Zone 1

Legend

River Rehabilitation Sites

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 1

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| Date: 08/02/2016 | Compiled by: PAUJ |
| Project No. 472748 | Scale 1:7,369 |

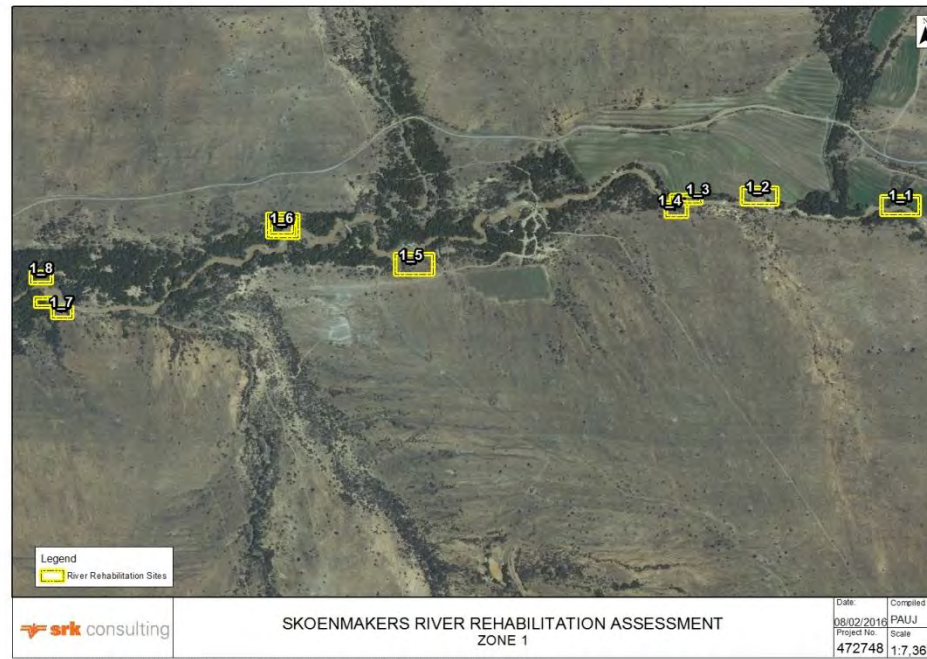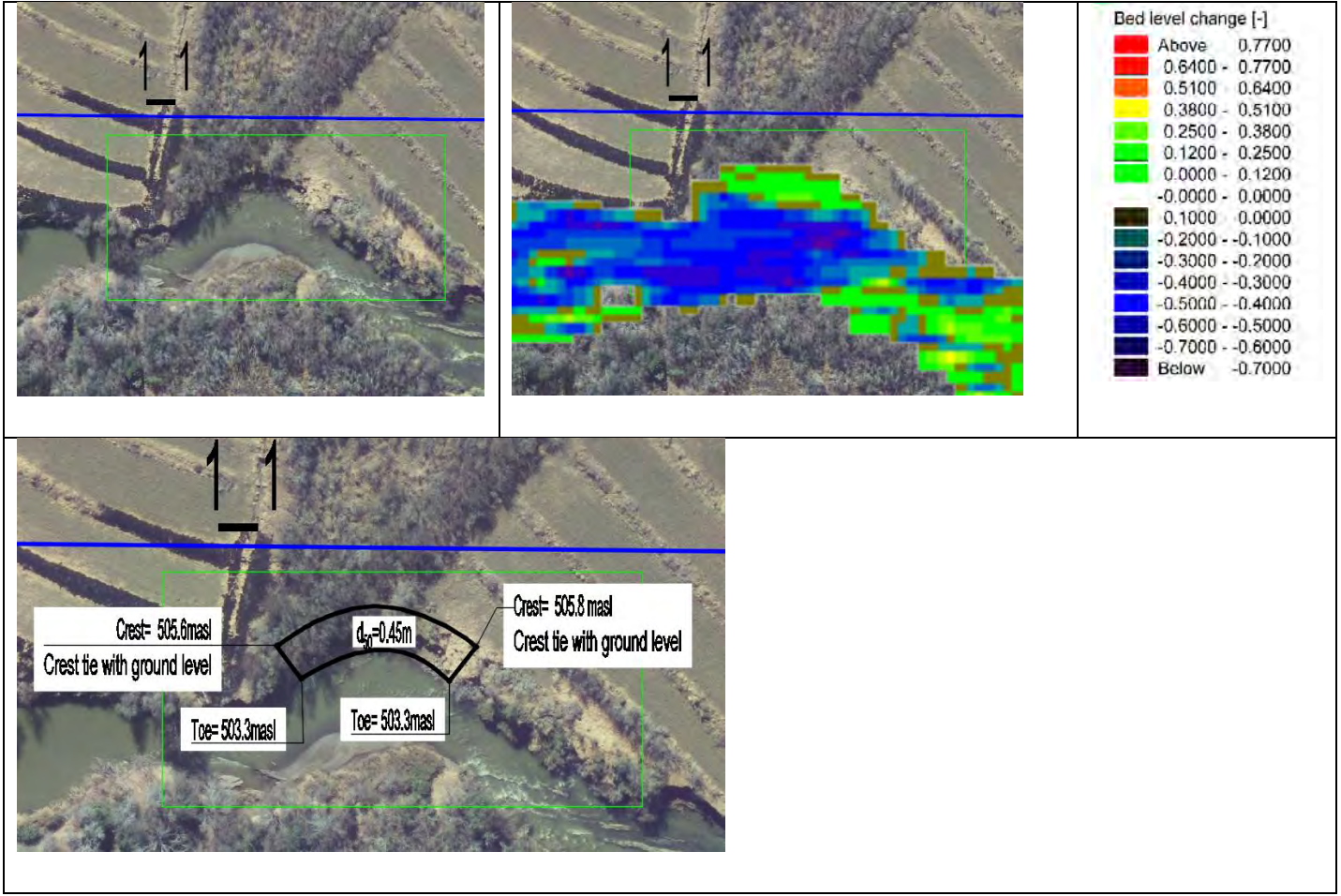Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

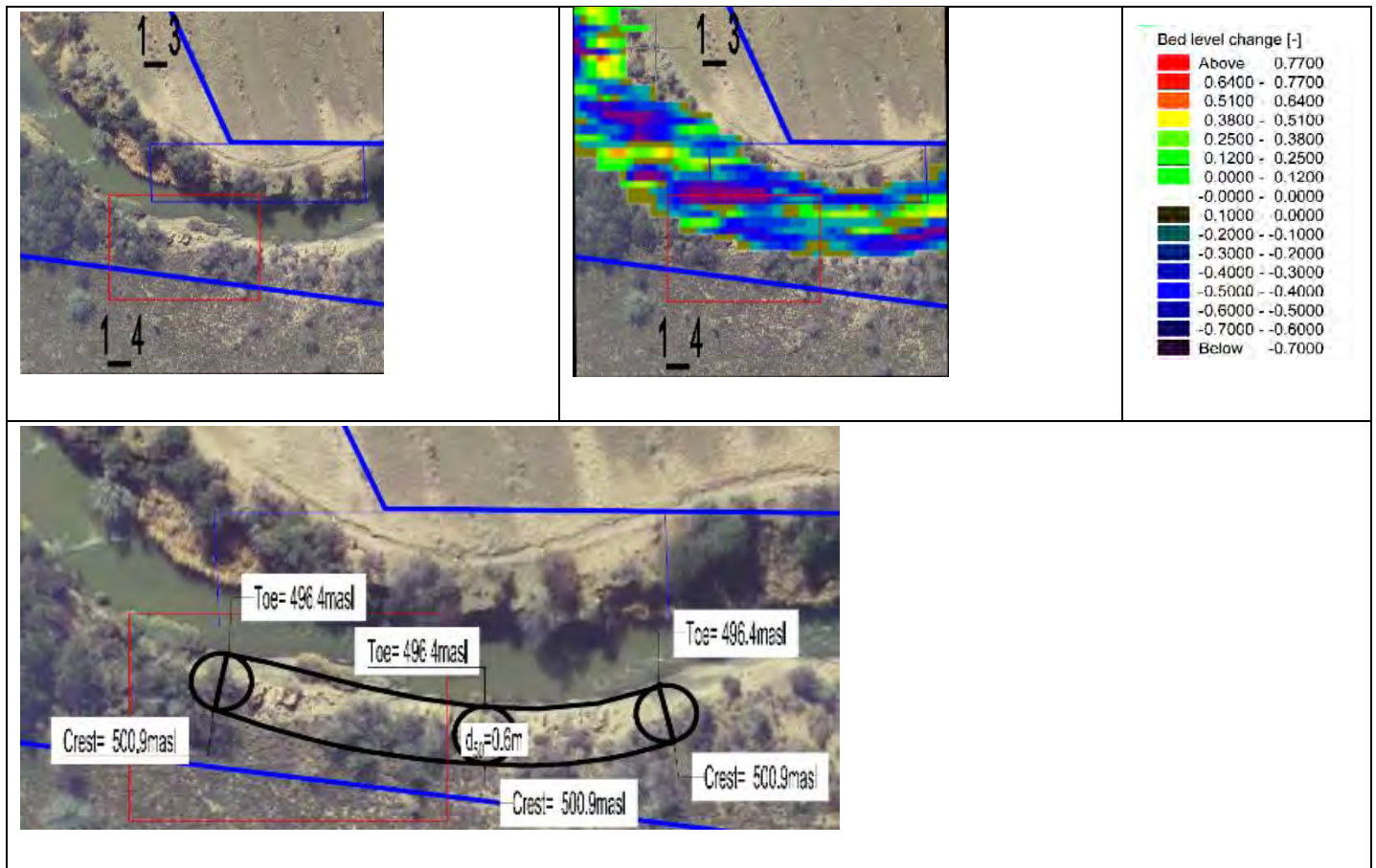**Zone 1_1** This area is within the servitude and has unstable banks encroaching farmland.

Zone 1_2 This area is within the servitude and has unstable banks. Due to the bedrock at the location, the banks do not need protection and the servitude seems incorrect.
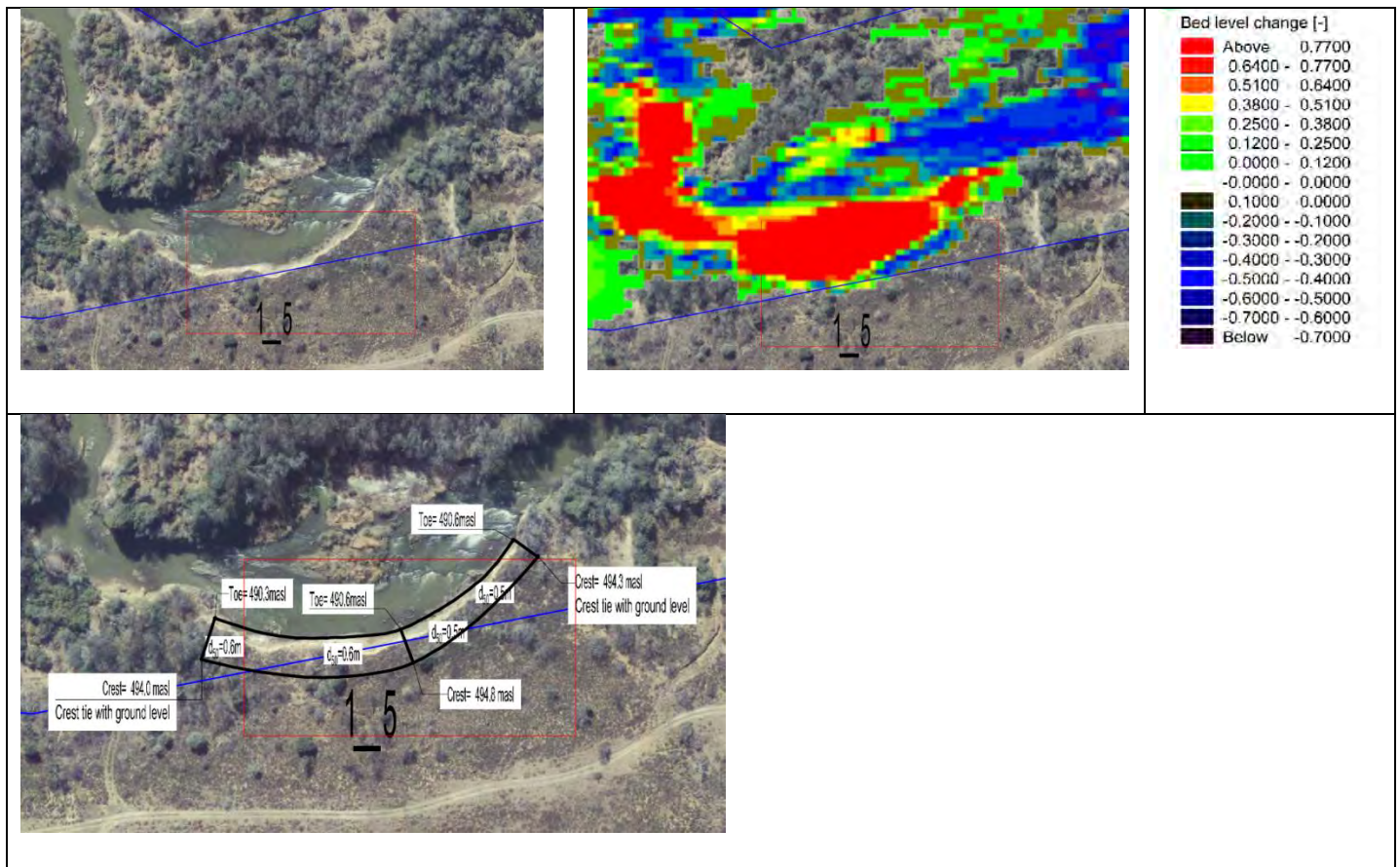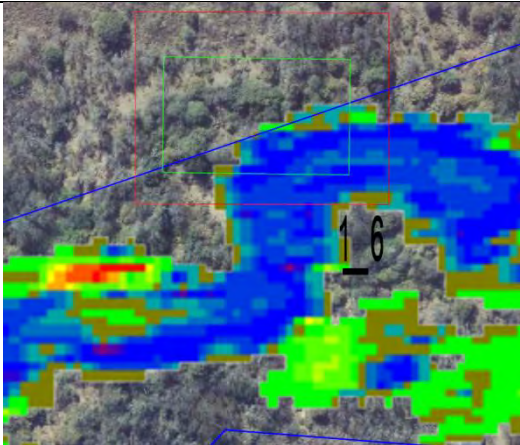
Zone 1_3 and 1_4 This area is within the servitude and protection does not seem necessary.

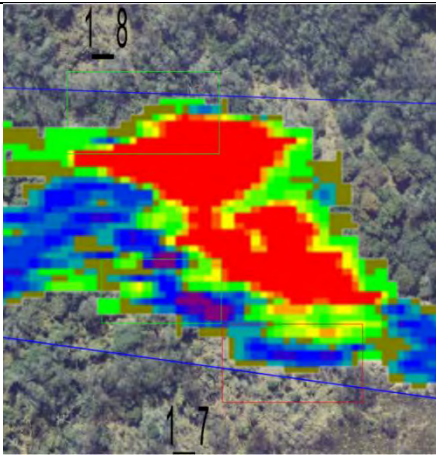**Zone 1_5** This area is within the servitude and has unstable banks encroaching a road.

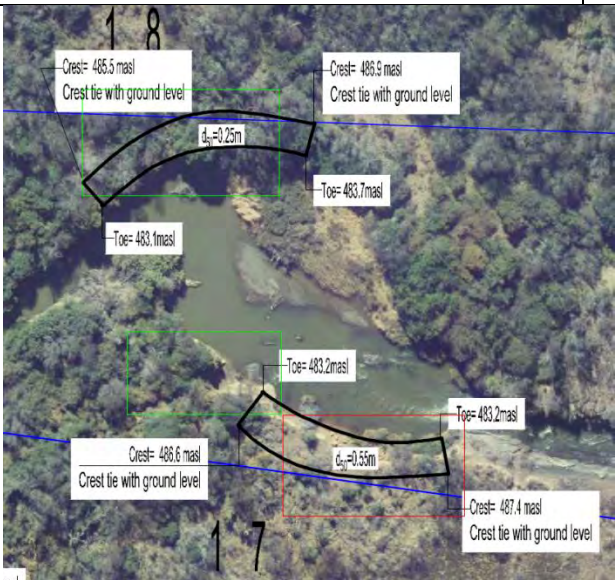**Zone 1_6** This area has unstable banks crossing the servitude.

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 1_7 This area is within the servitude but encroaching the servitude.

Zone 1_8 This area has banks partially crossing the servitude.

Zone 2

Legend
River Rehabilitation Sites

srk consulting

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 2

Date: 08/02/2016
Compiled by: PAUJ
Project No. 472748
Scale 1:7,500
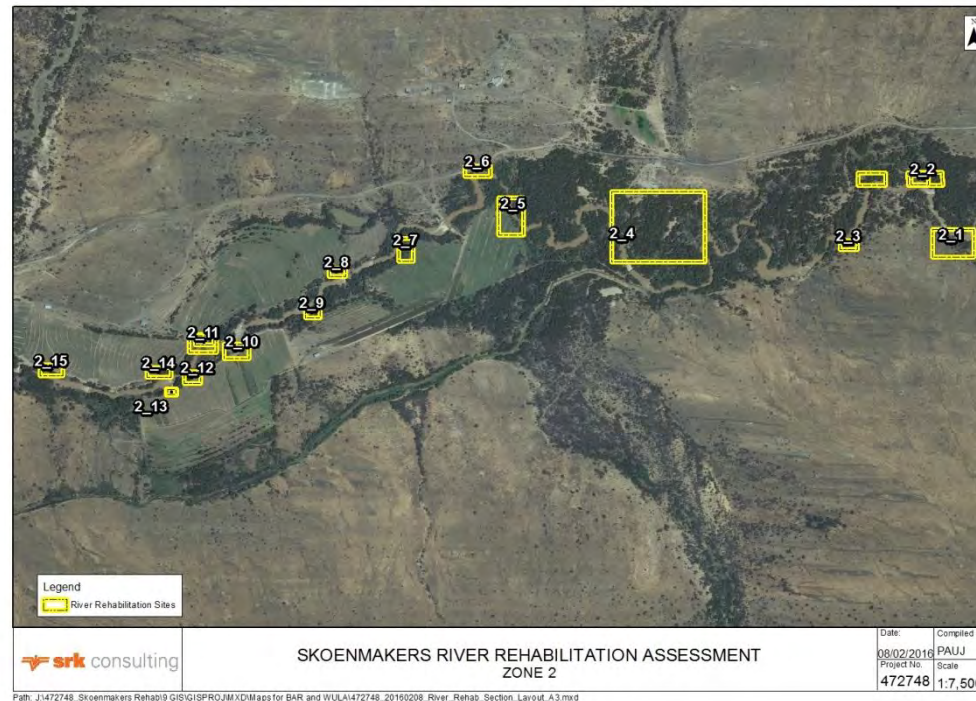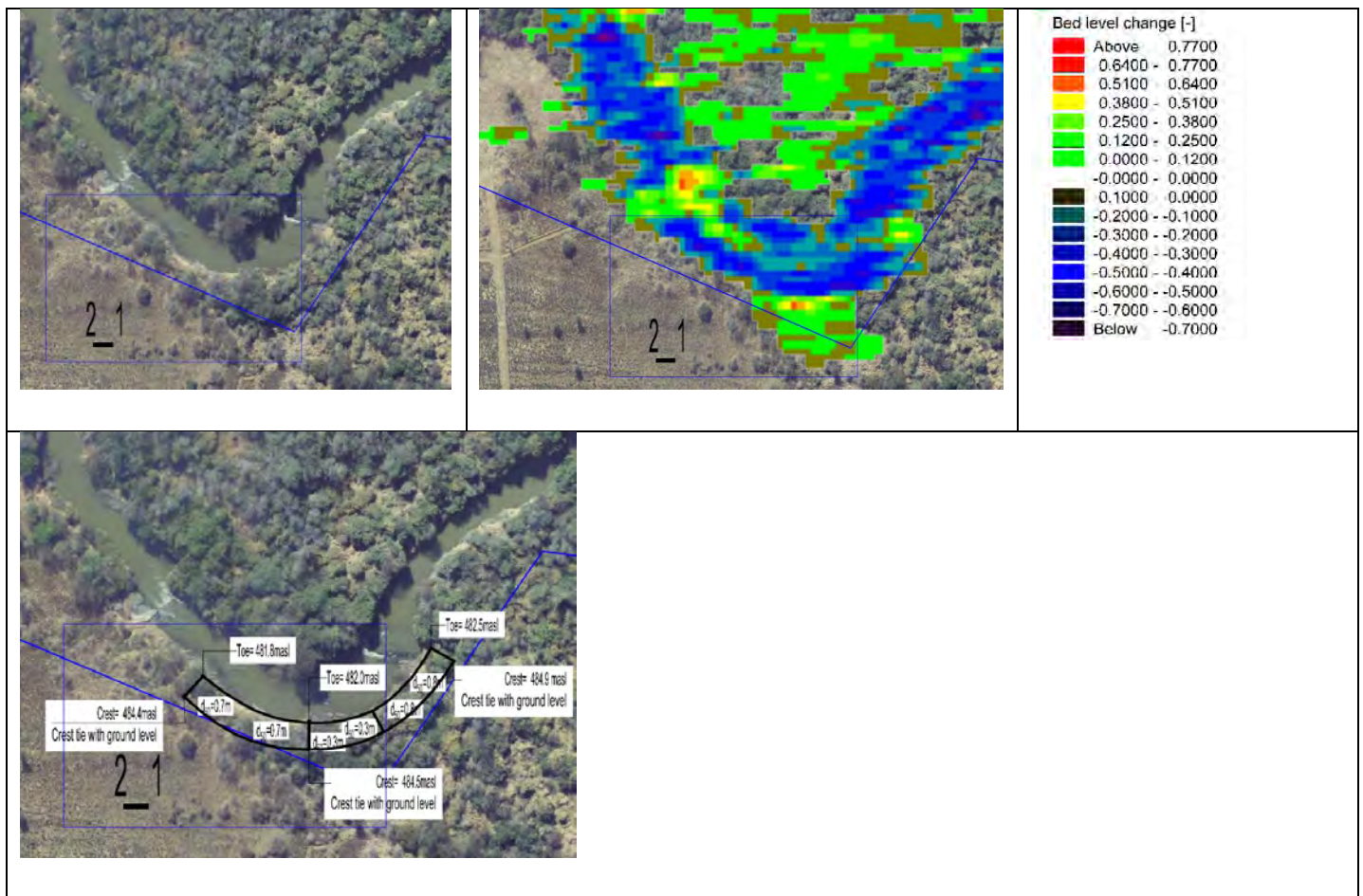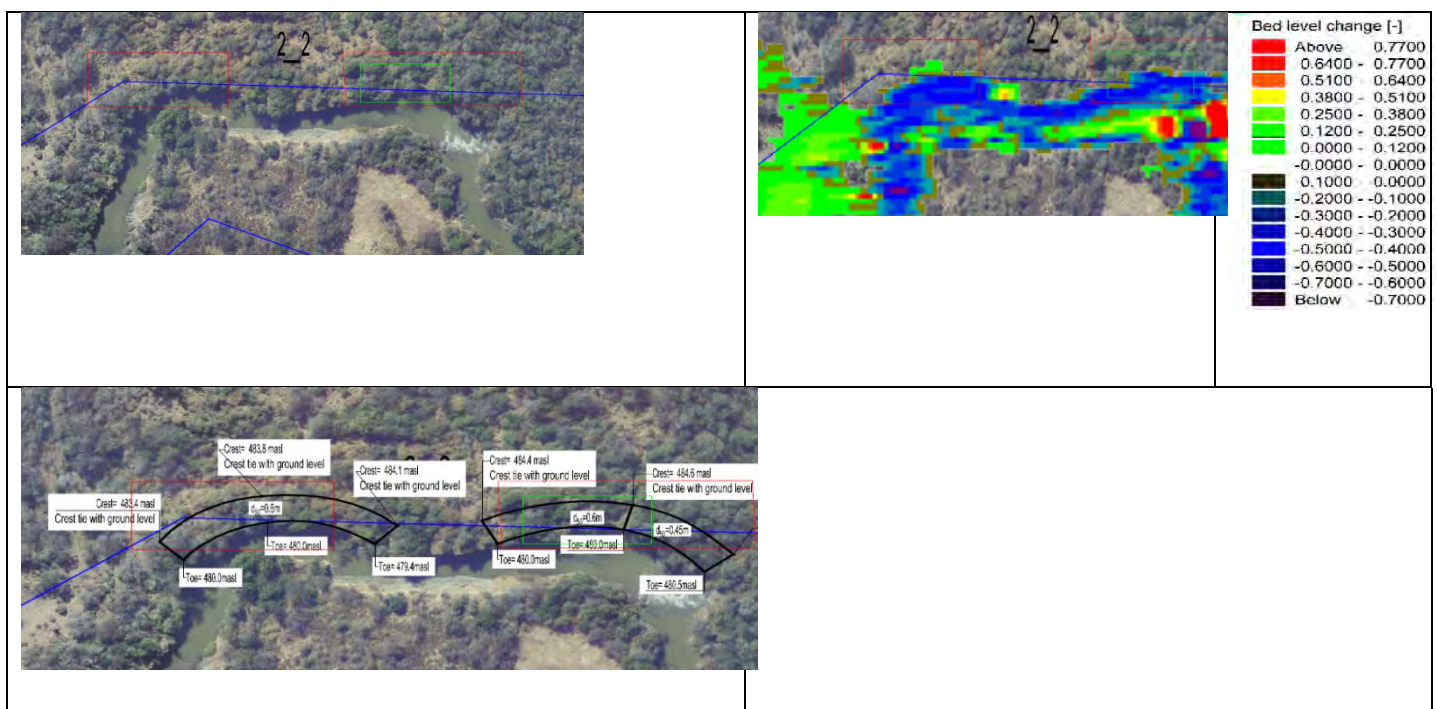
Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJIMXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

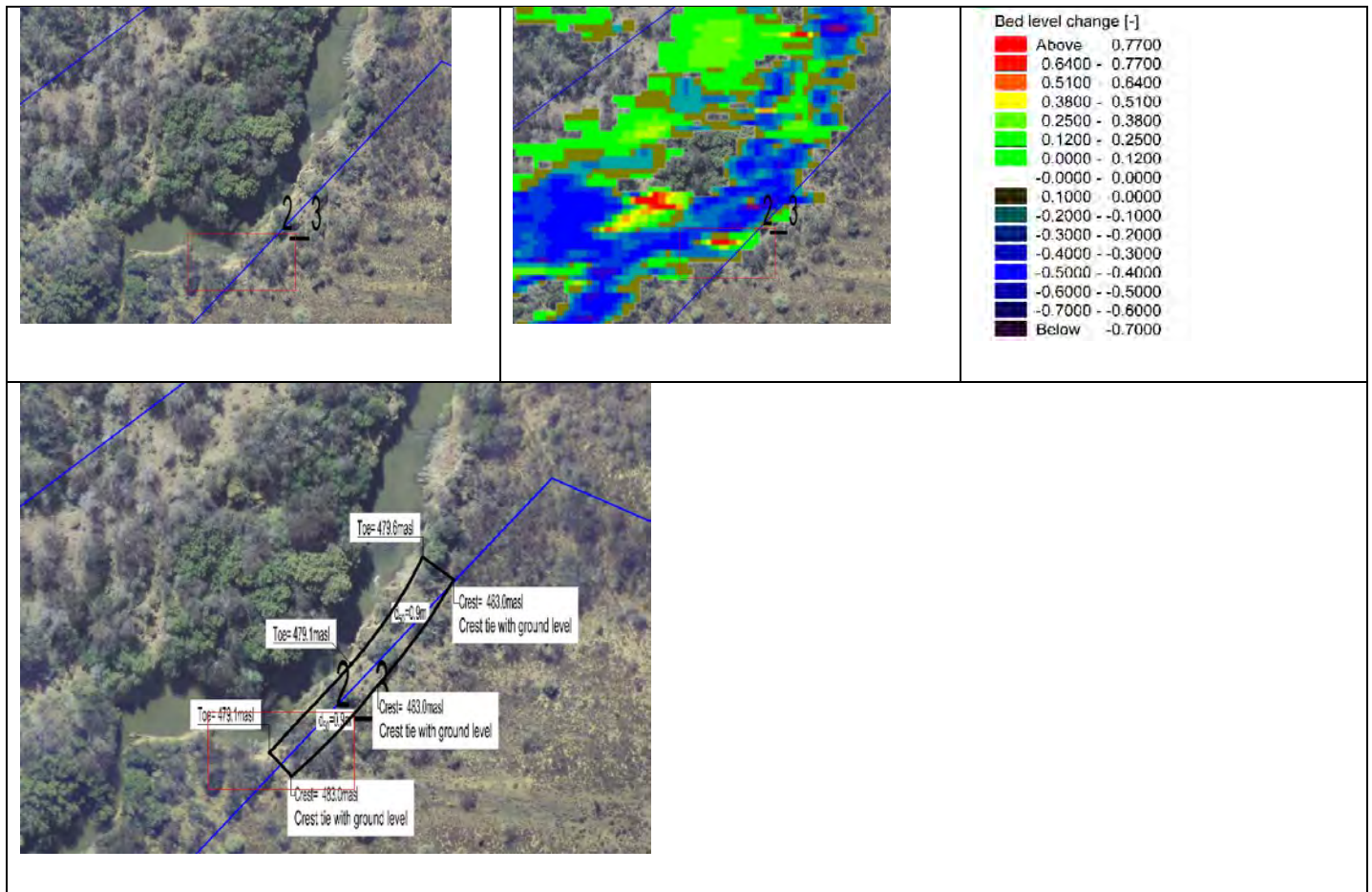**Zone 2_1** The banks are encroaching the servitude but protection does not seem necessary.

Zone 2_2 This area has unstable banks crossing the servitude.

Zone 2_3 This area has unstable banks are encroaching on the servitude.

Zone 2_4 This area crosses the servitude but due the wide flood plain flow, protection is not viable
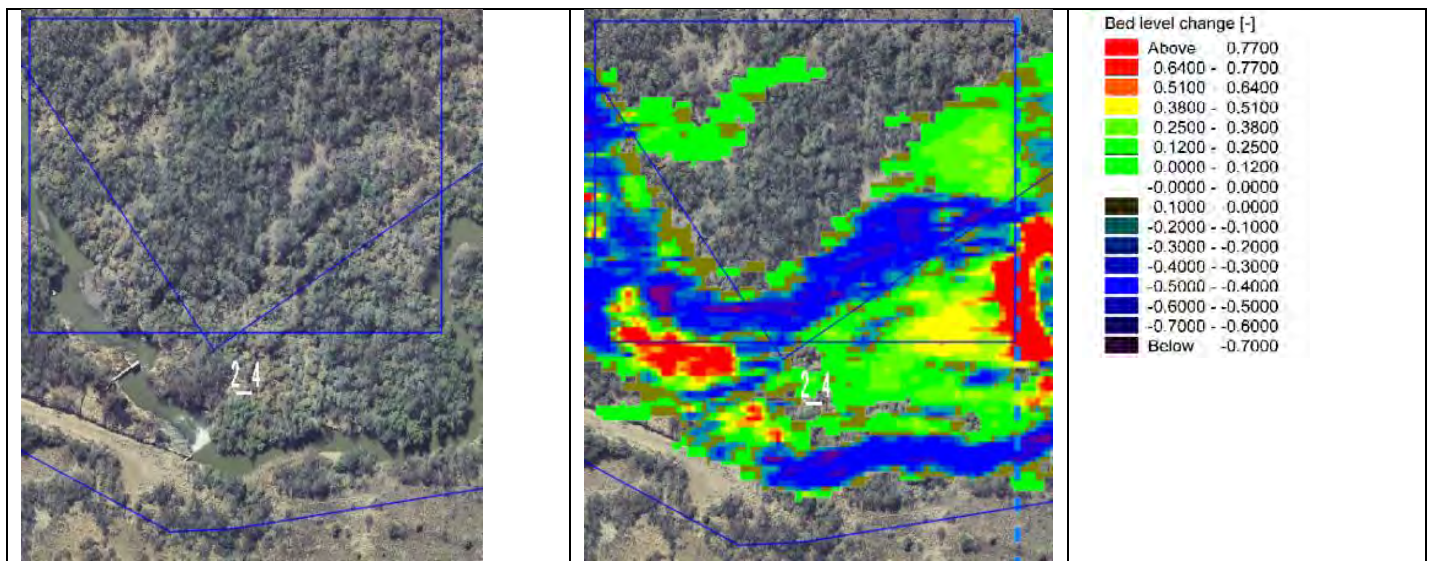
Zone 2_5 This area is within the servitude but encroaches farmland that is within the servitude.

Zone 2_6 This area is within the servitude but has unstable banks that encroach a road.
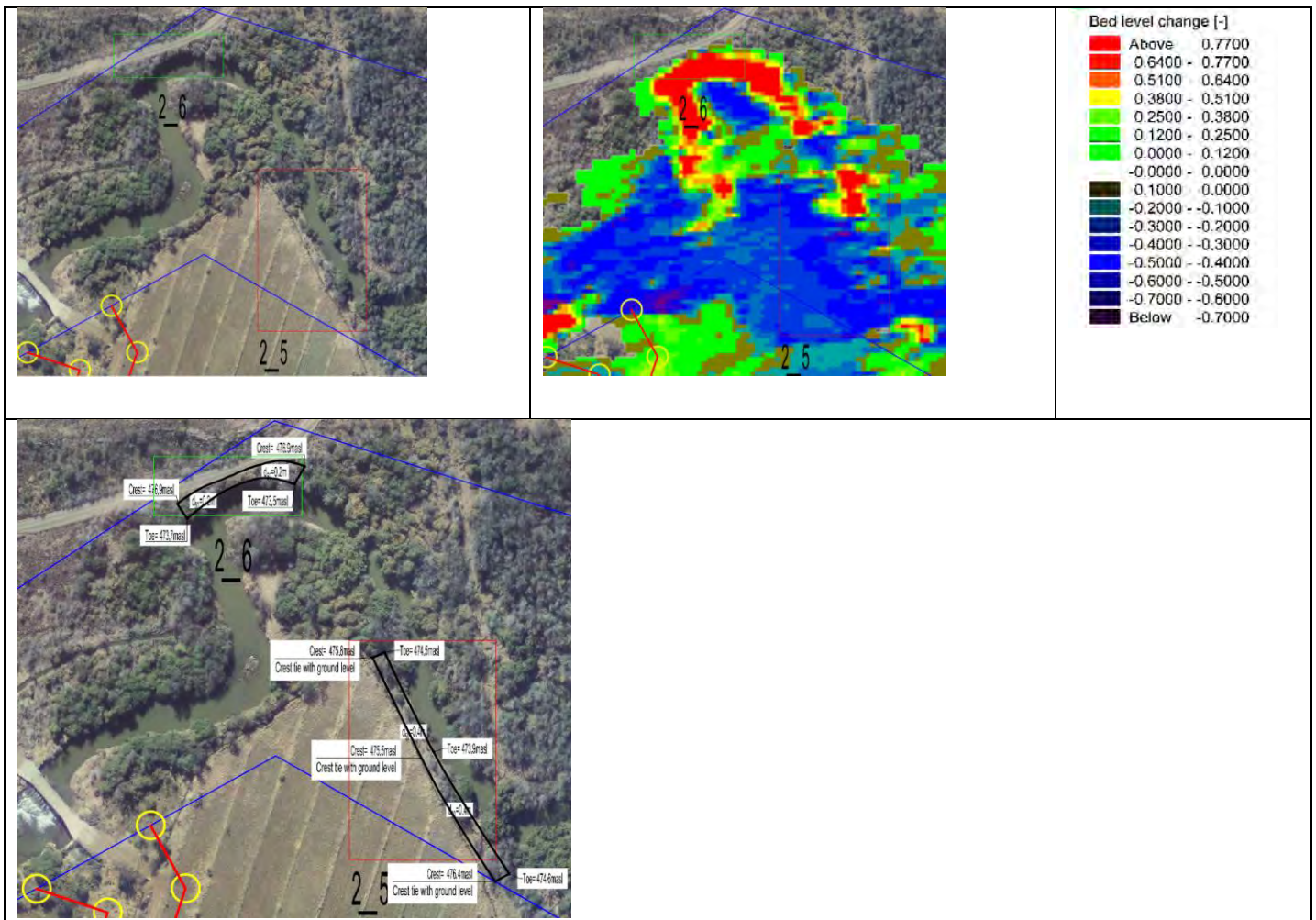
Zone 2_7 This area is within the servitude but encroaches farmland that is within the servitude. Protection does not seem necessary.
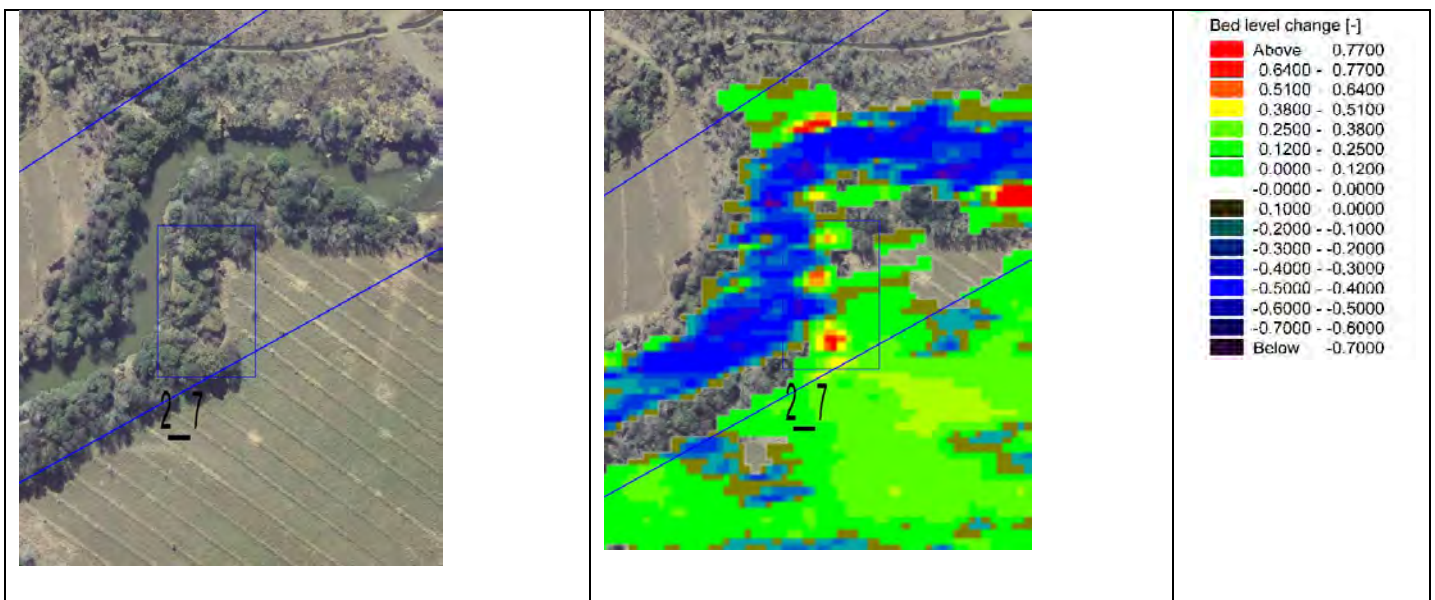
Zone 2_8 and 2_9 The banks are encroaching the servitude and farmland
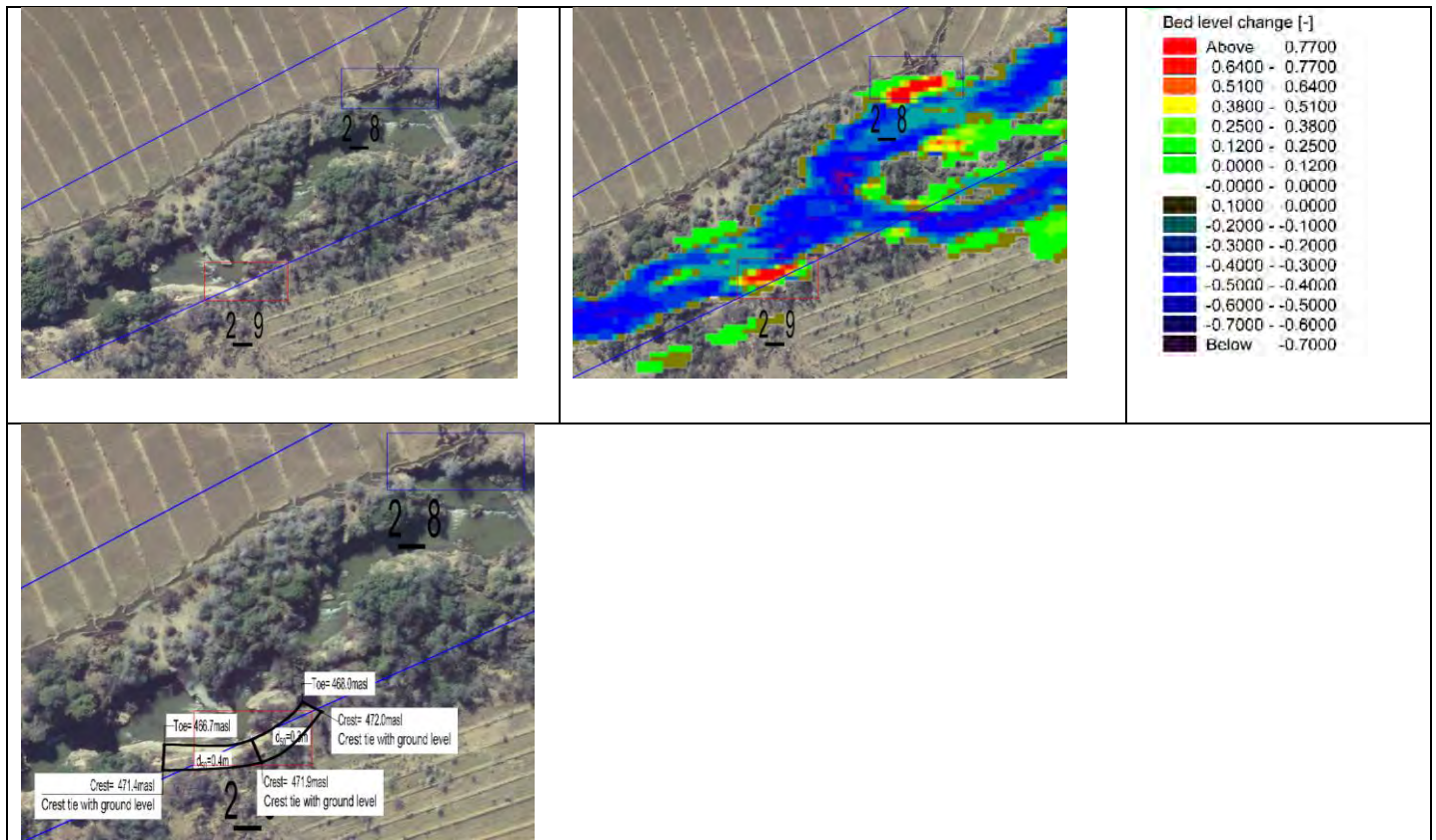
Zone 2_10 The banks are encroaching the road but within the servitude.

Zone 2_11 The unstable banks are crossing the servitude and encroaching onto farmland.
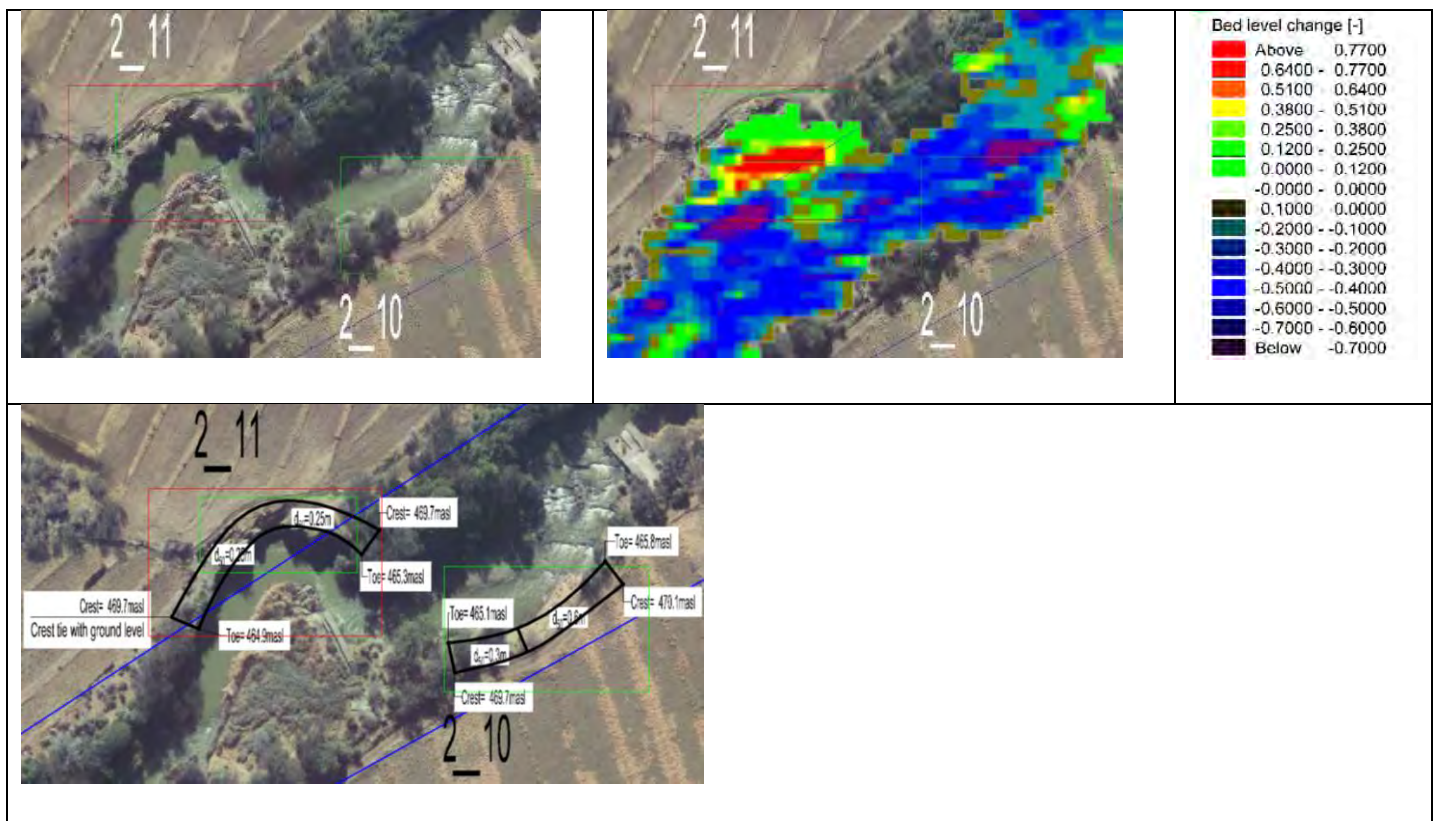
Zone 2_12 and 2_14 This area is within the servitude but encroaches farmland. An old weir diverts water inducing erosion. Protection does not seem necessary.

Zone 2_13 The unstable banks are encroaching the servitude and farmland.
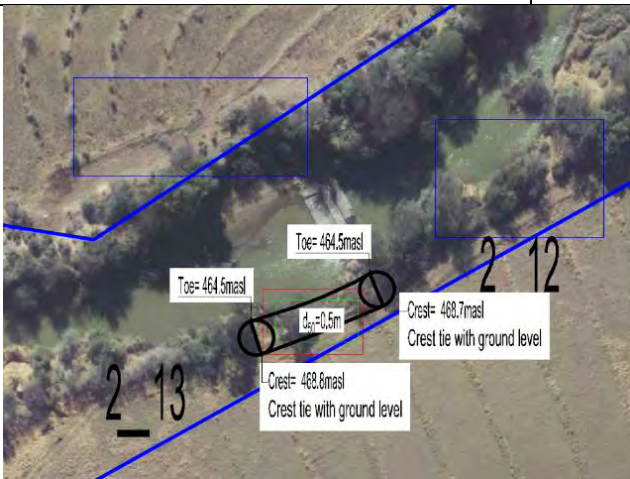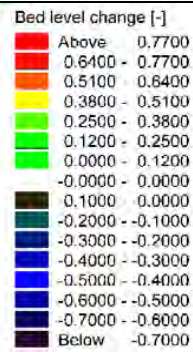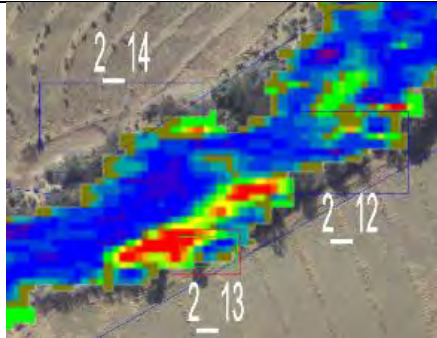
Zone 2_15 The unstable banks are encroaching the servitude and farmland. Protection was deemed not necessary

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
-0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 3

Legend
River Rehabilitation Sites

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 3

Date: 08/02/2016
Compiled by: PAUJ
Project No. 472748
Scale 1:5,626

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 3_1 The zone has unstable banks crossing the servitude.

Zone 3_2 Flow in this area is in a wide floodplain crossing the servitude and protection in not viable.
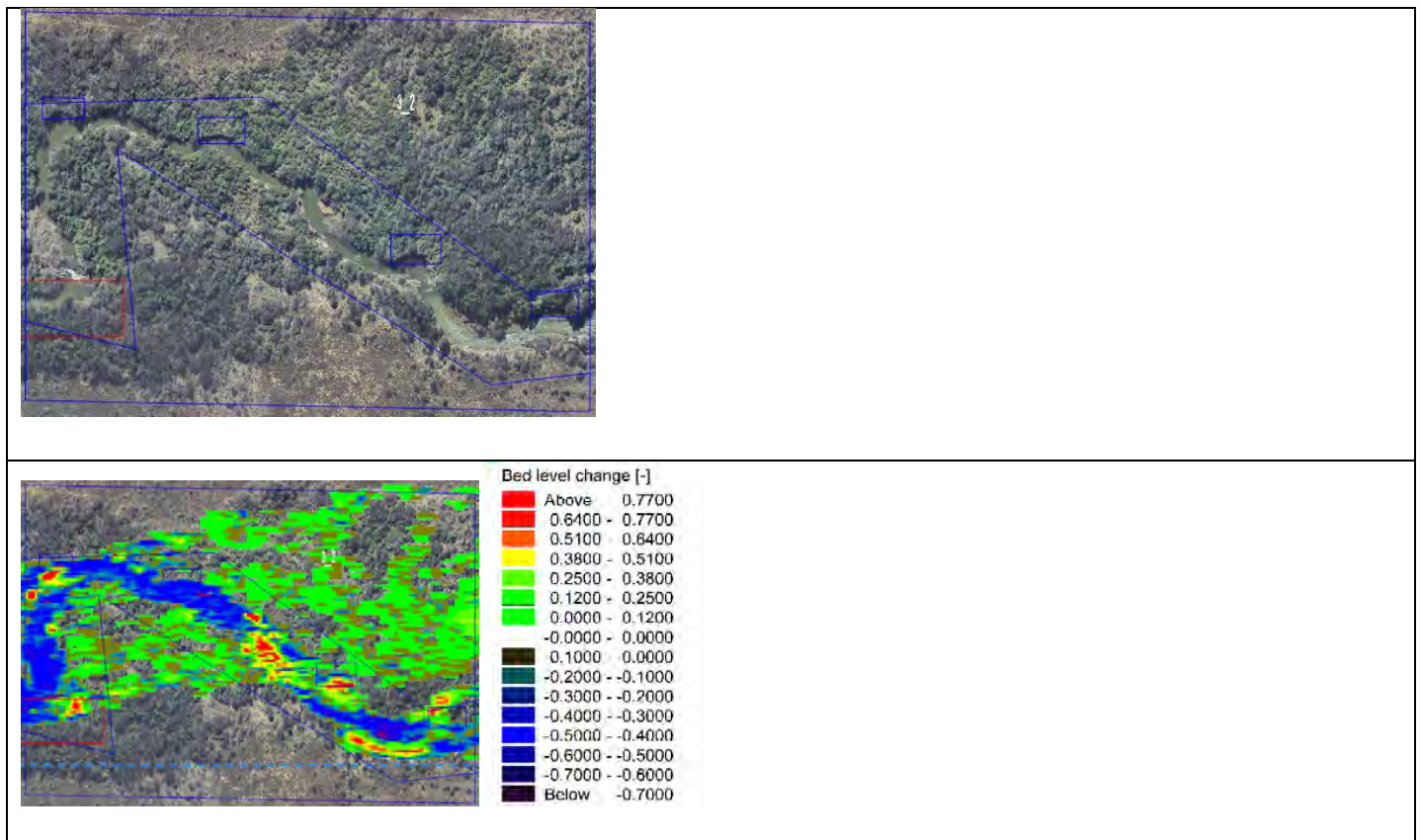
Zone 3_3 The zone has unstable banks crossing the servitude

Zone 3_4 Flow in this area is in a wide floodplain and protection is not necessary.
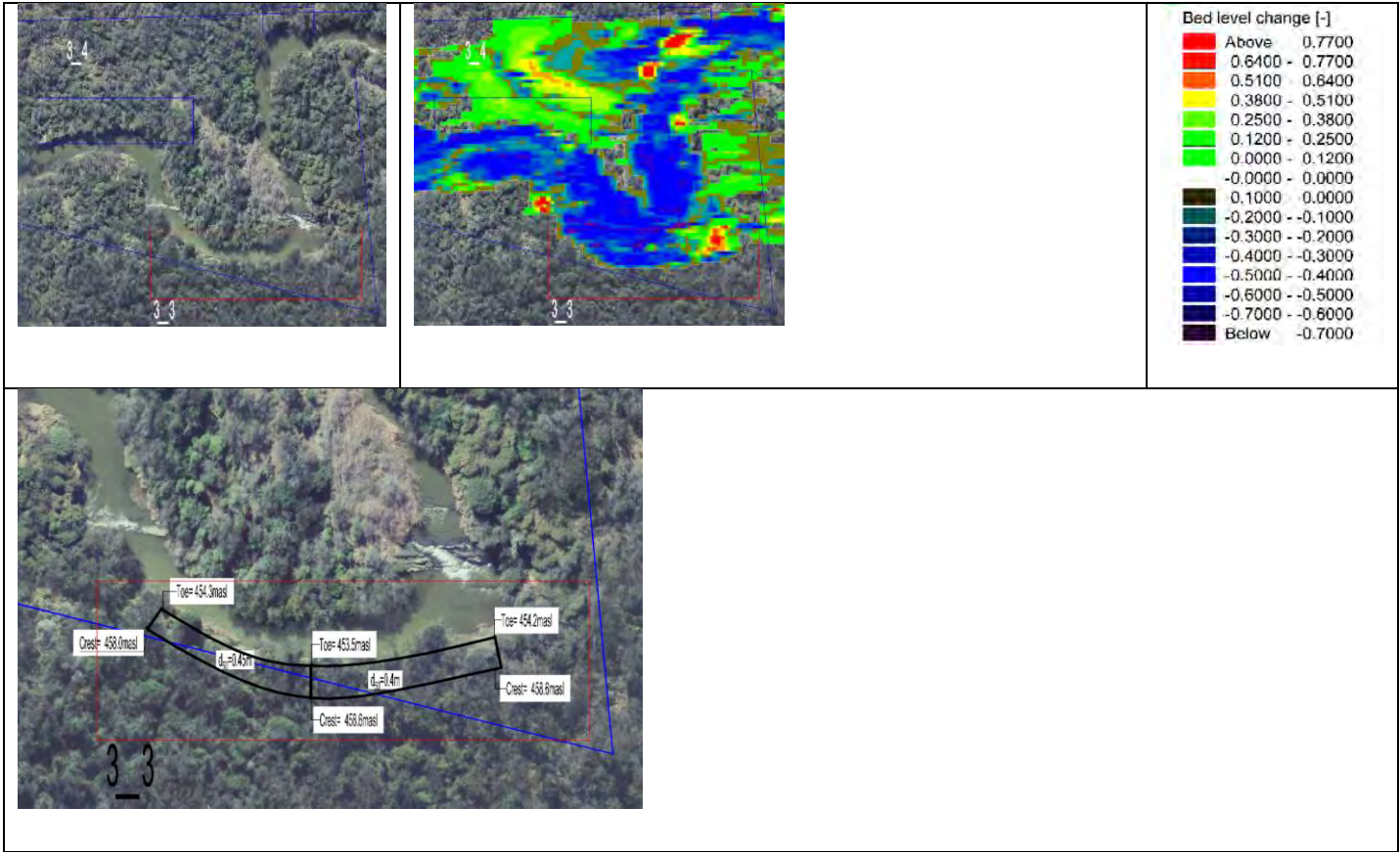
Zone 3_5 The zone has unstable banks crossing the servitude.

Zone 3_6 The zone has unstable banks but within the servitude. Protection was found not necessary.
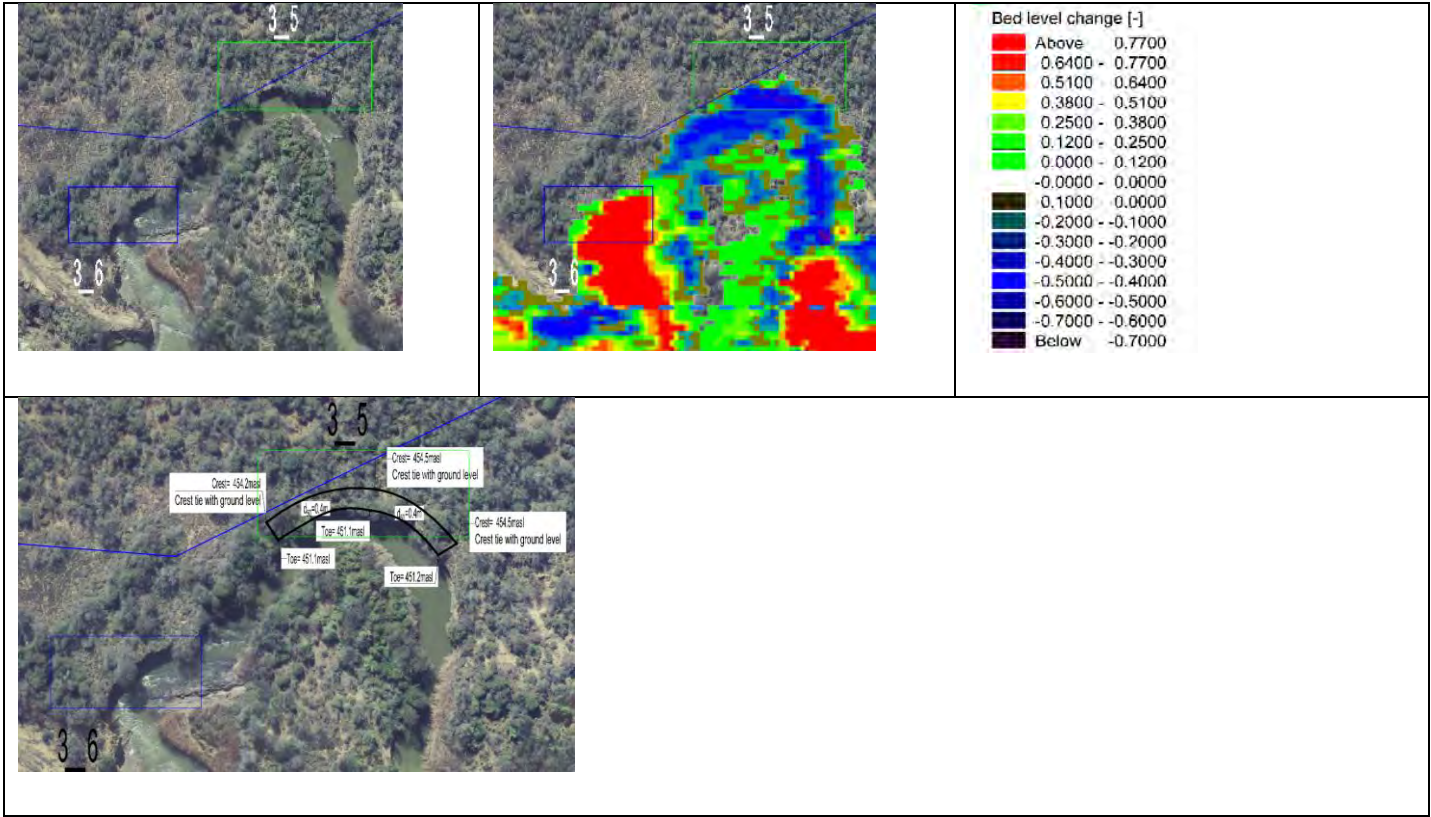
Zone 3_7 The zone has unstable banks encroaching the servitude and road.

Zone 3_8 The zone has unstable banks within the servitude. Protection was found not necessary.
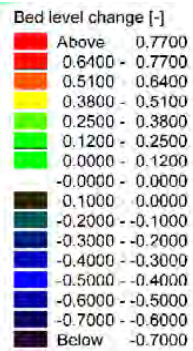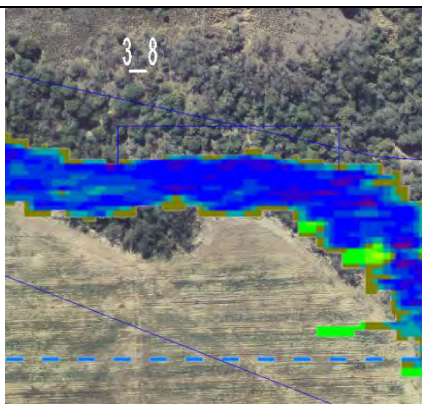
Zone 3_9 The zone has unstable banks encroaching the servitude and farmland.

Zone 3_10 The zone has unstable banks within the servitude. Protection was found not necessary.

Zone 4

Legend
River Rehabilitation Sites

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 4

Date: 08/02/2016
Project No. 472748
Compiled by: PAUJ
Scale 1:4,500

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd
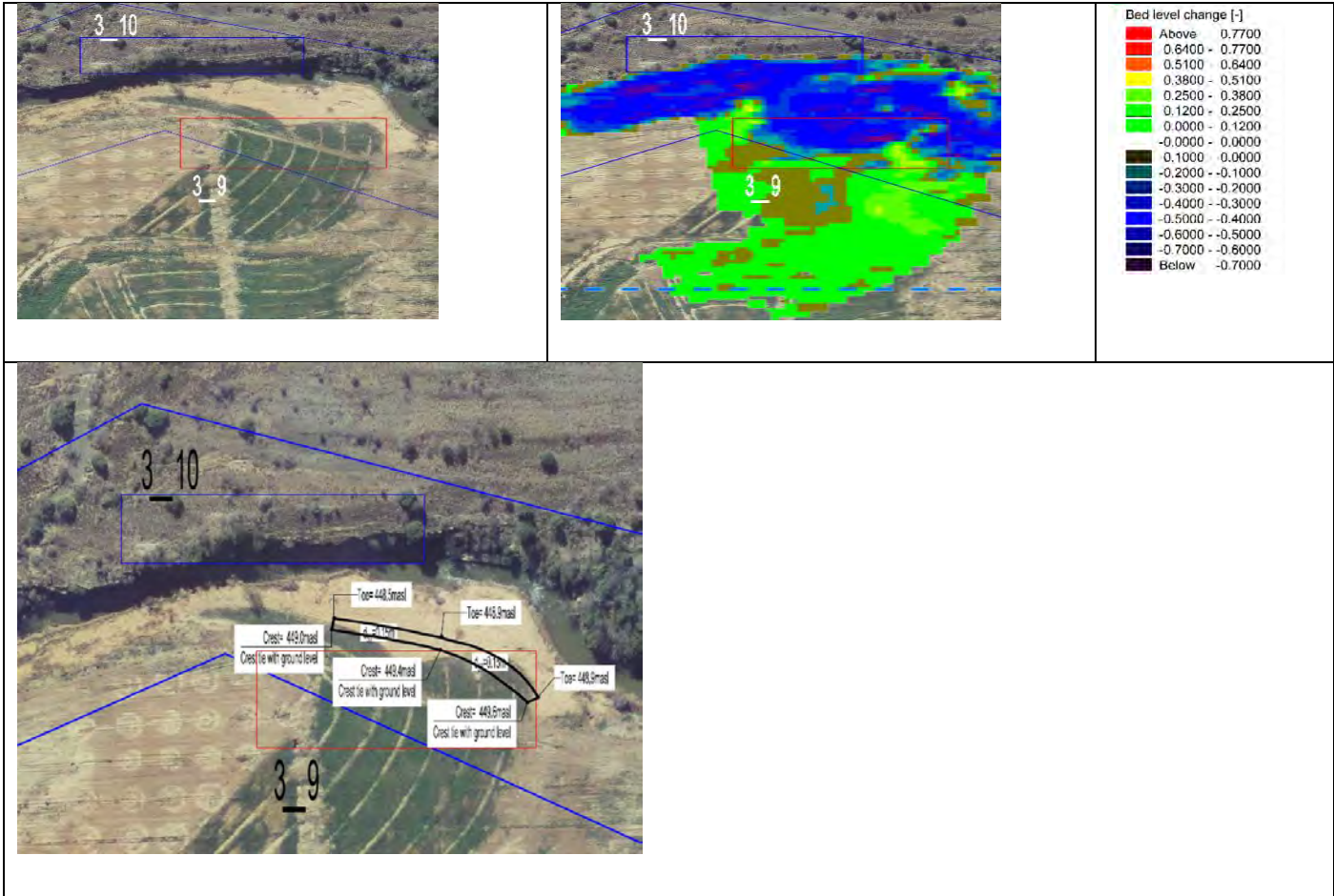
Zone 4_1 The zone has unstable banks crossing the servitude and encroaching the road.
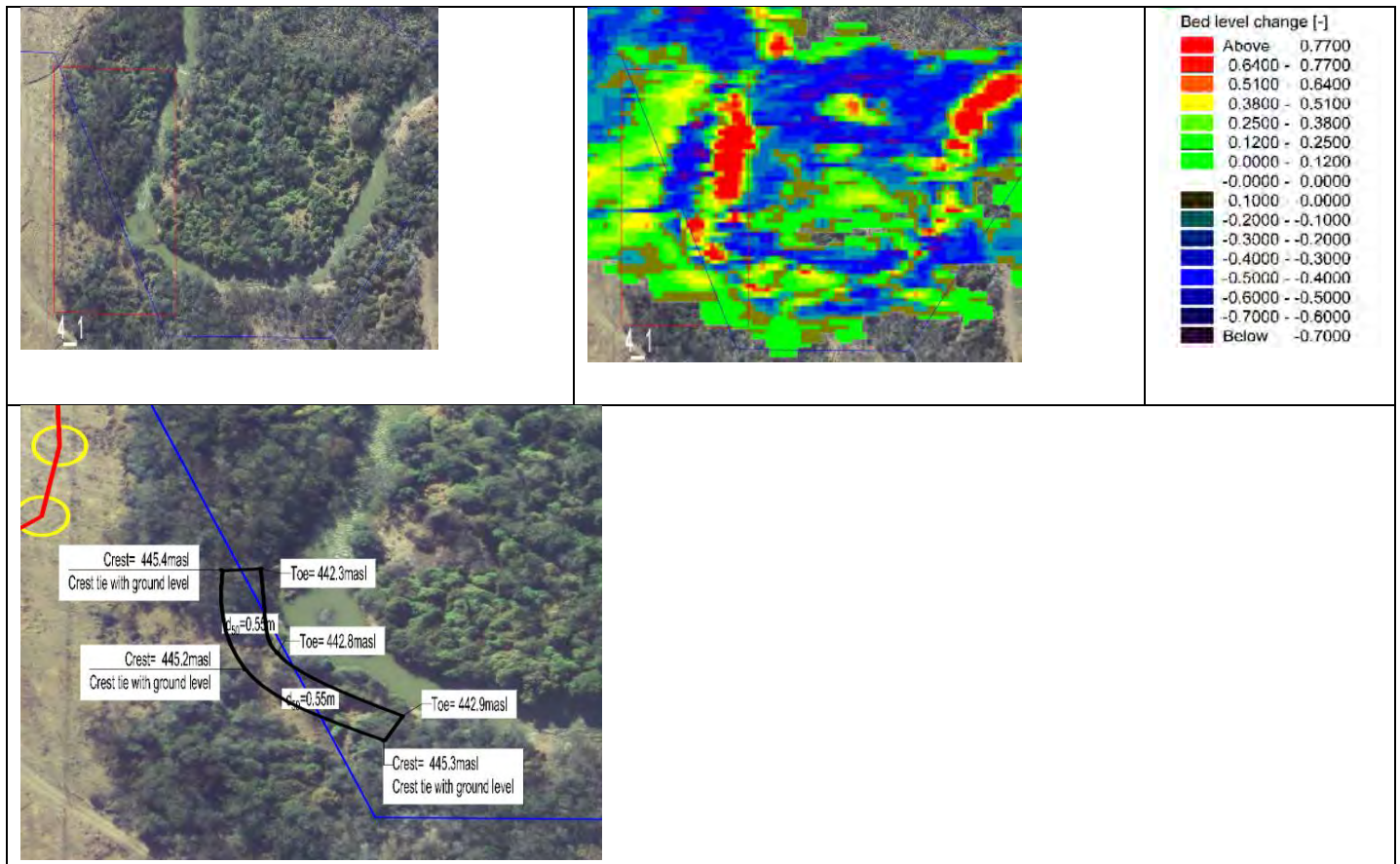
Zone 4_2 The zone has unstable banks crossing the servitude and encroaching the road.

Zone 4_3 The zone has unstable banks crossing the servitude.
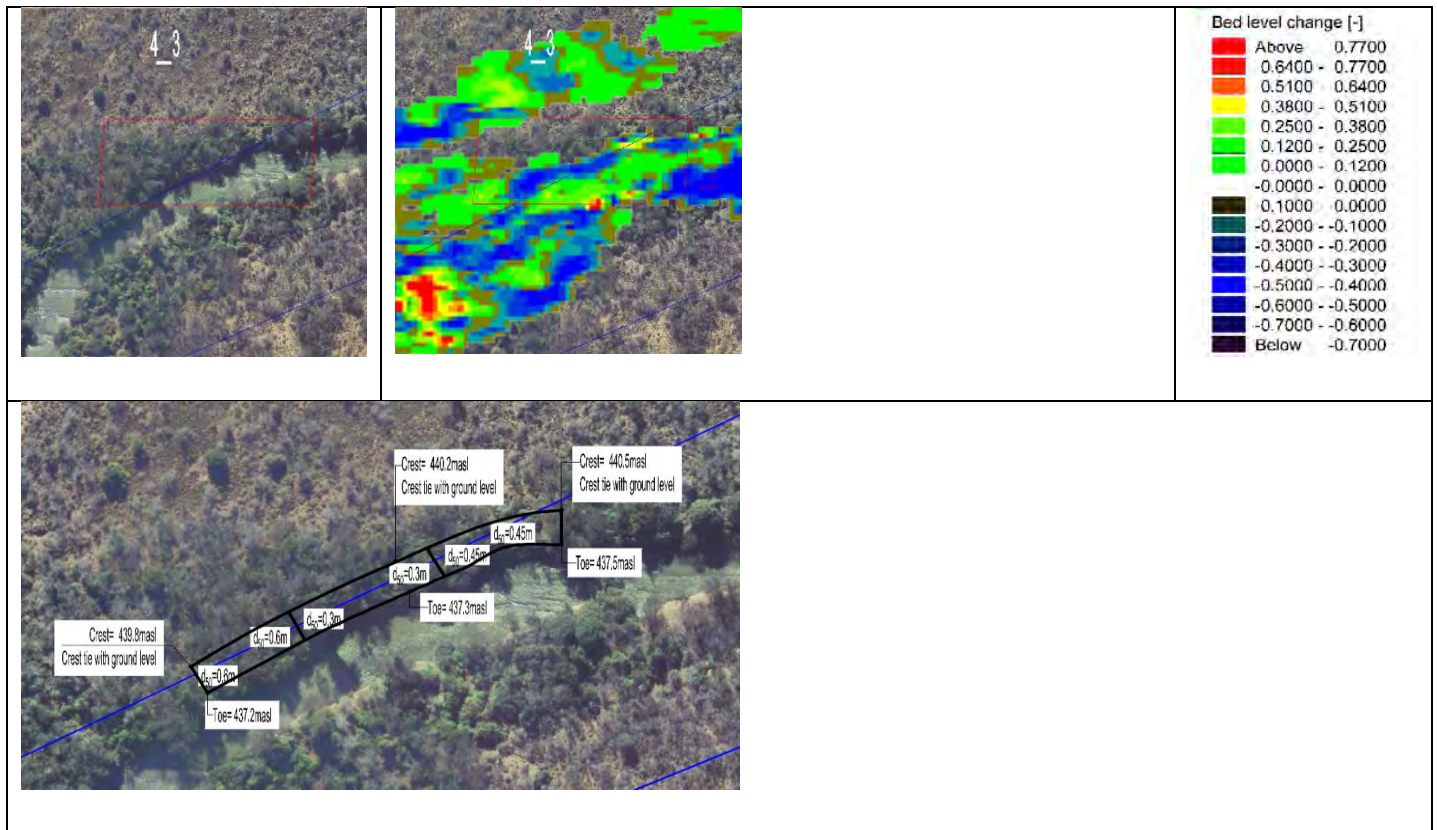
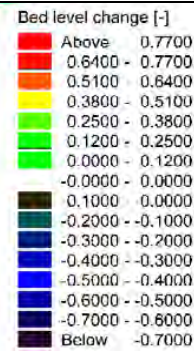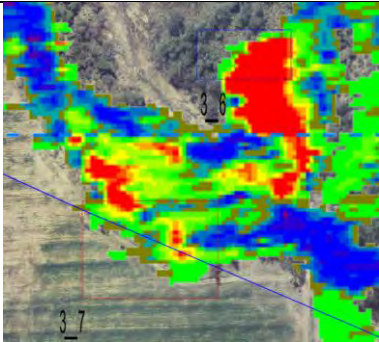**Zone 4_4** The zone has unstable banks crossing the servitude and encroaching the road.
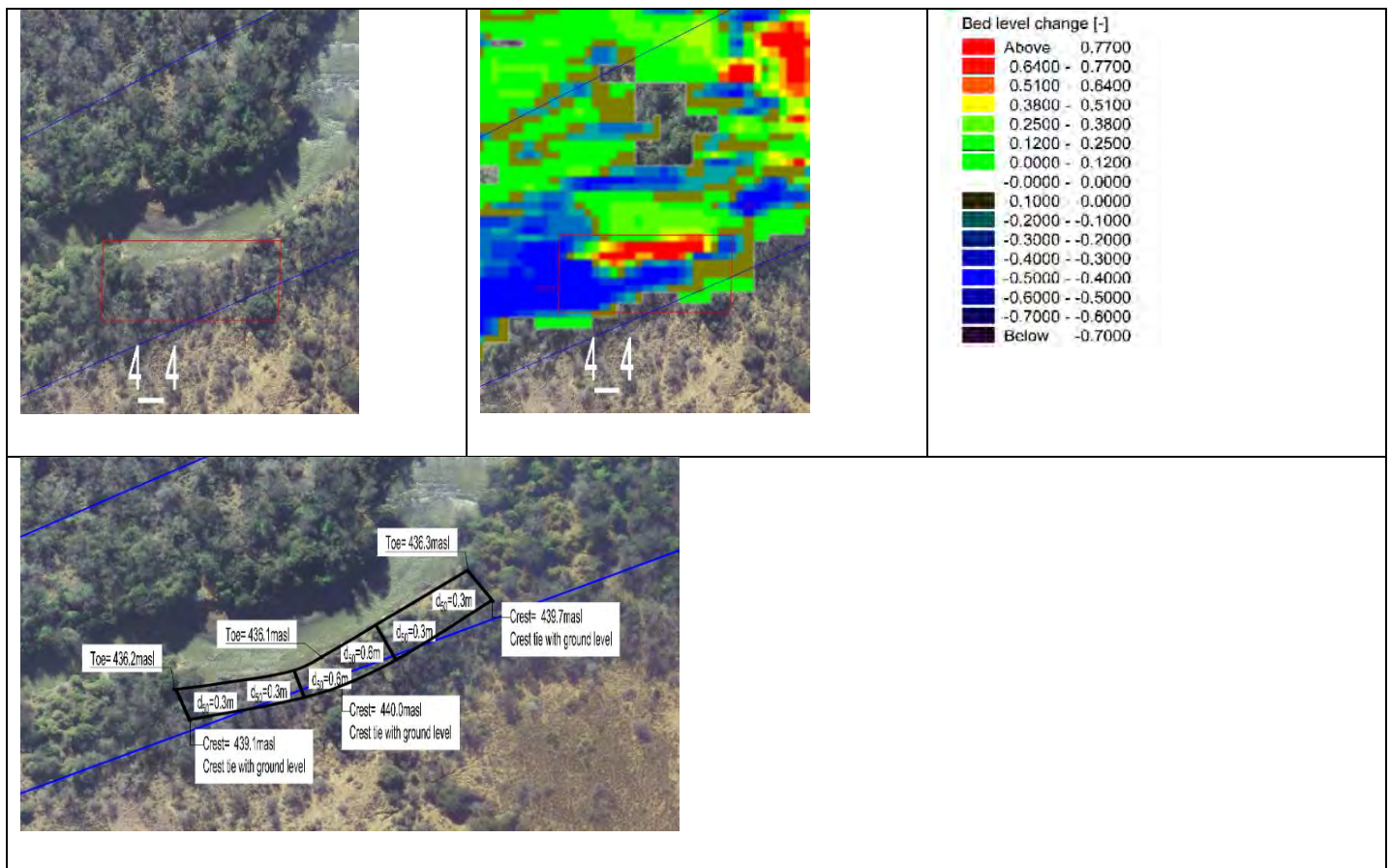
Zone 4_5 and 4_6 Flow in this area is on a wide floodplain and erosion induced by a tributary thus protection is deemed not necessary.

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 5

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 5

Legend

River Rehabilitation Sites

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Date: 08/02/2016
Compiled by: PAUJ
Project No. 472748
Scale 1:7,345

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 5_1 The zone has banks encroaching the servitude.
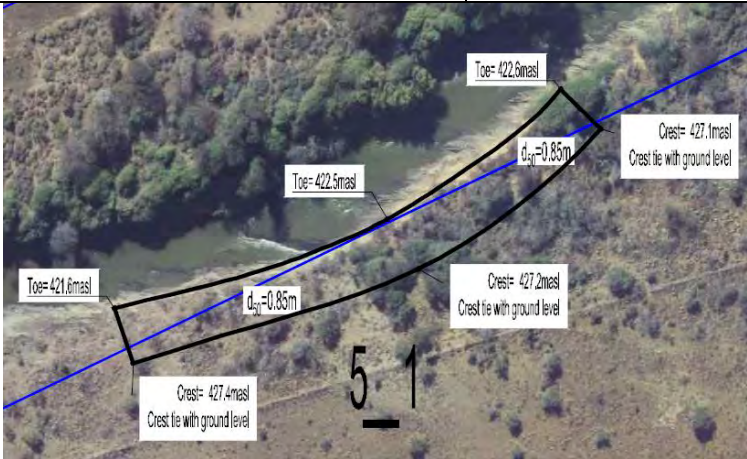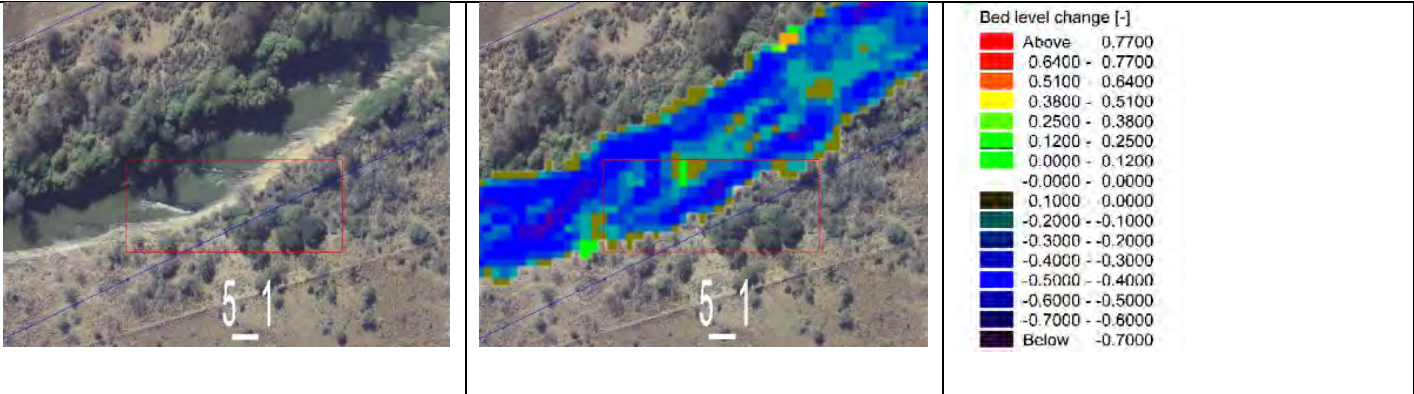
Zone 5_2 The zone has unstable banks encroaching servitude and farmland. Protection in this zone does not seem necessary.
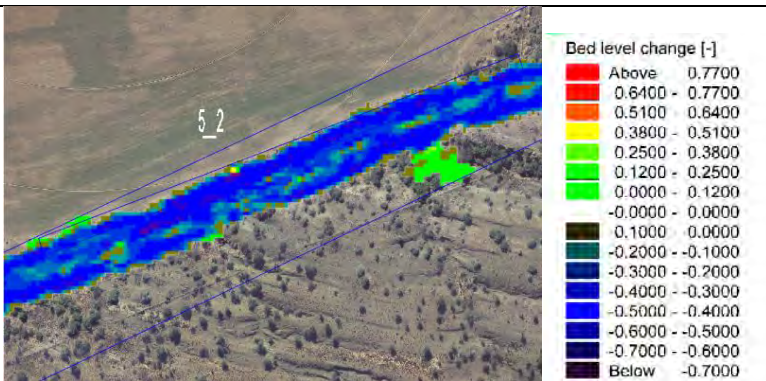
Zone 5_3 The zone has banks crossing the servitude and encroaching farmland.
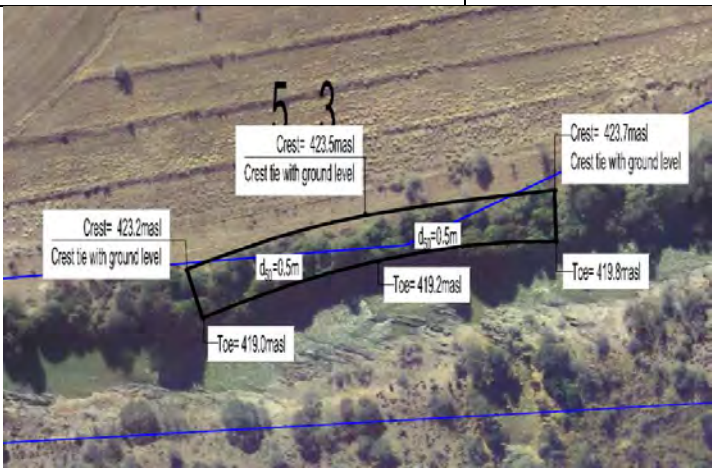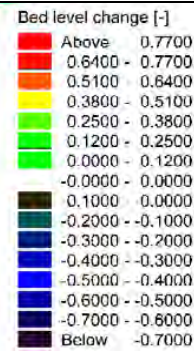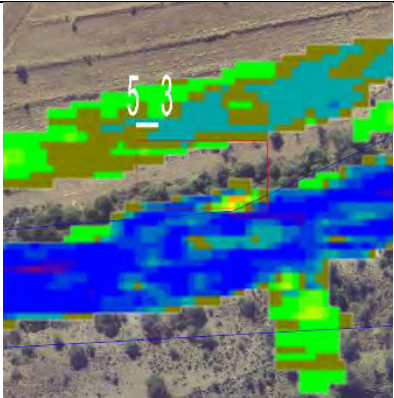
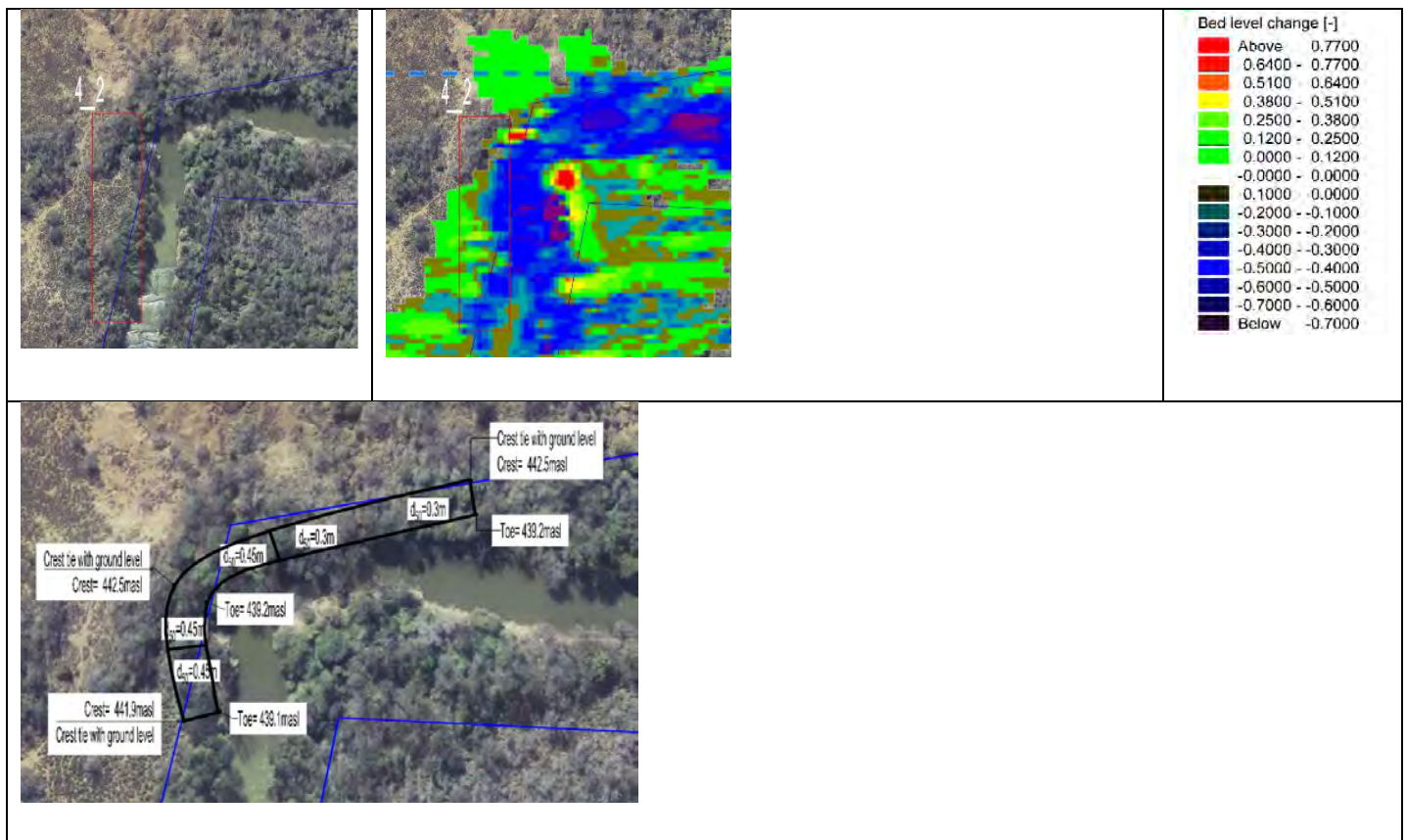**Zone 5_4** The zone has banks crossing the servitude.
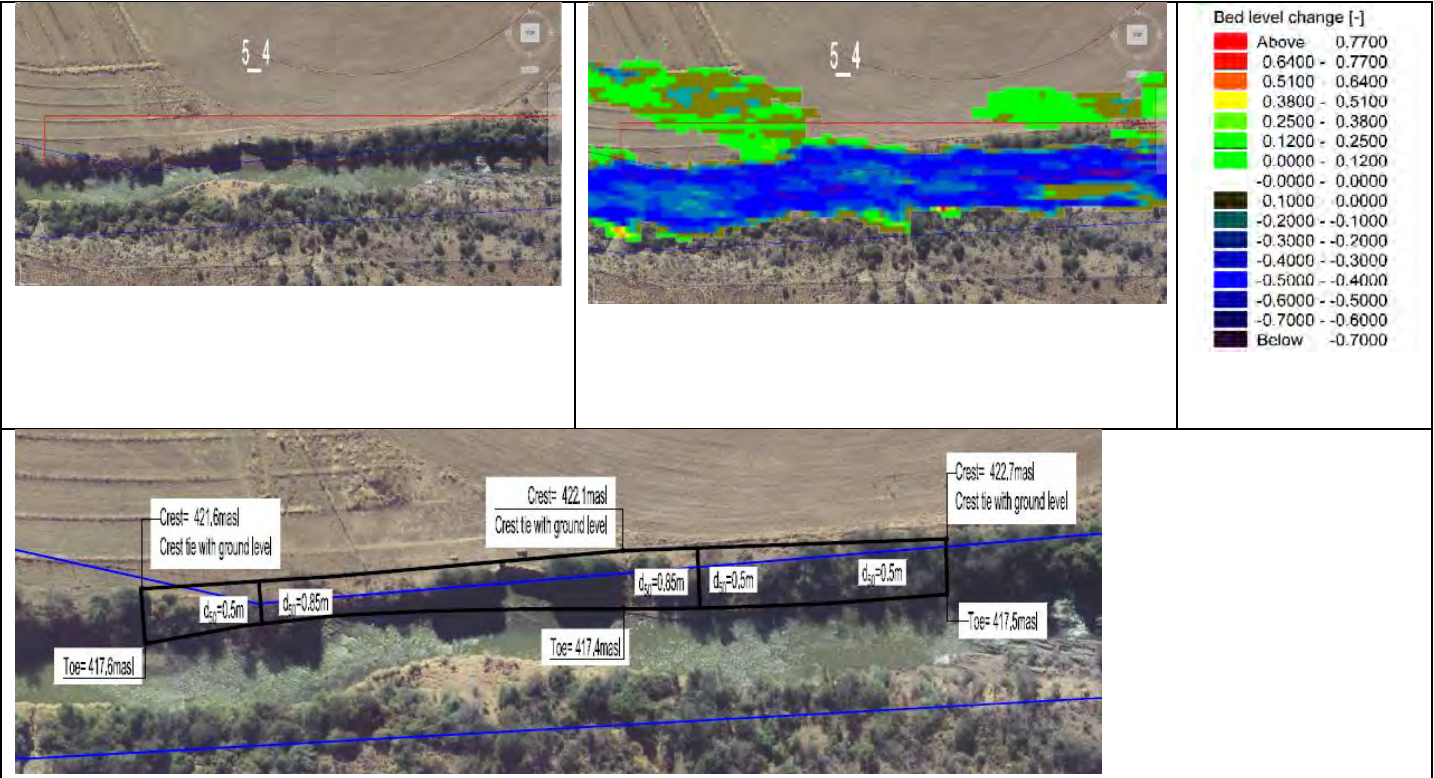
Zone 5_5 The zone has banks within the servitude. Flows are wide in the floodplain and protection not necessary.
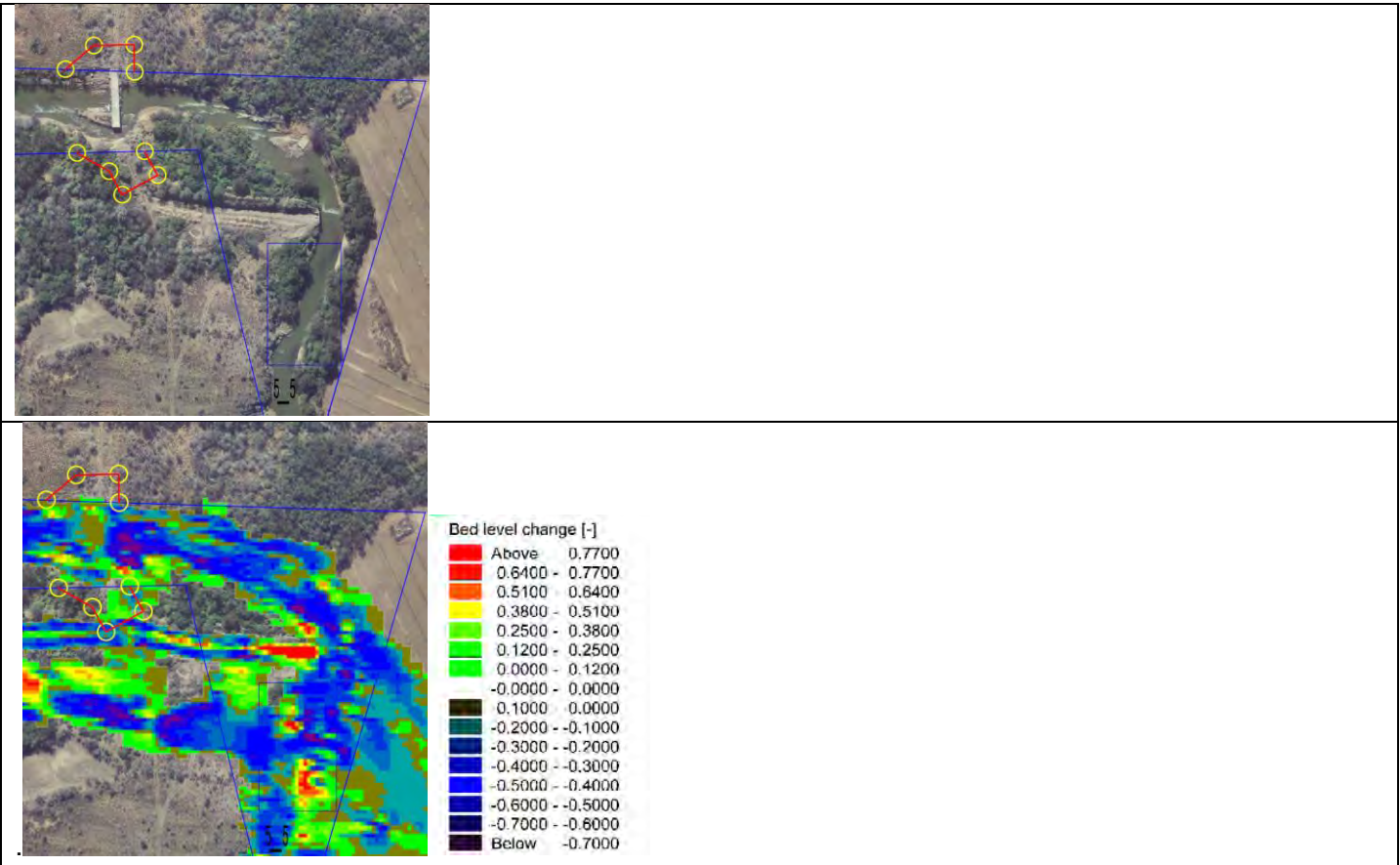
Zone 5_6 The zone has banks within the servitude. Flows are wide on the floodplain and protection not necessary.
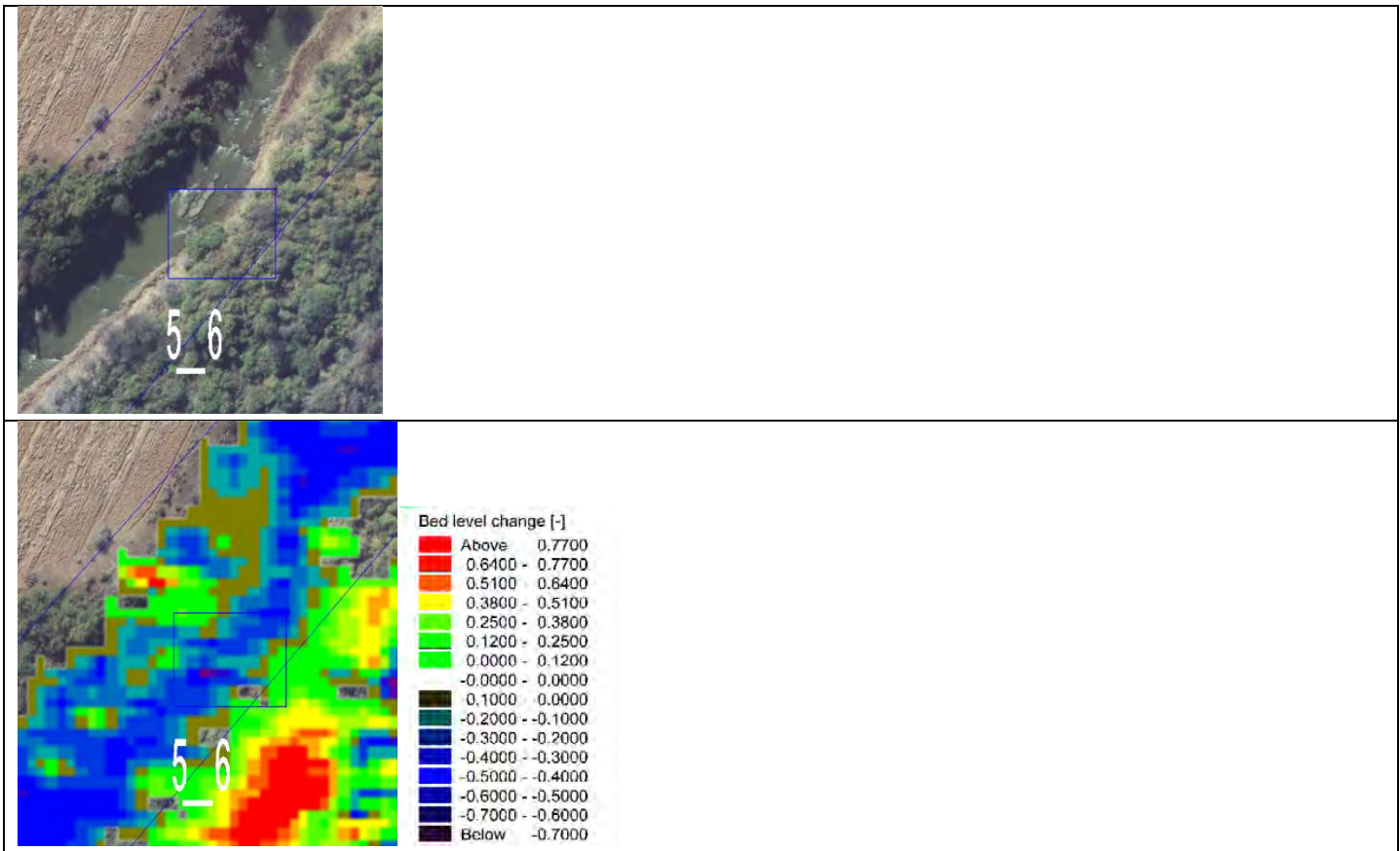
Zone 5_7and 5_8 Unstable banks within the servitude. The servitude seems to be incorrect and protection is deemed not necessary.

Zone 6

Legend
River Rehabilitation Sites

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 6

Date:	Compiled by:
08/02/2016	PAUJ
Project No.	Scale
472748	1:8,383

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJM XD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 6_1 The zone has banks crossing the servitude and encroaching farmland.

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 6_2 The zone has banks within the servitude. Upstream tributary flow induces the erosion and protection will constrict the flow thus not necessary.
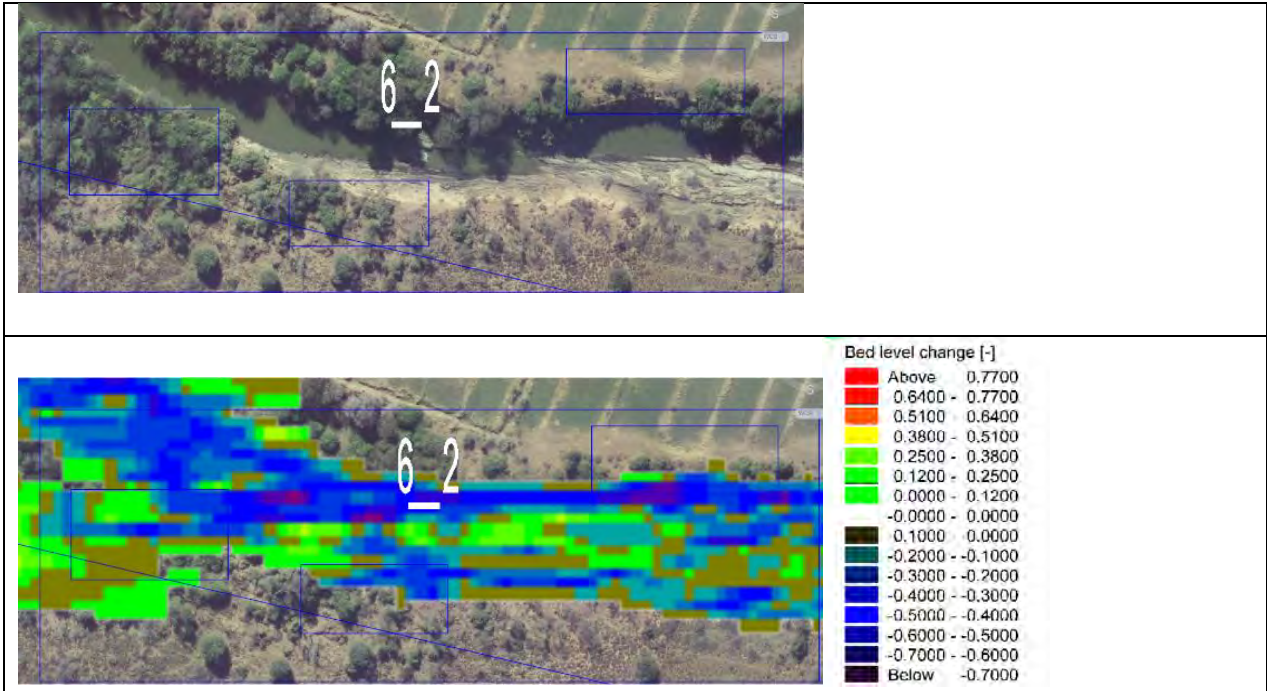
Zone 6_3 The zone has banks crossing the servitude and encroaching farmland.
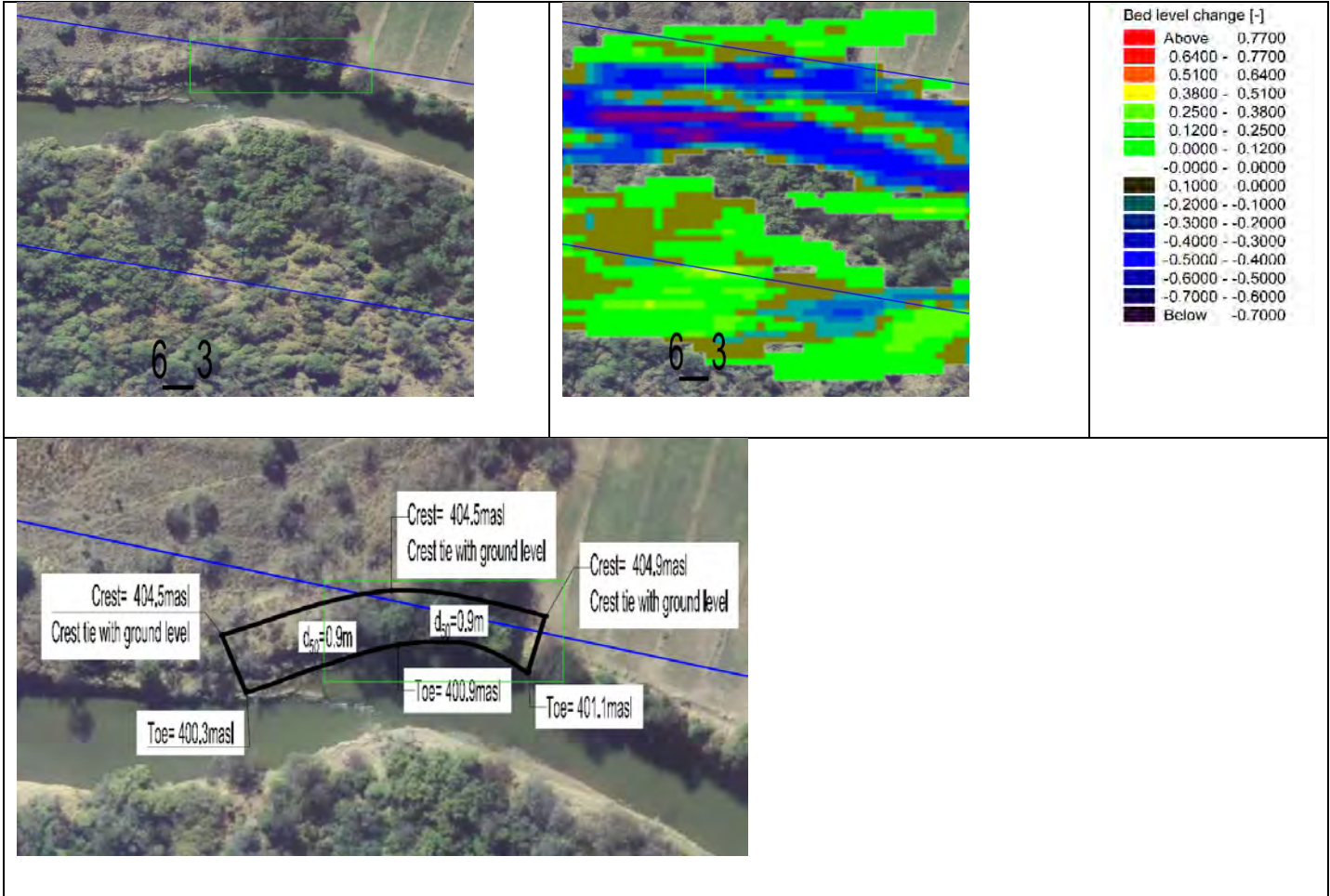
Zone 6_4 The zone has banks crossing the servitude but with bedrock outcropping.
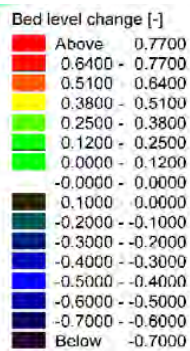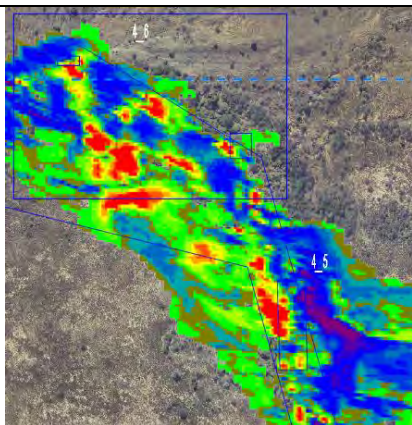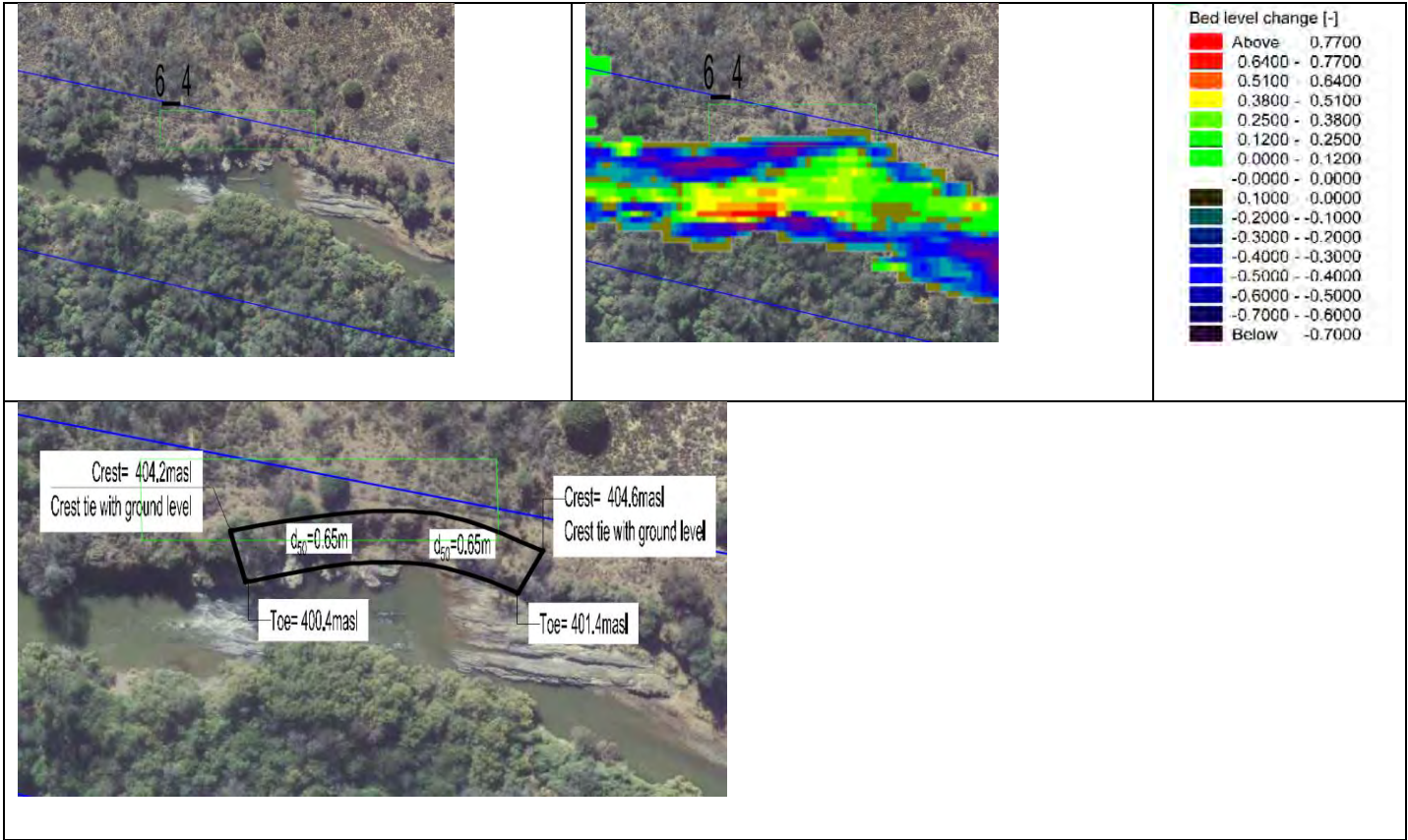

Zone 6_5 The zone has unstable banks within the servitude and protection is not necessary.
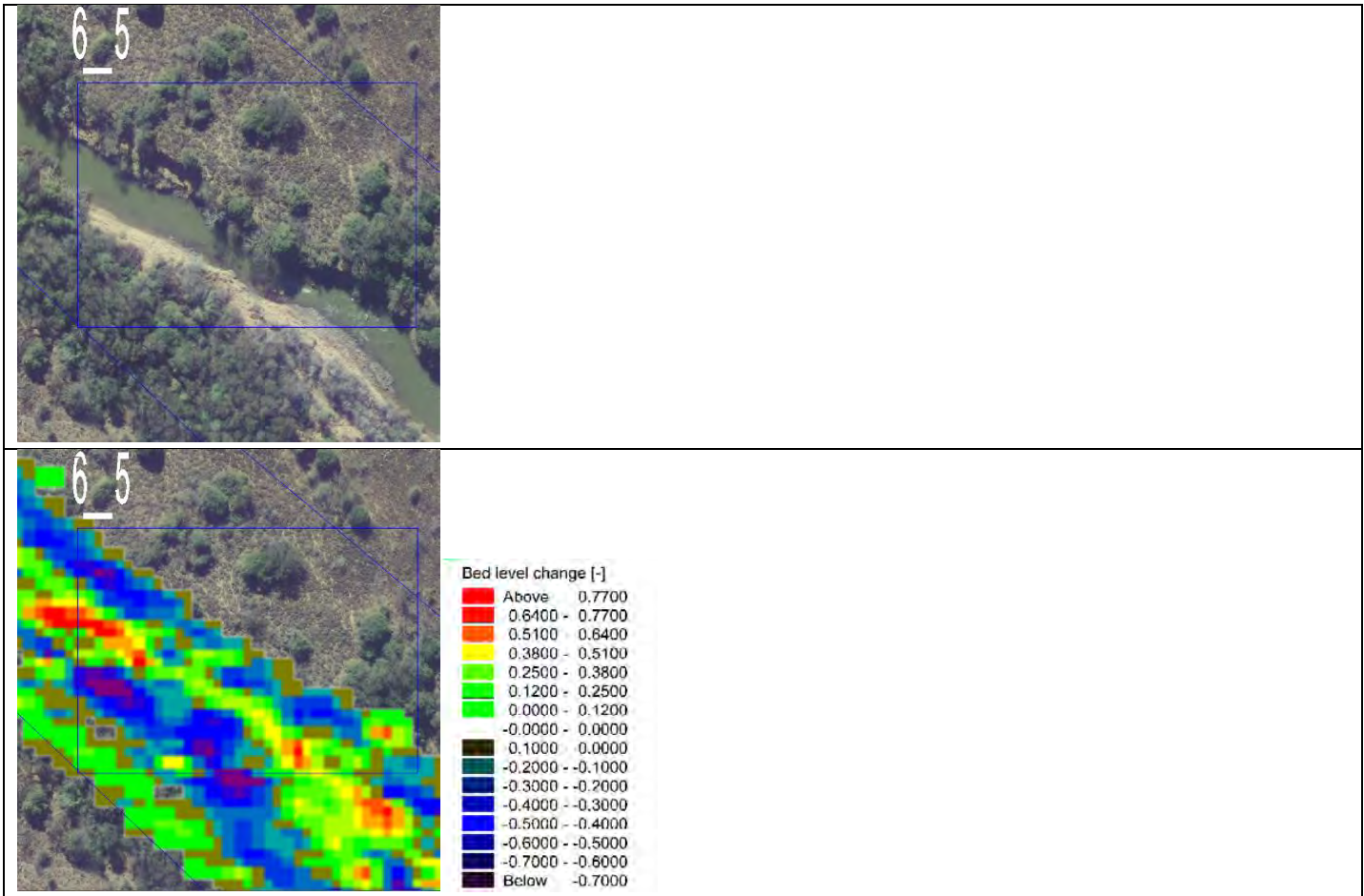
Zone 6_6 The zone has banks crossing the servitude and encroaching farmland

Zone 7

Legend

River Rehabilitation Sites

7_3

7_2

7_1

7_4

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 7

Date:	Compiled by:
08/02/2016	PAUJ
Project No.	Scale
472748	1:7,181

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

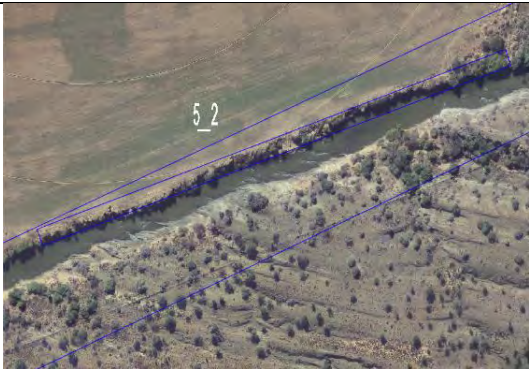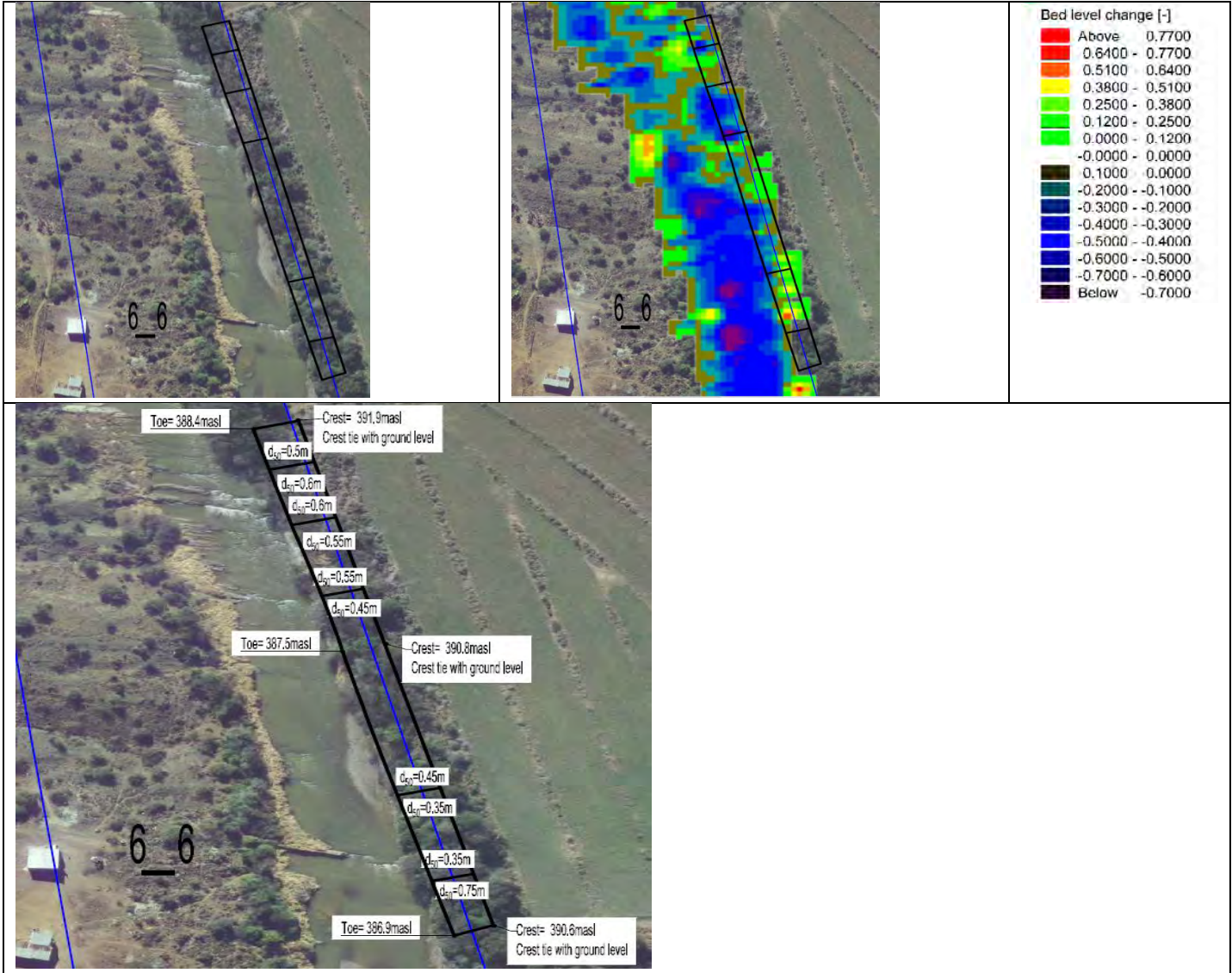**Zone 7_1** The zone has unstable banks within the servitude and protection is not necessary

Zone 7_2 The zone has banks crossing the servitude

Zone 7_3 The zone has unstable banks within the servitude.

Zone 7_4 This area's river servitude seems inaccurate.

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 8

Legend

River Rehabilitation Sites

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 8

Date: 08/02/2016
Compiled by: PAUJ
Project No. 472748
Scale 1:8,000

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 8_1 The zone has unstable banks within the servitude thus protection is not necessary.

Bed level change [-]
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 8_2 The zone has unstable banks crossing the servitude and encroaching onto farm land

Bed level change [-]
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Zone 8_3 Flow in this region is on a wide floodplain and protection will constrict the flow further, thus not necessary.

Bed level change [-]
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
-0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000
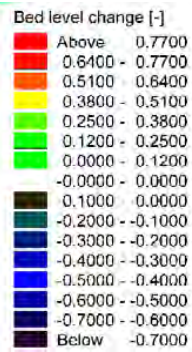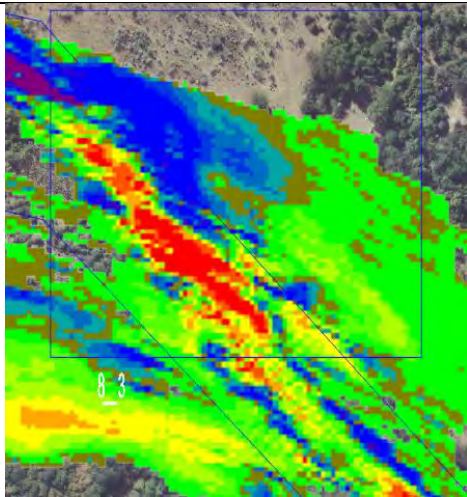
Zone 9

Legend

River Rehabilitation Sites

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SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 9

Date: 08/02/2016

Compiled by: PAUJ

Project No. 472748

Scale 1:8,000

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJM.XDIMaps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 9_1 The zone has unstable banks crossing the servitude and encroaching onto farm land.
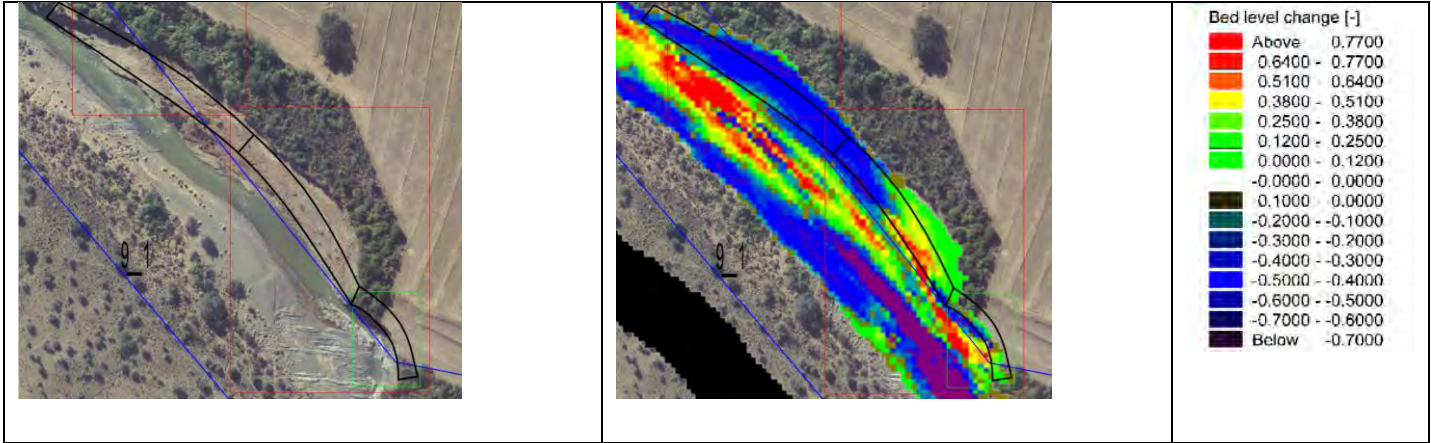
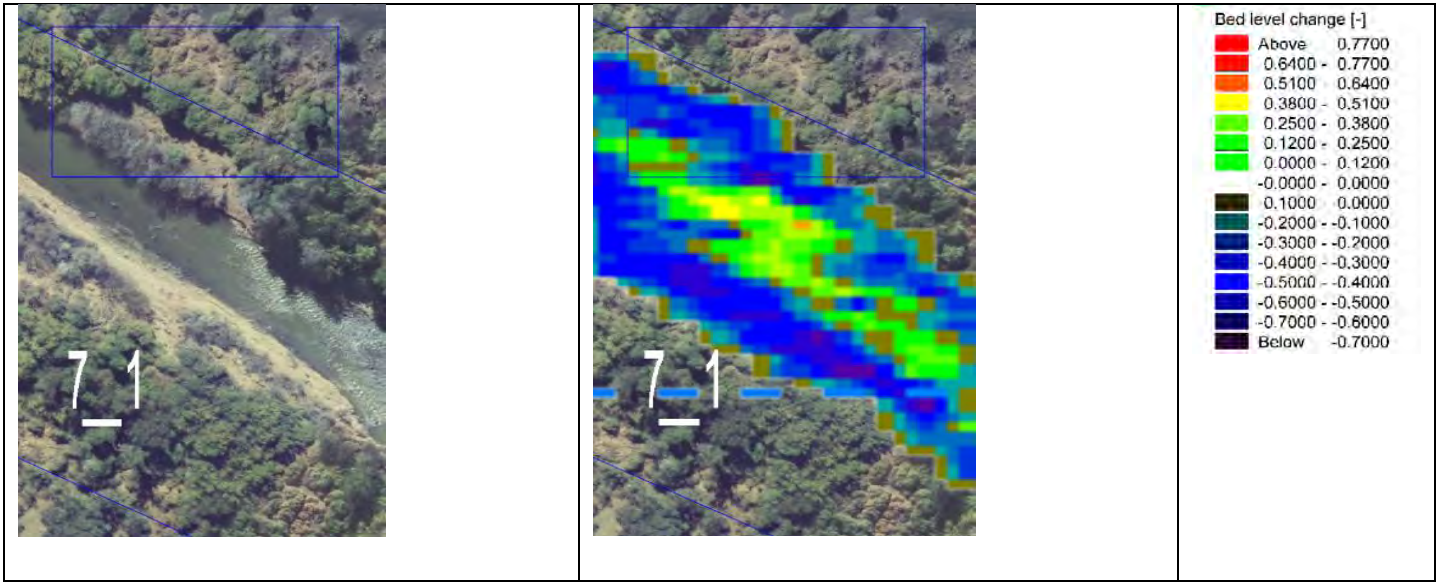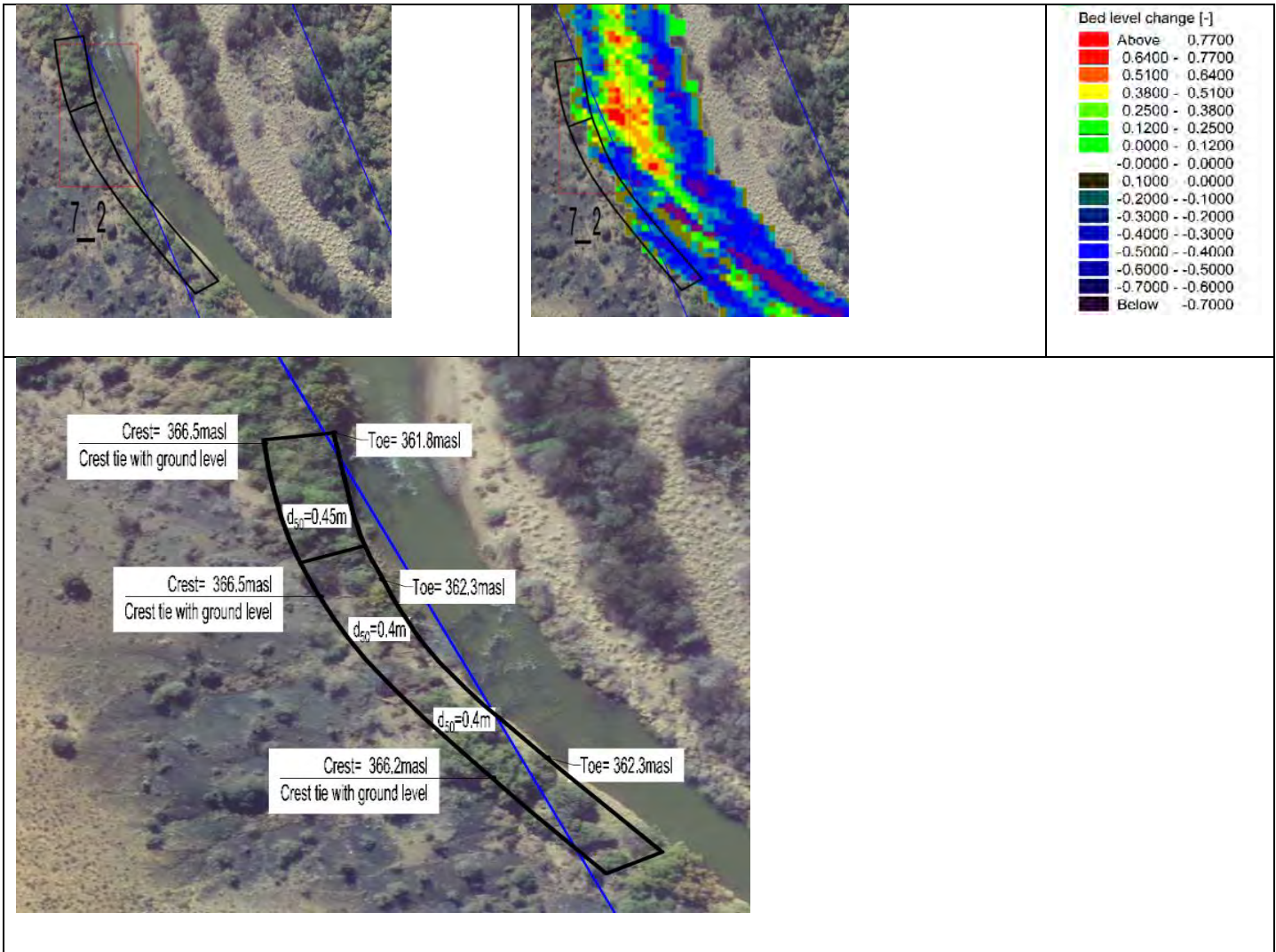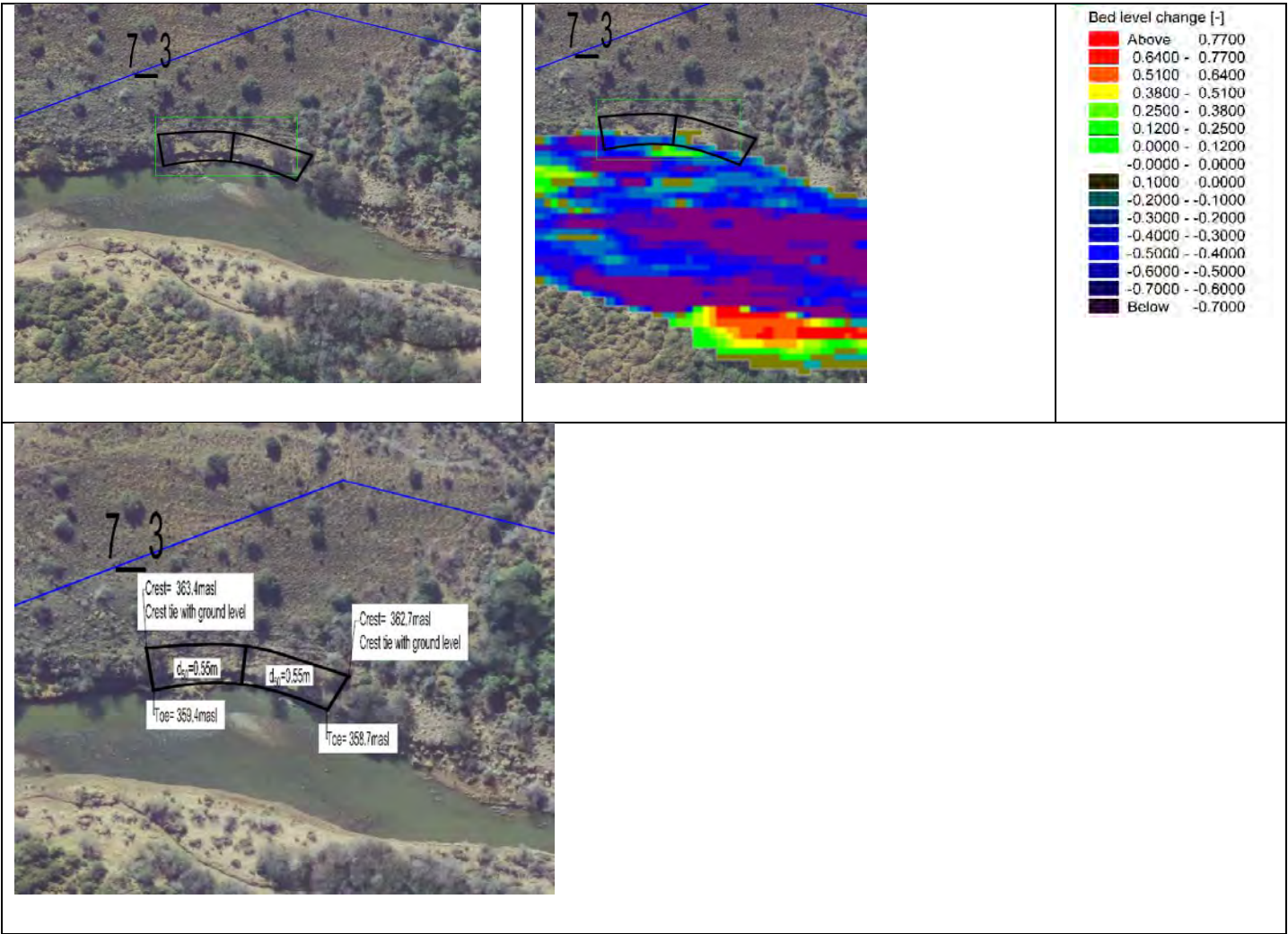**Zone 9_2** The zone has unstable banks within the servitude thus protection is not necessary.

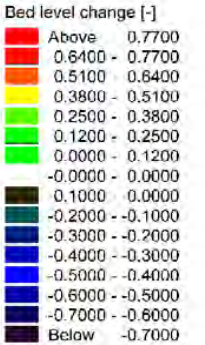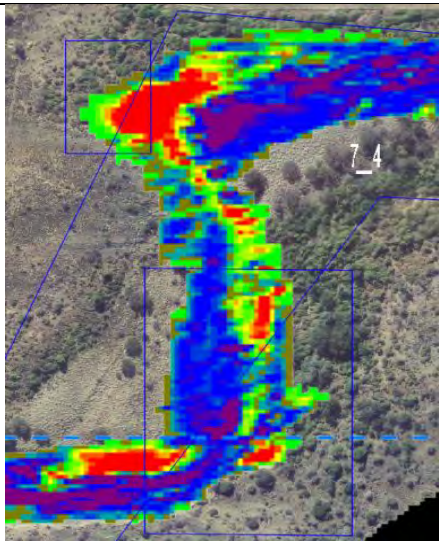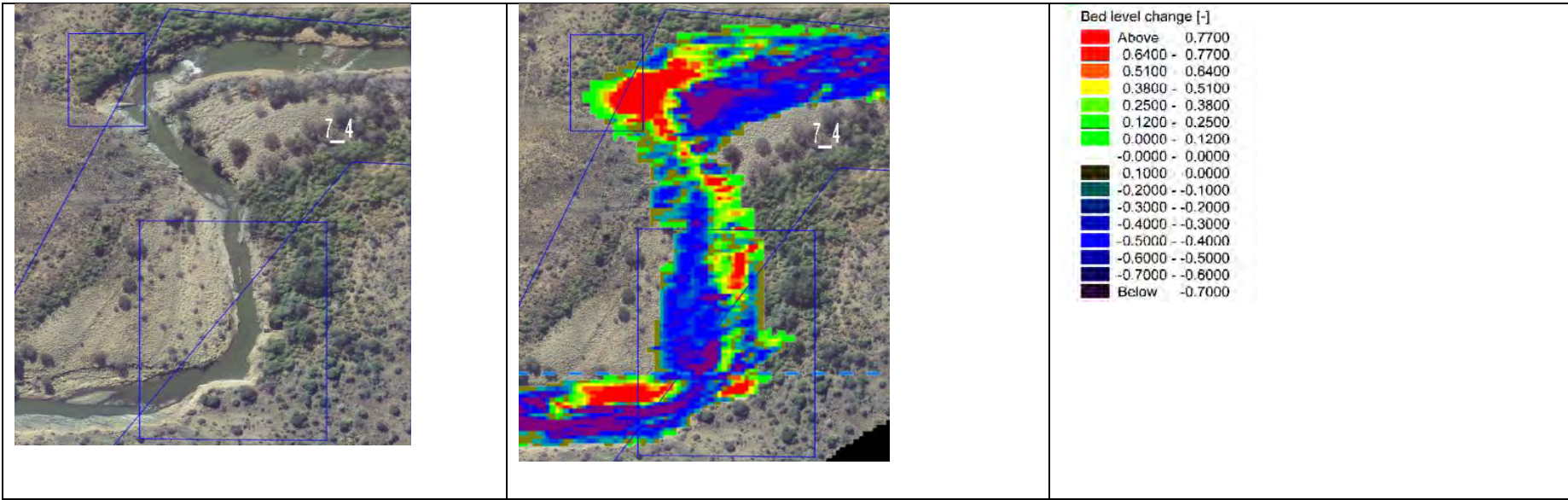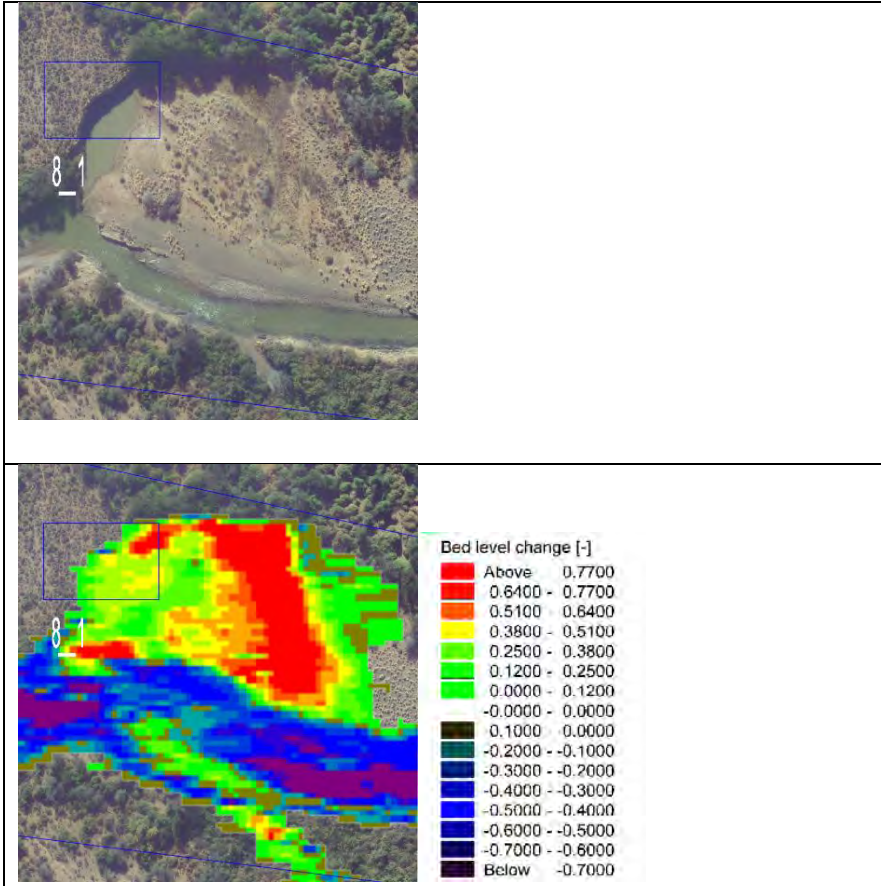**Zone 9_3** The zone has unstable banks crossing the servitude which seemed to be inaccurate

Bed level change [-]
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Crest= 321.6masl
Crest tie with ground level

Crest= 321.4masl
Crest tie with ground level

$d_{50}=0.85m$

^{L}Toe= 317.7masl

^{L}Toe= 317.4masl

$d_{50}=0.6m$

Crest= 321.4masl
Crest tie with ground level

^{L}Toe= 317.4masl

Zone 10

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 10

Legend
River Rehabilitation Sites

srk consulting

| | Date: 08/02/2016 | Compiled by: PAUJ |
| | Project No. 472748 | Scale 1:8,000 |

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd

Zone 10_1 The area's river servitude seems to be inaccurate
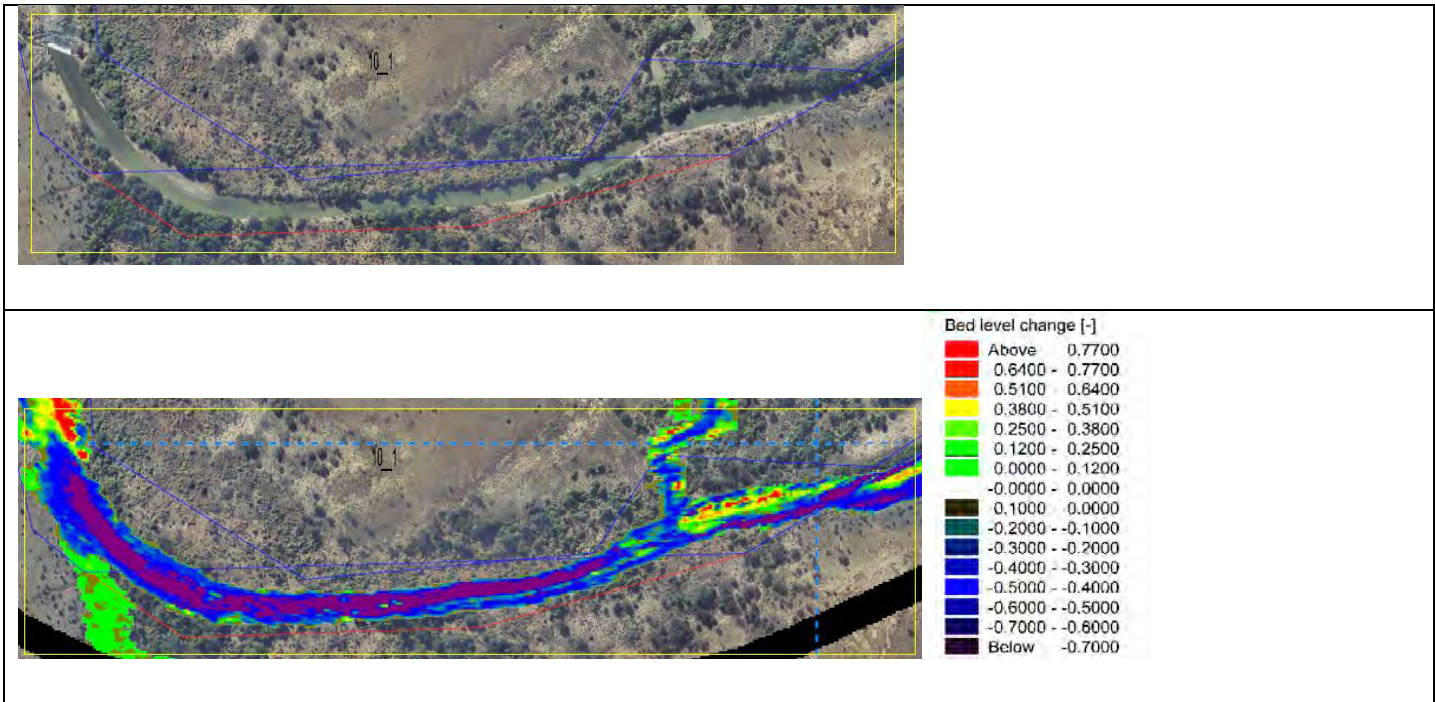
Zone 10_2 The zone has unstable banks within the servitude. Protection in this area is not necessary.

Zone 10_3 The zone has banks crossing the servitude.
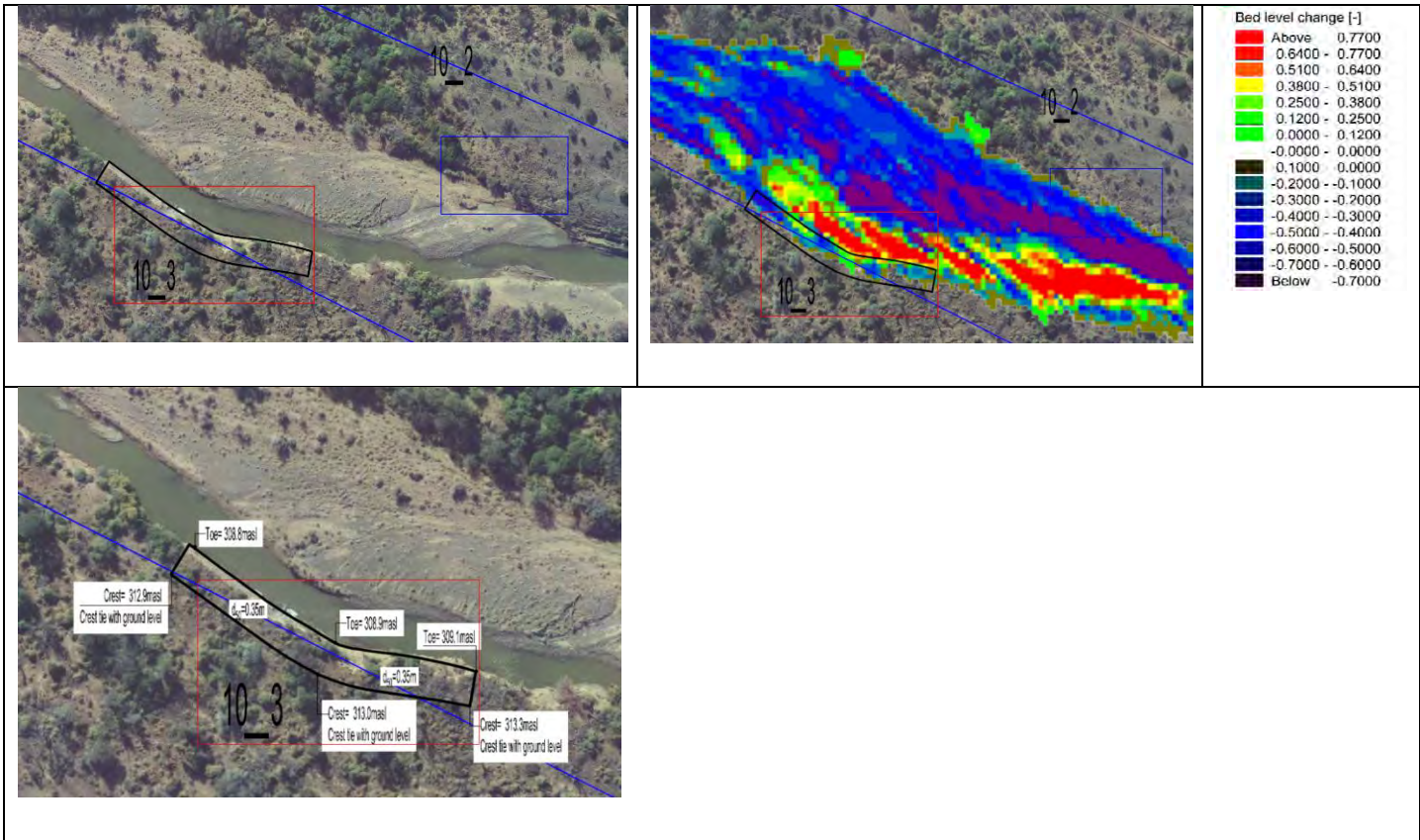
Zone 10_4 The zone has banks within the servitude. Upstream tributary flow induces the erosion and protection will constrict the flow thus not necessary.

Zone 11

Legend
River Rehabilitation Sites

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 11

srk consulting

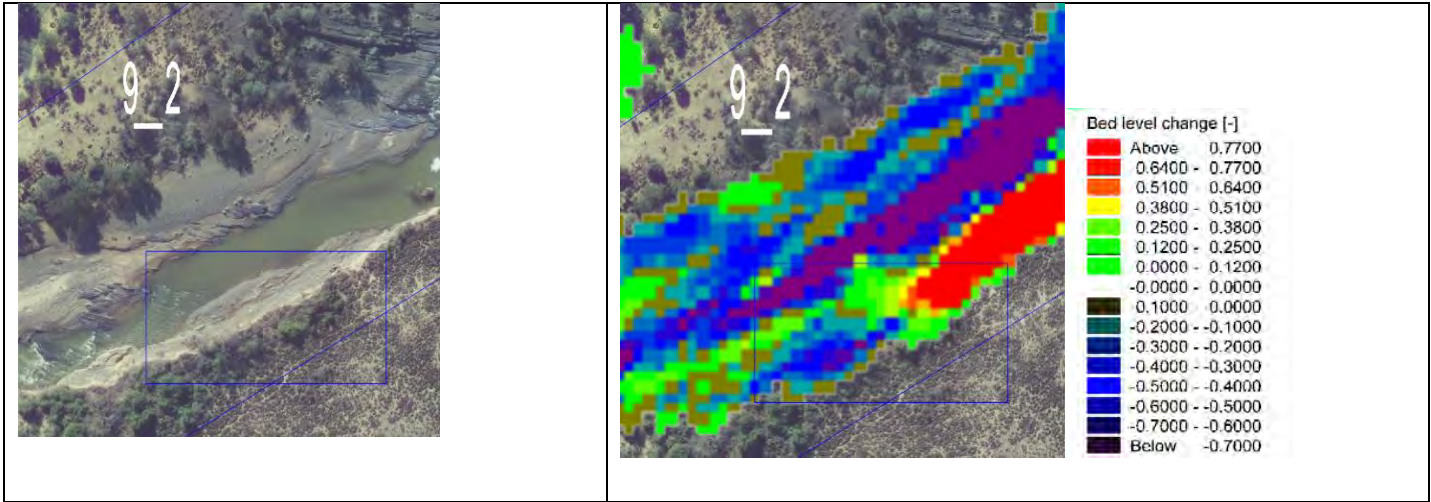|	
Date: 08/02/2016	Compiled by: PAUJ
Project No. 472748	Scale 1:8,339

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd
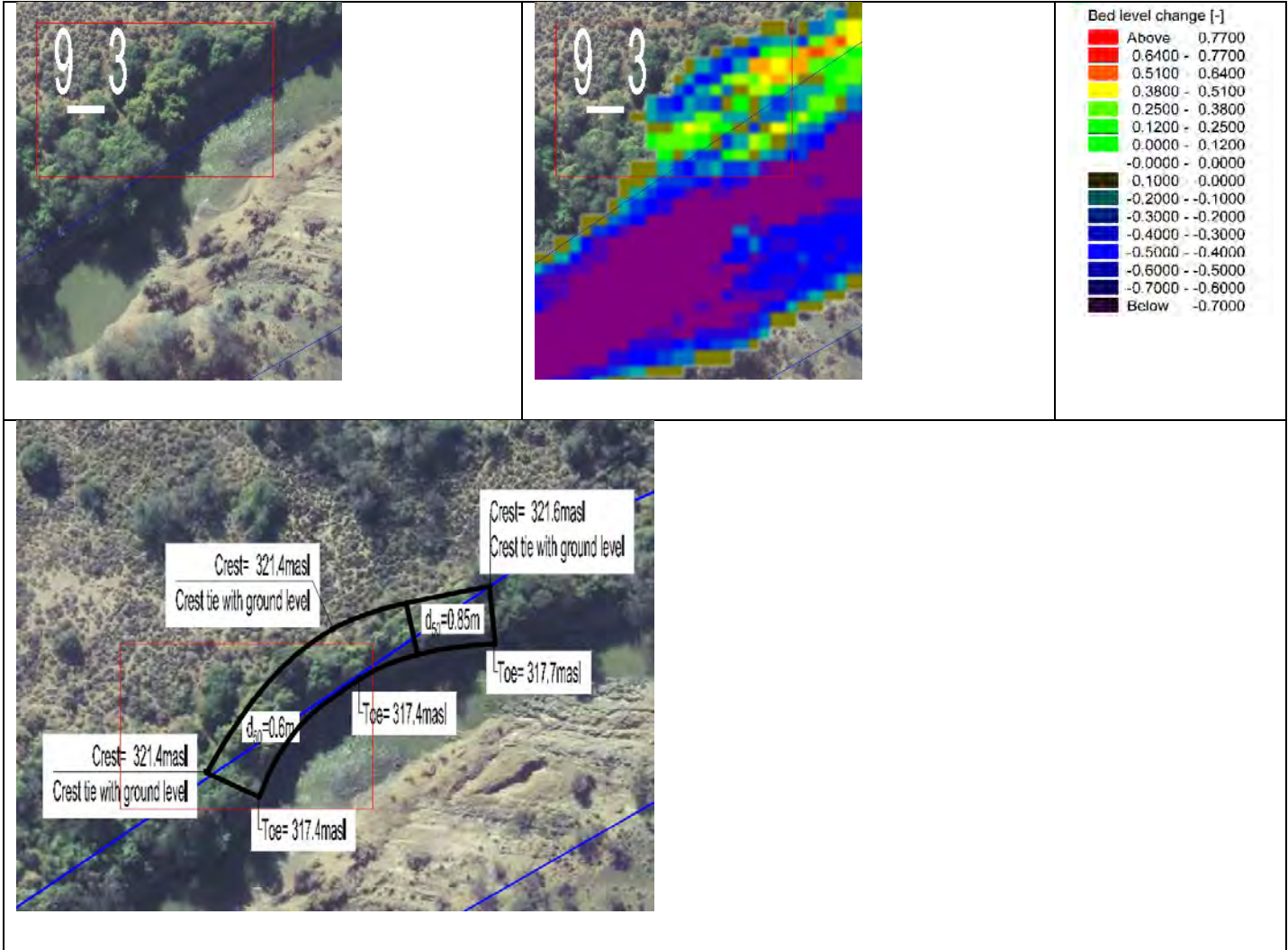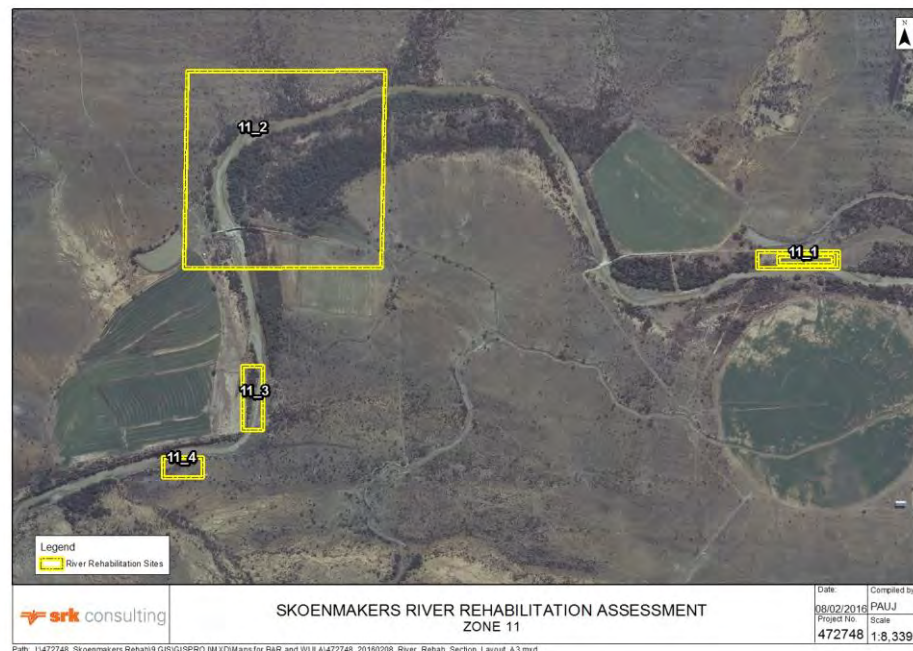
Zone 11_1 The zone has unstable banks crossing the servitude and flow is on a wide floodplain.

Bed level change [-]
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000
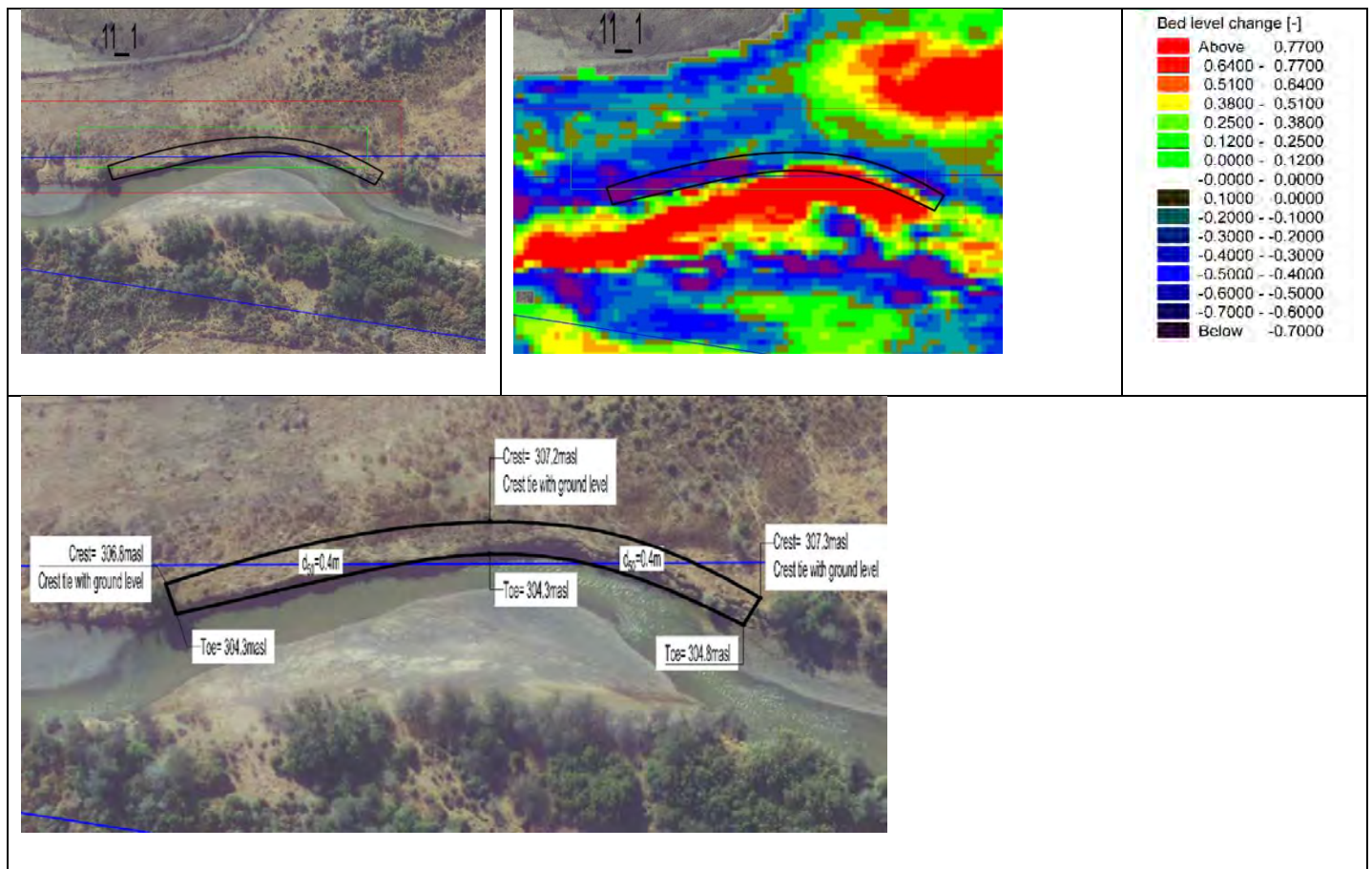
Zone 11_2 The area river servitude is inaccurate

Bed level change [-]
|	
Above	0.7700
0.6400 -	0.7700
0.5100 -	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000 -	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000
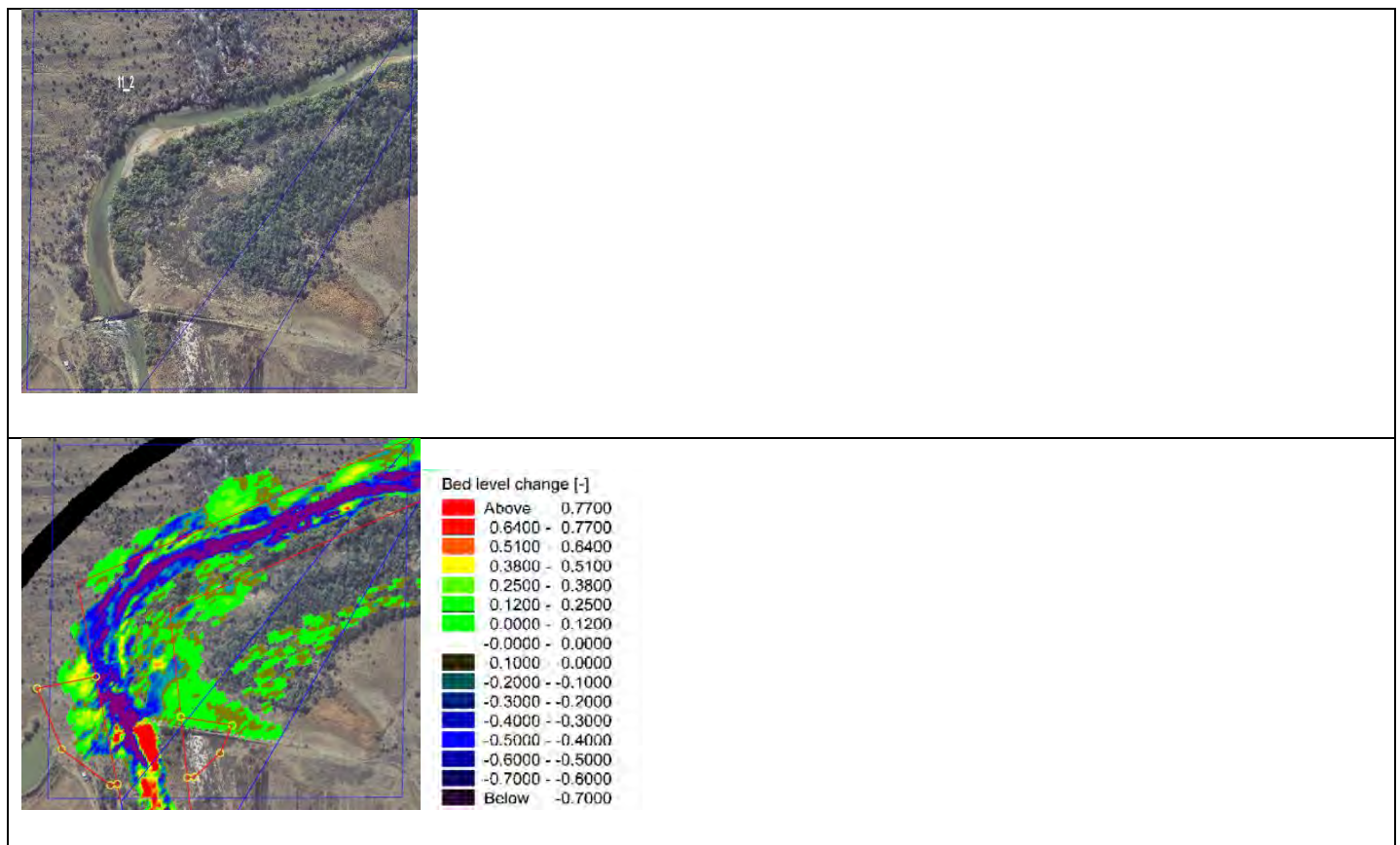
Zone 11_3 The area's river servitude seems inaccurate.
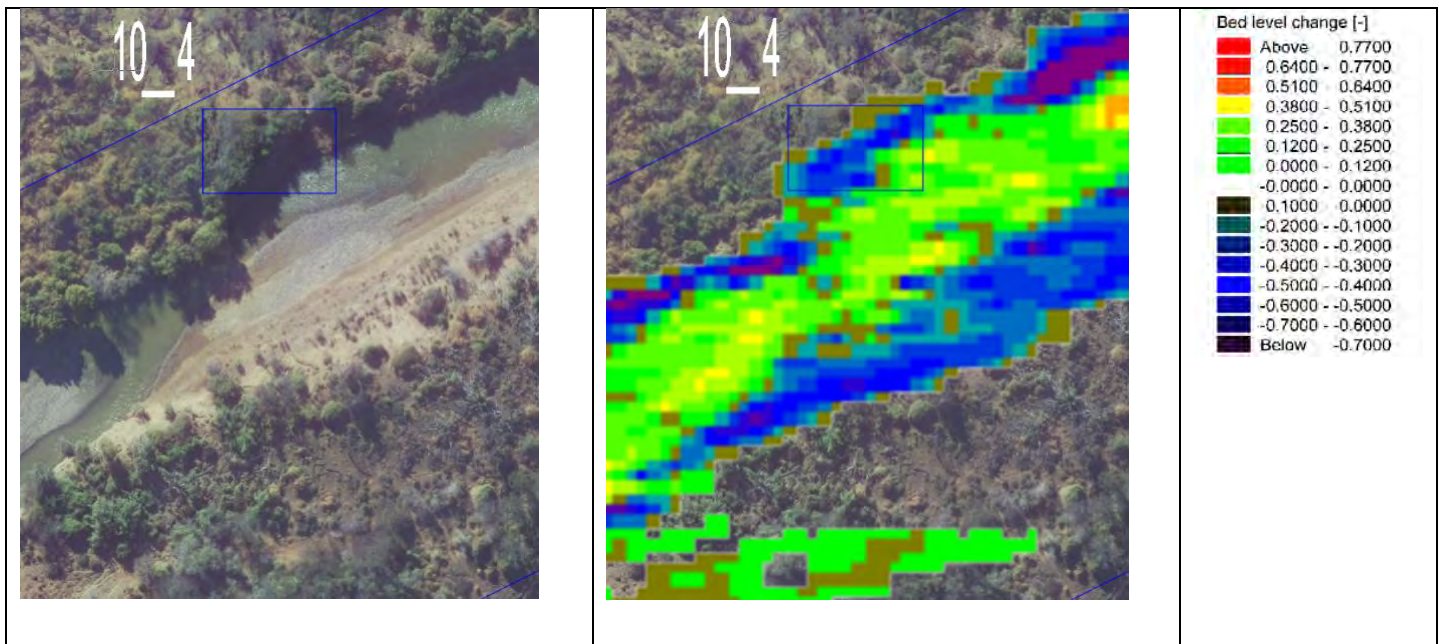
Zone 11_4 The zone has unstable banks within the servitude. Protection in this area is not necessary.

Zone 12

Legend
River Rehabilitation Sites

SKOENMAKERS RIVER REHABILITATION ASSESSMENT
ZONE 12

12_1

srk consulting

Date:	Compiled by:
08/02/2016	PAUJ
Project No.	Scale
472748	1:4,000

Path: J:\472748_Skoenmakers Rehab\9 GIS\GISPROJ\MXD\Maps for BAR and WULA\472748_20160208_River_Rehab_Section_Layout_A3.mxd
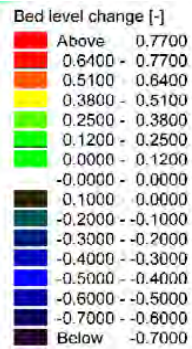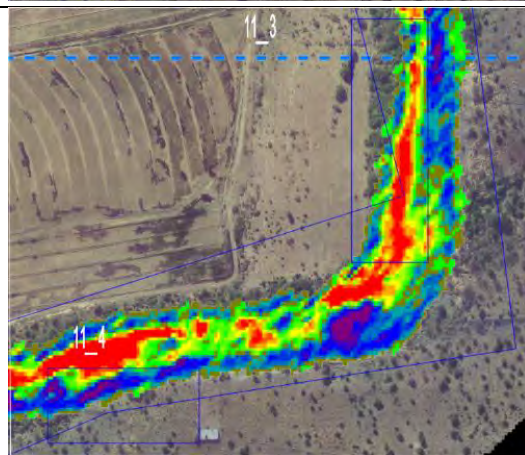
Zone 12_1 The zone has unstable banks crossing the servitude.

Bed level change [-]

Above	0.7700
0.6400 -	0.7700
0.5100	0.6400
0.3800 -	0.5100
0.2500 -	0.3800
0.1200 -	0.2500
0.0000 -	0.1200
-0.0000 -	0.0000
0.1000	0.0000
-0.2000 -	-0.1000
-0.3000 -	-0.2000
-0.4000 -	-0.3000
-0.5000 -	-0.4000
-0.6000 -	-0.5000
-0.7000 -	-0.6000
Below	-0.7000

Toe= 308.8masl

Crest= 292.6masl
Crest tie with ground level

d_{50}=0.35m

Toe= 268.2masl

Crest= 292.6masl
Crest tie with ground level

d_{50}=0.35m

Toe= 287.7masl

Crest= 292.6masl
Crest tie with ground level