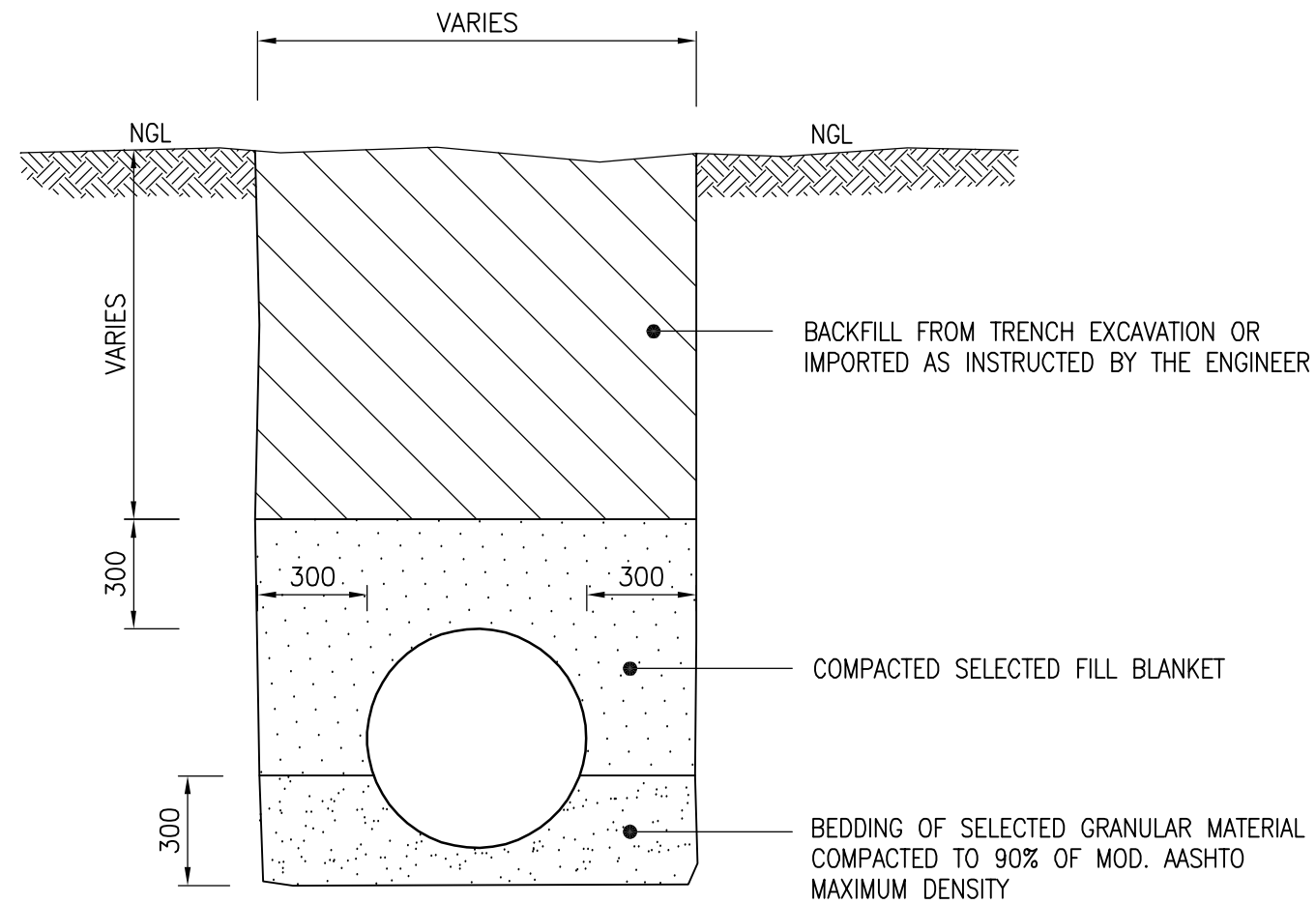
T	FOR TENDER PURPOSES	2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

DESIGNED	K.T.	2017
DRAWN	L.M.	2017
CHECKED	K.K.	2017
PROJ. MANAGER	K.T.	2017
PROJ. PRINCIPAL	K.T.	2017



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TITLE KNYSNA WATER EMERGENCY – CONNECTION 1: BOREHOLE E8– CONNECTION TO EXISTING GLEBE/AKKERKLOOF PIPELINE				
APPROVED:	PROJECT No. MD1870	SCALE 1:25	DRAWING No. MD1870–C–102	REV T

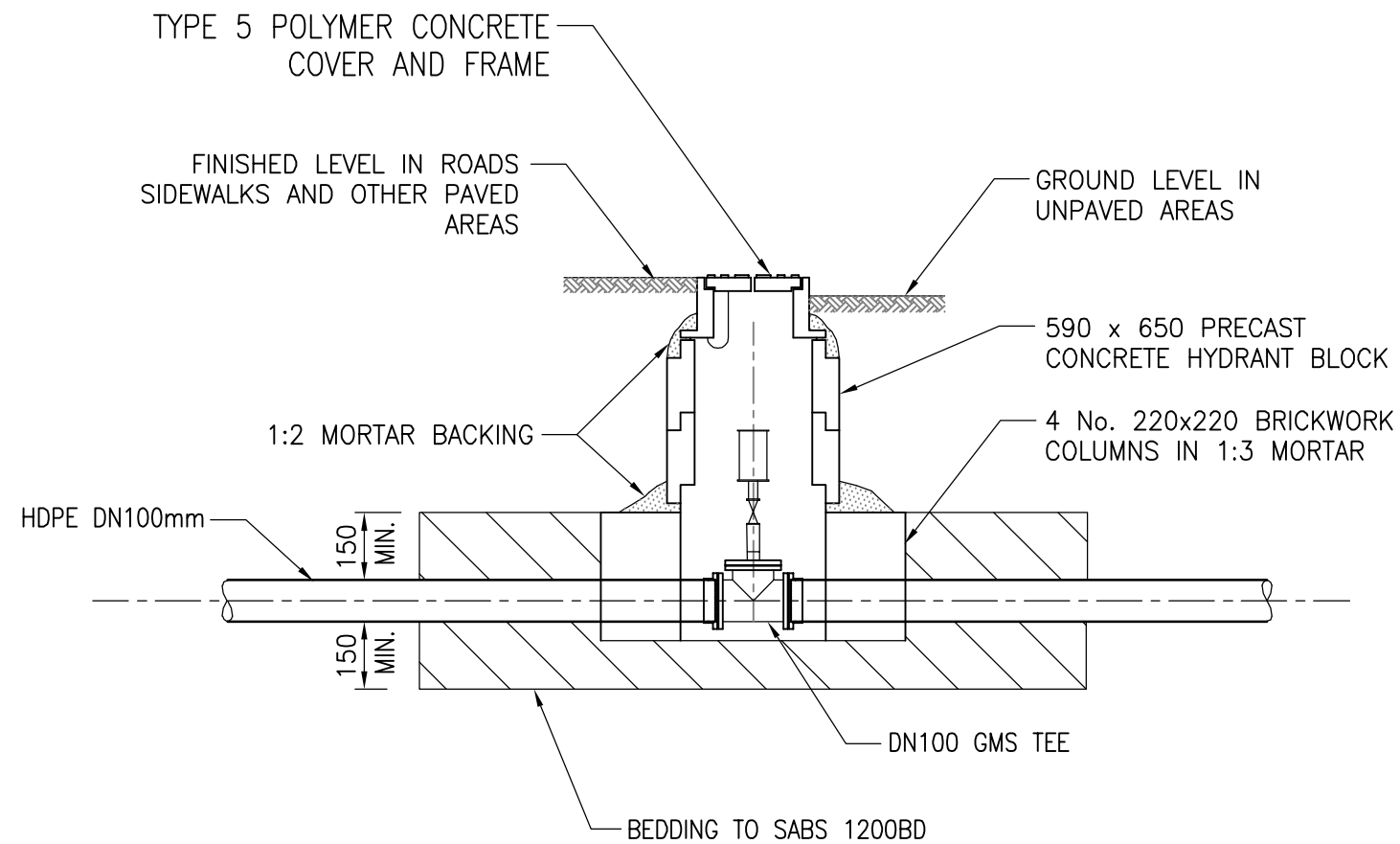


T	FOR TENDER PURPOSES	2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

DESIGNED	K.T.	2017
DRAWN	L.M.	2017
CHECKED	K.K.	2017
PROJ. MANAGER	K.T.	2017
PROJ. PRINCIPAL	K.T.	2017


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TITLE				
KNYSNA WATER EMERGENCY TYPICAL PIPE BEDDING				
APPROVED:	PROJECT No.	SCALE	DRAWING No.	REV
	MD1870	1:20	MD1870-ST-001	



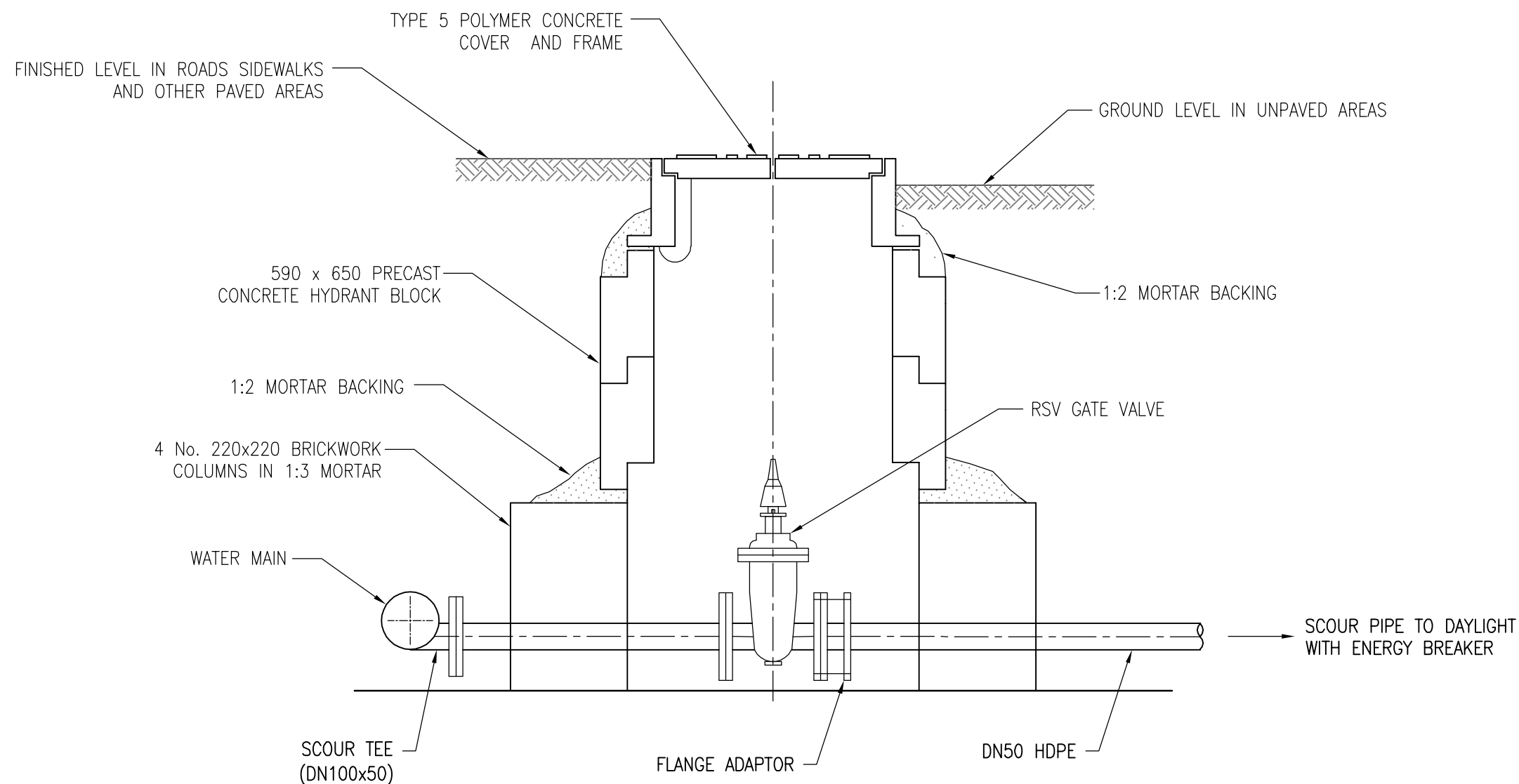
SECTION A-A
SCALE 1:20

T	FOR TENDER PURPOSES	2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

DESIGNED	K.T.	2017
DRAWN	L.M.	2017
CHECKED	K.K.	2017
PROJ. MANAGER	K.T.	2017
PROJ. PRINCIPAL	K.T.	2017


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TITLE KNYSNA WATER EMERGENCY AIR VALVE CHAMBER				
APPROVED:	PROJECT No. MD1870	SCALE 1:20	DRAWING No. MD1870-ST-002	REV T



DETAIL OF SCOUR VALVE CHAMBER

SCALE 1:10

T	ISSUED FOR TENDER PURPOSES	11/2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

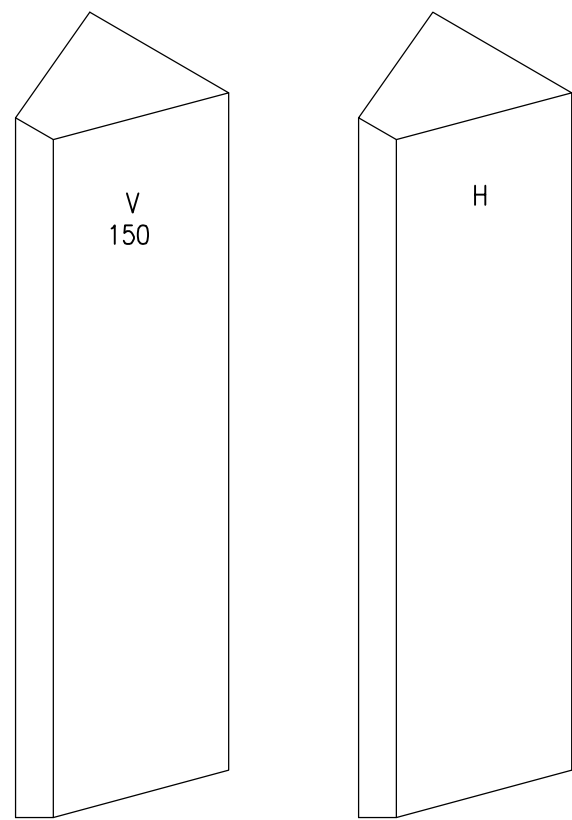
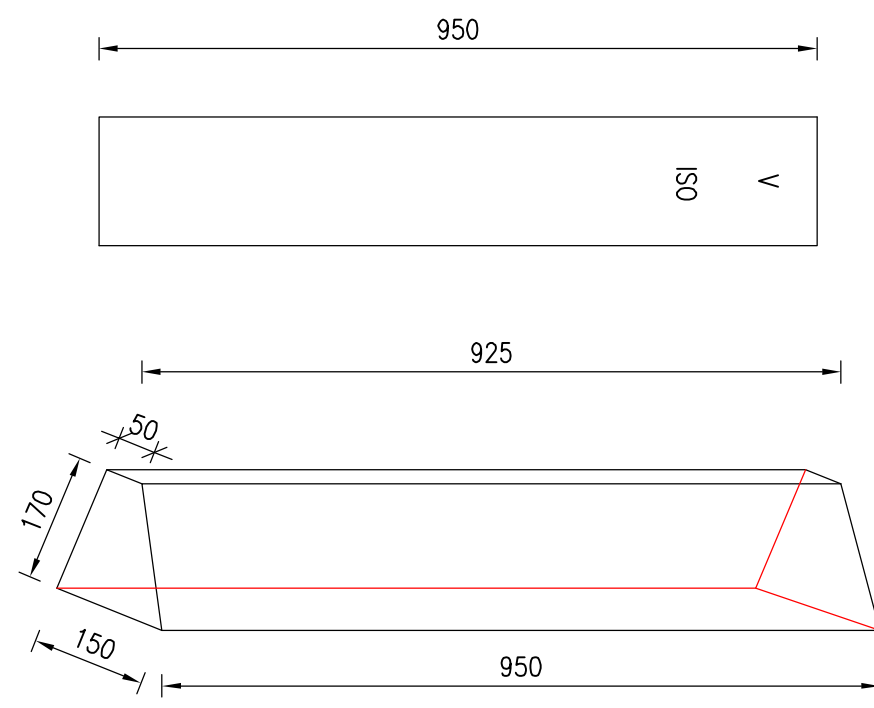
DESIGNED	-
DRAWN	L. MULLER
CHECKED	K. TURNER
APPROVED	
PROJ. PRINCIPAL:	K. TURNER
SIGNATURE:	DATE:



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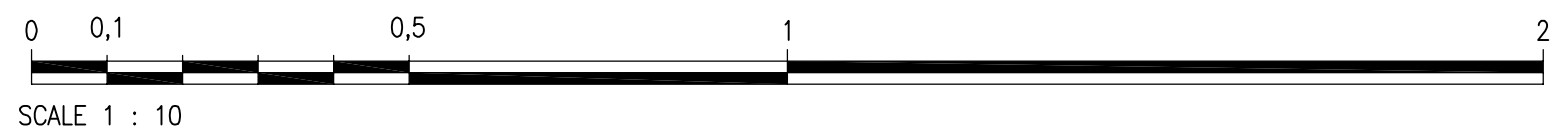
Tel: (021) 9367600
Fax: (021) 9367611
Email: capetown@rhdhv.com

TITLE				
KNYSNA EMERGENCY WATER SCOUR VALVE CHAMBER				
PROJECT No.	SCALE	DRAWING No.	REV	
MD1870	1:10	MD1870-ST-003		



HYDRANT	H
VALVES	V 50
	10
	V 700

ELEVATION
SCALE 1:10



T	ISSUED FOR TENDER PURPOSES	11/2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

DESIGNED	-
DRAWN	L. MULLER
CHECKED	K. TURNER
APPROVED	
PROJ. PRINCIPAL: K. TURNER	
SIGNATURE: DATE:	

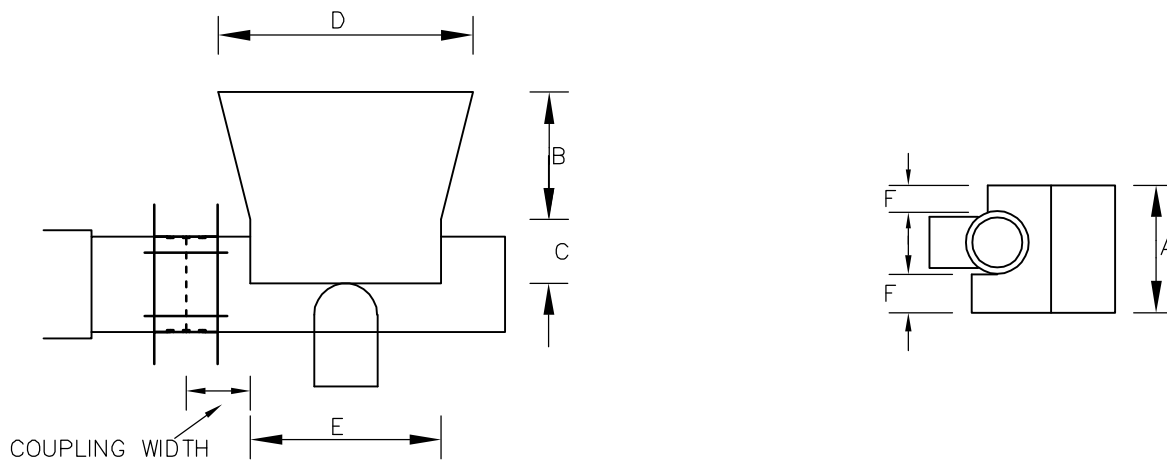


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TITLE KNYSNA EMERGENCY WATER VALVE MARKERS				
PROJECT No. MD1870		SCALE AS SHOWN	DRAWING No. MD1870-ST-004	REV 



DESIGN CRITERIA

SOIL RESISTANCE – 100kPa (CLAY)

TEST PRESSURE – 18 BAR

TEE SIZE (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	MINIMUM FACE AREAS (m)	VOLUME (m)
100 x 100	330	250	110	640	200	75	0.21	0.039
150 x 100	330	250	140	640	200	75	0.21	0.043
225 x 100	410	250	190	510	200	75	0.21	0.049
300 x 100	500	250	240	420	270	75	0.21	0.066
400 x 100	675	250	290	310	300	100	0.21	0.091
500 x 100	780	250	350	300	300	100	0.21	0.109
600 x 100	900	300	410	300	300	100	0.21	0.144
150 x 150	500	310	140	880	260	75	0.44	0.092
225 x 150	500	310	190	880	260	75	0.44	0.101
300 x 150	500	310	240	880	270	75	0.44	0.112
400 x 150	675	250	290	650	300	100	0.44	0.120
500 x 150	780	250	350	570	300	100	0.44	0.135
600 x 150	900	250	410	490	300	100	0.44	0.152
225 x 225	900	370	190	1070	340	100	0.96	0.232
300 x 225	900	400	240	1070	270	100	0.96	0.251
400 x 225	900	370	290	1070	340	100	0.96	0.268
500 x 225	900	370	350	1070	340	100	0.96	0.285
600 x 225	900	370	410	1070	340	100	0.96	0.307



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TITLE

KNYSNA EMERGENCY WATER
THRUST BLOCK DETAILS FOR TEE PIECES

PROJECT No.
MD1870

SCALE
N.T.S.

DRAWING No.
MD1870-ST-005

REV
A

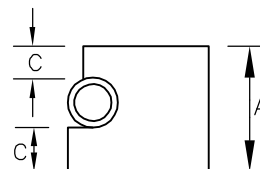
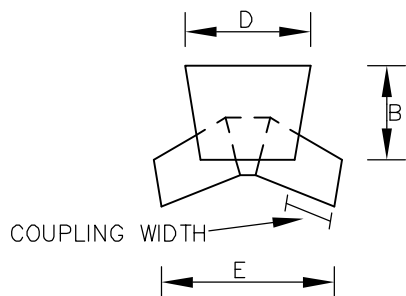
APPROVED :
K. TURNER

DRAWN
L. MULLER

DATE
11/2017

CHECKED
K. KOSTER

DATE
11/2017



DESIGN CRITERIA

SOIL RESISTANCE – 100kPa (CLAY)
TEST PRESSURE – 18 BAR

(mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	MIN. FACE AREA (m)	VOLUME (m)
11 1/4° BEND							
100	300	300	50	400	50	0.029	0.018
150	300	300	50	400	100	0.065	0.022
225	360	300	50	405	100	0.146	0.033
300	500	300	75	520	400	0.259	0.069
400	670	400	100	700	500	0.461	0.161
500	800	400	100	900	500	0.720	0.222
600	1000	400	150	1050	500	1.037	0.310
22 1/2° BEND							
100	300	300	50	400	100	0.058	0.020
150	300	300	50	400	150	0.130	0.024
225	400	300	50	750	200	0.292	0.054
300	500	300	75	1000	500	0.518	0.113
400	650	500	100	1400	500	0.922	0.313
500	800	700	100	1800	600	1.440	0.665
600	1000	800	150	2000	600	2.074	1.040
45° BEND							
100	300	350	50	400	175	0.115	0.026
150	300	400	50	860	300	0.260	0.067
225	400	500	50	1450	400	0.583	0.176
300	600	600	75	1700	700	1.037	0.396
400	800	800	100	2300	900	1.843	0.940
500	1000	900	150	2800	1100	2.880	1.652
600	1100	1700	150	3700	1300	4.147	4.463
90° BEND							
100	400	450	50	500	300	0.202	0.056
150	400	500	50	1150	400	0.454	0.131
225	600	700	50	1700	650	1.021	0.394
300	700	850	75	2600	900	1.814	1.041
400	1000	1100	100	3230	1000	3.226	1.940
500	1200	1600	150	4200	1100	5.040	4.416
600	1400	2000	150	5200	1300	7.258	7.800



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TITLE

KNYSNA EMERGENCY WATER THRUST BLOCK DETAILS FOR BENDS

PROJECT No.
MD1870

SCALE
N.T.S.

DRAWING No.
MD1870-ST-006

REV
A

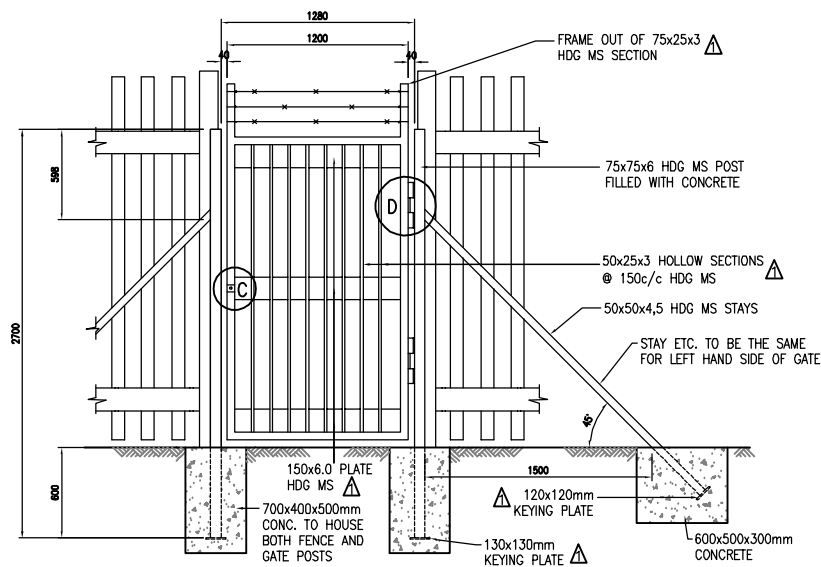
APPROVED :
K. TURNER

DRAWN
L. MULLER

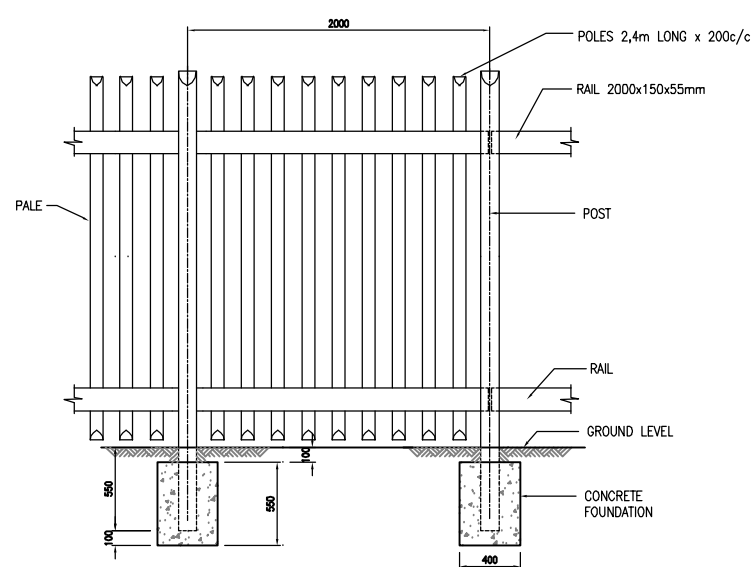
DATE
11/2017

CHECKED
K. KOSTER

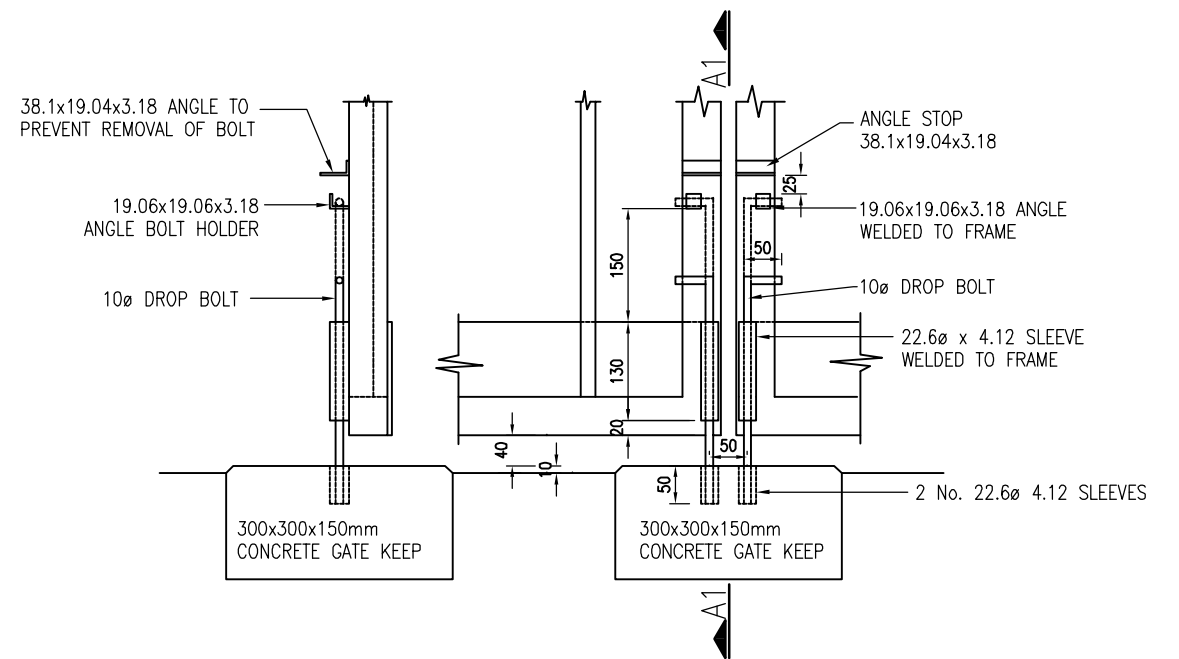
DATE
11/2017



ELEVATION
PEDESTRIAN GATE
SCALE 1:50

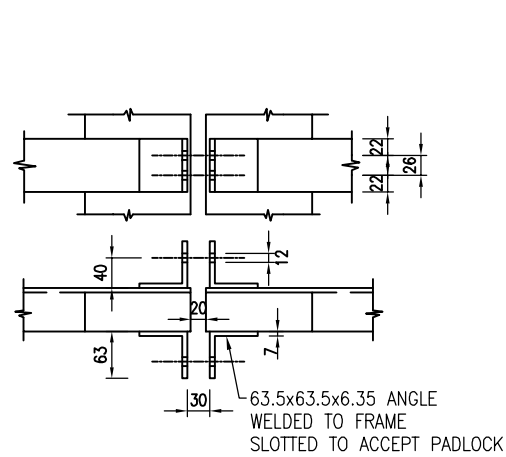


ELEVATION
PRECAST CONCRETE PALISADE FENCING
SCALE 1:50

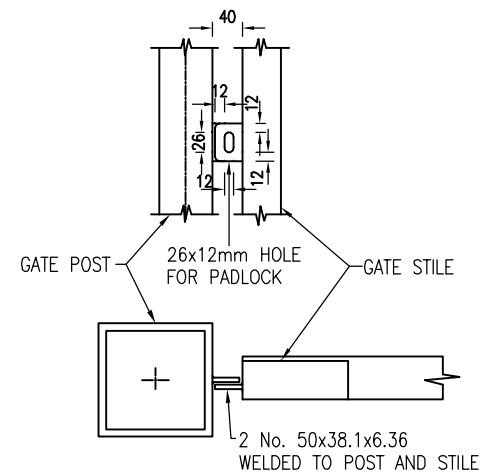


SECTION A1
SCALE 1:10

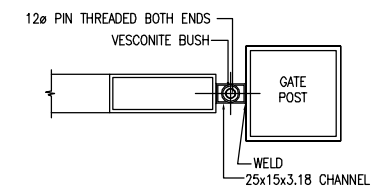
DROP BOLT - DETAIL A
SCALE 1:10



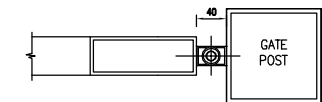
GATE LOCKING PLATE - DETAIL B
SCALE 1:10



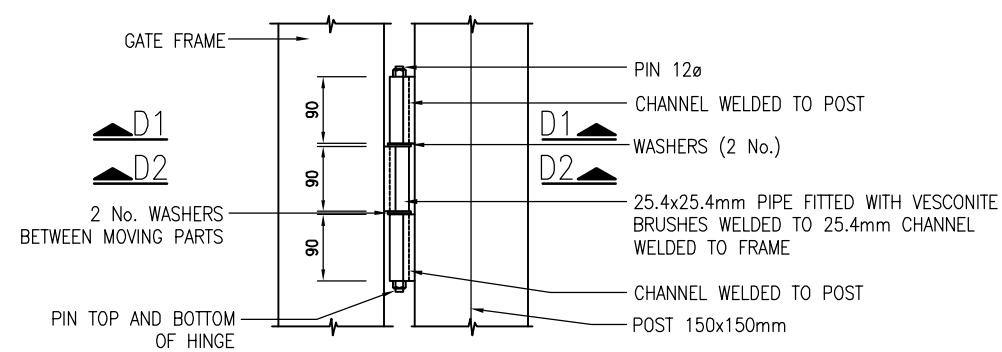
PEDESTRIAN GATE LOCKING PLATE - DETAIL C
SCALE 1:10



SECTION D1
SCALE 1:10



SECTION D2
SCALE 1:10



HINGE - DETAIL D
SCALE 1:10

- LEGEND:**
HDG - HOT DIP GALVANISED
MS - MILD STEEL
- NOTES:**
1. GATE POSTS TO BE SITED INTERNALLY BEHIND CONCRETE END POSTS WITH CLEARANCE OF 10mm.
2. BARBED WIRE TO BE 3 STRANDS OF 2.5mm DOUBLE STRANDED ALUMINIUM.
3. CONCRETE TO FOUNDATIONS TO BE GRADE 20/19.
4. ALL SECTIONS TO BE SUITABLY CAPPED.
5. ALL JOINTS TO BE WELDED.
6. ALL STEELWORK (INCLUDING NUTS, BOLTS AND WASHERS) TO BE HOT DIP GALVANISED TO SABS 763 FOR HEAVY DUTY APPLICATIONS AFTER ALL DRILLING AND WELDING HAS BEEN COMPLETED.

T	ISSUED FOR TENDER PURPOSES	11/2017	L.M.	K.K.
REV	DESCRIPTION	DATE	REV BY	CHKD
REVISIONS				

DESIGNED	-
DRAWN	L. MULLER
CHECKED	K. TURNER
APPROVED	
PROJ. PRINCIPAL:	K. TURNER
SIGNATURE:	DATE:

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TITLE KNYSNA EMERGENCY WATER PALISADE FENCE				
PROJECT No. MD1870	SCALE AS SHOWN	DRAWING No. MD1870-ST-007	REV 	