

 **SPATIAL PLANNING KEY DECISION**
ROOM FOR THE RIVER

Approved decision

19 December 2006

Structure of this Document

Part 4 of the Room for the River Planning Key Decision describes the policy needed to achieve, by 2015, the required levels of safety in the area flanking the branches of the Rhine and the lower section of the Maas, and in doing so to improve spatial quality.

Section 1 presents the government's viewpoint on the protection of this riverine area and Section 2 describes why it opted for a Planning Key Decision (PKB).

The objectives for safety and spatial quality are formulated in Section 3. Section 4 lists the strategic choices underpinning the integrated package of measures for the short term (2015) and any further measures needed after 2015. The package of measures for 2015 is presented in section 5 together with the alternatives or additional measures possible as part of a programme approach. Maps show where these measures will be applied. Section 6 considers the areas where land needs to be reserved for both the short and long term. The areas needed for the long term are also shown on maps. Section 7 describes the decision-making procedure that will follow this PKB. Section 8 looks at funding.

The Explanatory Memorandum accompanying this document presents the arguments underpinning the decisions.

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The government viewpoint on protection of the riverine area

Over the centuries the rivers have had to relinquish much of their space, and they are now squeezed between dikes which in recent decades have become ever higher. The land behind the dikes has sunk in many places. Demographic trends and economic growth have upped the ante enormously. A flood would have huge consequences: both the emotional and economic damage would be devastating. And climate change is expected to compound the problem. The imminent threat of flooding in 1993 and 1995 showed that the problem must not be underestimated.

The government has decided both to ensure that flood protection has reached statutory levels by 2015 and to improve spatial quality in the riverine area. Given that design river discharges are expected to increase, the government wishes to achieve the required safety levels by applying measures that prevent a further increase in design high water levels. This is a shift from dike reinforcement to river relief, and will involve measures on both sides of the dikes. Dikes will only be improved where other measures are either inappropriate or unaffordable. Some restructuring of the riverine area is, however, unavoidable.

The Dutch riverine area is of international economic, ecological and scenic importance, and an important feature of the main national and international spatial planning structure. In places where measures are taken to enhance safety, an effort will be made to improve spatial quality. In line with the Spatial Policy Document, the aim is to conserve the existing core qualities of the various river branches, and develop new ones.

This Planning Key Decision (PKB) sets out a coherent set of measures which will be needed to ensure compliance with statutory levels of protection by 2015. Funds have been earmarked and the necessary land reserved.

Climate change in particular means that investment will be needed to ensure the safety of the riverine area in the future too. This PKB takes this into account by reserving a small number of areas which may be needed after 2015 for river relief measures.

A Planning Key Decision (PKB) procedure for the riverine area

The government is aiming for an integrated approach to flood defence in the riverine area, with a coherent strategy that takes account of the area's functions and the interests at stake there. This calls for supra-regional decision-making for which the government regards the PKB procedure as the appropriate instrument.

Status of conclusions reached in this document

A number of the conclusions reached in this document on flood protection and improved spatial quality are so important that they have the status of *decision of essential importance* in accordance with Article 3, paragraph 2, of the Spatial Planning Decree 1985. The state may only depart from them by re-starting the PKB procedure (section 2b of the Spatial Planning Act). In the text, these conclusions are presented as boxed text:

decision of essential importance

The *Room for the River* PKB outlines the measures and where they will be taken. It does not contain firm policy decisions. Once the procedure has been completed the measures will be worked out in more detail and implemented.

Policy is in fact all the projects the government or other public authorities decide on in implementing this PKB. Any losses or damage that may be incurred will be compensated for under existing schemes.

The provincial and municipal authorities will be requested to factor this PKB into their policy, which central government will assess accordingly.

Areas targeted

This PKB targets the areas around the Rhine branches running from Lobith to the Ketelmeer and to the sea at the Maeslant storm surge barrier and the Haringvliet sluices (Upper Rhine, Pannerdensch Canal, IJssel, Lower Rhine/Lek, Waal, Merwede, Nieuwe Maas, Oude Maas, Hollandsch Diep and Haringvliet) and the diked section of the Maas downstream from Hedikhuizen (Bergsche Maas, Amer), as well as the Volkerak, the Zoommeer and the surrounding area (see Map 1). Also falling within the scope of this PKB are areas where mitigating nature conservation or compensation measures will be taken or where the dynamic approach will be applied.

Planning period

The PKB will apply for a period of 10 years. It will enter into force on the day following that on which the plan, having been approved by the House of Representatives and the Senate (PKB part 4), is published (section 2a, subsection 8 of the Spatial Planning Act).

Reporting to the House of Representatives and interim evaluation

Room for the River qualifies as a 'large project' and is therefore subject to the Large Projects Procedural Regulations. The government will report to the House of Representatives in accordance with them. An interim evaluation will be conducted by 2011 at the latest.

Objectives: safety and spatial quality

The government seeks to achieve two interrelated objectives:

- 1 To bring flood protection for the riverine area to the required level;
- 2 To contribute to improving the spatial quality of the riverine area.

Guaranteeing safety is the main objective; improving spatial quality is the secondary objective.

Safety

By no later than 2015, the safety level in the riverine area around the various branches of the Rhine should be in accordance with a design discharge of 16,000 m³/s at Lobith. By the same year, the safety level in the section of the Maas below Hedikhuizen should be in accordance with a design discharge of 3,800 m³/s at Borgharen. An additional influx from the tributaries raises the design discharge for the IJssel by a further 250 m³/s.

Further increases in river discharges and in sea level are expected and must be factored into measures for achieving the required safety levels.

Future spatial developments must not form an obstacle in taking the necessary measures.

Spatial quality

Apart from enhancing safety, this PKB seeks to help improve the spatial quality of the riverine area, thereby boosting its economy, ecology and scenic value. Special attention will be paid to conserving and developing its protected nature values. The aim is to make the area more attractive and improve quality of life by integrating water with other spatial functions.

The Spatial Policy Document proposed the following steps to improve the spatial quality of the riverine area:

- ~ increase the physical diversity between the various river branches;
- ~ maintain and strengthen the openness of the riverine area with its characteristic waterfronts;
- ~ conserve and develop the scenic, ecological, geological, cultural and historic values and improve environmental quality;
- ~ promote use of the main navigable waterways by both professional and recreational craft.

In protecting the core qualities of the river branches the focus will be on conserving and developing special features of an ecological, cultural-historical, economic or visual-spatial nature, for example. This will call for the restoration of ecological processes and values, the creation of attractive living, working and recreational environments and the enhancement of amenity and differentiation.

Main strategic policy choices

Given its viewpoint on flood protection and improved spatial quality, and its decision to shift towards river relief, the government has made the following strategic policy choices:

- ~ The package of measures proposed by the government for 2015 must be of use in the longer term and not thwart measures which might be needed later. These measures must be seen as a first step towards a more extensive, more robust river system, enabling additional steps to be taken if the design discharge increases further.
- ~ The government is taking account of the fact that climate change could cause the design discharge of the Rhine at Lobith to rise to about 18,000 m³/s and that of the Maas at Borgharen to about 4,600 m³/s by the end of the century. A rise in sea level of about 60 cm is also expected. In view of the uncertainties about future climate trends and the responses of other countries to them, accurate predictions cannot be made about the measures that will be needed after 2015, or how soon.
- ~ With the measures announced in this PKB for the Lek, the scope for further river relief and dike-strengthening will be practically exhausted, so that no further projects have been identified for this river branch after 2015.
- ~ The discharge distribution percentages calculated for the various Rhine branches for a design discharge of 15,000 m³/s will also apply to the design discharge of 16,000 m³/s determined in 2001. Any additional increase will be distributed between the Waal and the IJssel.
- ~ Detention reservoirs will not be among the measures adopted for the short term. In the long term, however, detention will be necessary, should the design discharge rise to about 18,000 m³/s. It is now regarded as a last resort.
- ~ These rivers and their floodplains form an area of considerable scenic, cultural and ecological importance. Since these values need to be conserved, it is not possible to rely solely on measures on the river side of the dikes. The government assumes that 1400 m³/s of the additional 3000 m³/s expected in the long term (the difference between the current design discharge of 15,000 m³/s and the 18,000 m³/s expected by the end of this century) can be discharged between the river dikes.
- ~ The short-term measures were chosen to make optimum use of the space on the river side of the dikes. However part of the solution was sought on the land side. In either case, an effort will be made to strike a balance between conserving existing core qualities and developing new ones. Wherever possible, the aim will be to combine achievement of the required safety level with nature conservation, the development of recreational facilities, mineral extraction, urban development etc.
- ~ At some locations, the government intends to take measures in the short term to provide more protection against flooding than strictly necessary by current standards. In doing so, it will be preparing for developments expected in the future and staying one step ahead of developments in spatial planning – plans for housing for example – which could form a serious obstacle to implementation of these measures at a later date. The government also wishes to avoid having to take successive sets of measures in the same area. In some cases, the measures in question will make a significant contribution to enhancing spatial quality. However, budgetary constraints may prevent the government from implementing these plans.



- ~ Efforts will also be made to produce a package of measures to improve habitats, particularly those of threatened species, for Natura 2000, the European ecological network.
- ~ A number of measures already being prepared – in the field of nature development and/or recreational facilities, for example, – are not among those listed in this PKB, but are needed to achieve its objectives.

The 2015 package of measures

The government has drafted a basic package of measures to achieve the required safety levels by 2015 at the latest. A programme approach will ensure flexibility.

The basic package of measures

The measures which will be taken to achieve the required safety levels and enhance spatial quality by 2015 at the latest are presented in pages 1 & 2 of the Annexe. Due regard will be taken of the other decisions of essential importance included in this section. The planned measures are indicated on maps 2, 3, 4 and 5.

Where applicable, the water level reduction (the minimum hydrological target) to be achieved for each measure is indicated in the Annexe.

The name of each measure indicates its nature. Once it has been implemented, the type of land use indicated in the Annexe for the area in question (e.g. agriculture, nature conservation) will be the dominant one, alongside flood protection.

The Annexe also lists the project decision to be adopted, the law on which it is based, the administrative body that will issue it and the date by which it must have done so, and the period in which the measure will be implemented.

The government will oversee implementation to ensure that required safety levels are achieved on time.

An overview of the locations where measures will be taken can be found on:

Map 2: Overview of basic package of measures, alternatives, additional measures and depots for the short term.

The measures will be carried out at the locations shown on:

Map 3: Basic package, alternatives, additional measures and depots for the short term – Arnhem-Nijmegen region and central riverine area;

Map 4: Basic package and depots for the short term – lower riverine area;

Map 5: Basic package, alternatives and depots for the short term – IJssel.

The areas where the measures will be taken are shown on the maps. Within each area, an indication is given of the location of each measure, where possible on the basis of studies. The final location will be determined during the next round of decision-making. It will in any event be within the PKB planning area, and as far as possible within the planning area for the specific measure.

Depots

The basic package of measures will generate huge volumes of soil, some of which will be contaminated.

Depots, both existing and new, will be needed for the storage of both contaminated and uncontaminated soil. Possible soil storage locations are shown as separate measures in the Annexe and on maps 2, 3, 4 and 5. The soil depots shown are those needed to implement the basic package.

Some of the measures in the PKB combine river relief with the establishment of a soil depot.

Achieving both objectives with the basic package

The basic package will result in both objectives being achieved in the riverine area as a whole. Achievement of the required safety levels combined with conservation and enhancement of spatial quality were the criteria used in putting it together. But because of factors such as time constraints, budget and technical feasibility, it will not be possible to ensure that every measure enhances spatial quality.

Studies will therefore be conducted to show how each measure or group of measures can be optimised to achieve the two objectives coherently.

Programme approach

The government has decided on a programme approach. The aim is to retain flexibility in implementing the PKB, leaving scope for measures other than those listed in the basic package or for the application of new knowledge, techniques or technologies which allow the objectives to be met more effectively or in a more socially acceptable way. Important criteria are greater safety and spatial quality and/or cost effectiveness. This approach is in accordance with the desires of the region itself.

Flexibility in implementing the plans will be achieved by describing the measures in fairly general terms in the Annexe and on the maps, and by leaving scope for alternatives, additional measures and new initiatives. Page 2 of the Annexe lists three alternatives and two additional measures.

While opting for flexibility the government is determined to see the objectives achieved no later than 2015.

Alternatives

Alternatives are measures which can be taken instead of one or more measures in the basic package. Alternatives can only be included in the basic package if any extra funding that might be needed is assured.

Two of the alternatives included in this PKB, the flood bypass channels at Kampen and Zutphen, could greatly enhance spatial quality and are more closely in line with the region's land-use development preferences. The channels could also cope with the higher river discharges expected in the future. It is up to the region to take these measures, both of which are highly complex, since coordination with other land-use plans will be necessary. They are also more costly than the measures now included in the basic package.

An alternative measure can only replace a measure or group of measures in the basic package if it makes a sufficient contribution to reducing the design high water level by 2015 at the latest and if costs fall within the state budget or, in the opinion of the government, there are adequate guarantees that extra funding can be secured.

The basic package includes one private initiative: lowering the river floodplains at Huissensche Waarden. The alternative is to lower the groyne in the Pannerdensch Canal. This is a fall-back option: it will replace the measure in the basic package if the objectives of this PKB will otherwise not be achieved in time.

The decision to include an alternative in the basic package must be taken by the Minister of Transport, Public Works and Water Management, in consultation with the Minister of Housing, Spatial Planning and the Environment, no later than the date specified in page 2 of the Annexe.

Once this decision has been taken, the alternative will form part of the basic package and the original measure or group of measures will be deleted from the PKB.

Additional measures

Additional measures contribute directly to enhancing spatial quality and are self-funding. They must contribute to creating a more robust river system with particular regard to safety in the long term. Additional measures are not strictly necessary for raising safety levels in the short term. They provide opportunities for public and private initiatives in the region. For the two additional measures included in this PKB, see page 2 of the Annexe.

New initiatives

After the PKB has come into force, new initiatives or newly gained insights may point to a better solution, for example an alternative or additional measure or a significant change to the nature, location or land use of a measure described in the Annexe or on the maps. Under certain conditions these new initiatives or insights can be incorporated into the PKB.

The Minister of Transport, Public Works and Water Management, in consultation with the Minister of Housing, Spatial Planning and the Environment, may amend or add to the basic package to allow for these initiatives or insights, provided both ministers are of the opinion that:

- ~ the government and the administrative bodies concerned have reached agreement on the matter;
- ~ any additional funding is guaranteed by the party launching the initiative;
- ~ the measure will contribute sufficiently to lowering the design high water level;
- ~ spatial quality will improve beyond the level that would have been achieved with the original measure in the basic package, measured against the spatial quality objective specified in this PKB for the location;
- ~ there is no conflict with the other objectives of this PKB or the strategic policy choices made in it; and provided the Minister has no overriding objections based on
 - ~ the strategic environmental assessment (if applicable); and
 - ~ the standard public preparatory procedure referred to in Part 3.4 of the General Administrative Law Act, which is required because of the departure from the PKB.

An amendment to the basic package as referred to in this box can only be made after the Minister of Transport, Public Works and Water Management and the Minister of Housing, Spatial Planning and the Environment have informed the House of Representatives accordingly.

Where applicable, the Minister of Transport, Public Works and Water Management will specify which project decision needs to be taken.

Nature conservation

Nature conservation figured prominently in drawing up this PKB and should be addressed in its implementation.

A nature conservation impact assessment was performed for the basic package to check whether the decisions to which the PKB will give rise are in accordance with the relevant regulations. The decision relating to each measure must comply with the Nature Conservancy Act 1998 and the Flora and Fauna Act. In each case, the nature conservation impact

assessment must take on board the *Strategic Framework for the Birds and Habitats Directives, Room for the River and Room for Natura 2000*.

Strategic Framework for the Birds and Habitats Directives, Room for the River and Room for Natura 2000

Before designating any areas referred to in Section 10a of the Nature Conservancy Act 1998, the conservation objectives contained in the Ministry of Agriculture, Nature and Food Quality's *Strategic Framework for the Birds and Habitats Directives, Room for the River and Room for Natura 2000* (Room for the River project organisation, ref. L846 of 19 December 2003) will, where applicable, apply to the PKB planning area.

For example, to ensure cohesion with the Natura 2000 ecological network, the Strategic Framework states that the foraging value of the riverine area for grass-eating, overwintering water birds (geese, swans, widgeons) must be maintained at its present level.

Nature conservation impact assessment for the basic package

A nature conservation impact assessment was carried out to assess the effects of the measures in the basic package both in their totality and individually.

The assessment showed that the basic package as a whole can be implemented in such a way as to avoid significant adverse effects on ecological values in Natura 2000 sites protected under the Habitats and Birds Directives. Most of the measures can also be implemented individually without significant adverse effects.

Nature conservation impact assessment per measure and the implications for each measure

The effects of each measure will be assessed separately. In cases where adverse impacts cannot immediately be excluded, special attention will be paid to nature conservation in drawing up and implementing the land-use plan for the area to which the measure will apply.

Mitigation – preventing or reducing significant adverse impacts on the protected ecological values – is not always feasible within the area to which the measure applies. In such cases mitigation will be put into effect within the Natura 2000 site as a whole and if possible in an area affected by another measure by virtue of this PKB. Where mitigation proves impossible, compensatory measures will be taken outside the Natura 2000 site.



The purpose of the PKB is to increase public safety and strengthen the riverine area in economic, ecological and scenic terms. These are matters of overriding public interest. In the absence of alternatives consistent with the PKB's objectives, recourse will be had to compensatory measures.

Locations for such measures will first be sought along the same river branch. If this proves impossible, they will be taken at another location in the riverine area as a whole. Mitigation or compensation may occur outside the areas presently designated in the PKB for measures.

Sustainability of the compensatory measures will be guaranteed, preferably by bringing the relevant areas within the scope of the Nature Conservancy Act 1998. If necessary, planning in these areas will be governed by a project decision issued by central government.

A project decision on a measure will only be adopted when the related mitigatory or compensatory measures have been secured. Where necessary, the government can phase in measures by means of the Flood Defence Act or the Spatial Planning Act.

The Ministry of Agriculture, Nature and Food Quality is endeavouring to have the entire riverine area designated as a special conservation area as referred to in Section 10a of the Nature Conservancy Act 1998.

Land reservation

Reservation of land to the land side of the dikes

The policy of keeping the existing floodplains for the river is set out in the guidelines for the major rivers. Where land will or can be given to the river by setting the dike further back from it, a land reservation will apply. This means that:

- 1 land needed for measures in the basic package will be safeguarded from developments which might stand in the way of a flood defence installation;
- 2 land where measures are expected to be needed in the long term will be safeguarded against large-scale and/or capital-intensive developments which will seriously impede future river relief measures from being taken.

Once the land actually comes to lie on the river side of the dike it will be subject to the guidelines for the major rivers.

The general land reservation procedure for river relief announced in the Spatial Policy Document can now be limited to the specific areas mentioned here. This PKB specifically identifies where river floodplains will eventually be widened.

The provincial and municipal authorities will be asked to ensure that the reservations referred to in this section are fully incorporated into their policies, in particular in their regional development and land-use plans.

The 2015 basic package

The maps indicate the measures from the basic short-term package for which land will be reserved for the expansion of the river floodplains. The areas indicated on the map, including those referred to in the box Reservation of land to the land side of the dikes, under point 1, will be reserved for the measures on:

Map 3

- ~ dike setback, Lent
- ~ dike setback, Buitenpolder Het Munnikenland

Map 4

- ~ depoldering, Noordwaard (part of river at high water)
- ~ depoldering, Overdiepsche Polder (part of river at high water)
- ~ storage in the Volkerak and the Zoommeer

Map 5

- ~ dike setback, Cortenoever
- ~ dike setback, Voorster Klei
- ~ flood bypass channel, Veessen-Wapenveld
- ~ dike setback, Westenholte

Long term

There are a number of areas:

- ~ where measures may be necessary in the long term;
- ~ for which no alternative areas are available, or where there is a risk that major, large-scale and/or capital-intensive developments will ultimately render a measure impossible to implement.



The areas referred to in the box 'Reservation of land to land side of the dikes' under point 2, and shown on the maps for the long term, will be reserved for any river relief measures needed in the future:

Map 6: Reservation for the long term – Arnhem-Nijmegen region and central riverine area

- ~ detention reservoir, Rijnstrangen
- ~ dike setback, Oosterhout – Slijk Ewijk
- ~ dike setback, Loenen
- ~ dike setback, Heesselt
- ~ dike setback, Brakelse Benedenwaarden

Map 7: Reservation for the long term – lower riverine area

- ~ dike setback, Drongelen

Map 8: Reservation for the long term – IJssel

- ~ flood bypass channel, Zutphen
- ~ flood bypass channel, Deventer
- ~ flood bypass channel, Kampen
- ~ dike setback, Noorddiep

If, to achieve a short-term objective, a land-side measure from the basic package is replaced by a measure in one of the above-mentioned areas, this land will be reserved for the short term, and the land to which the measure from the basic package applies will be reserved for the long term.

Decision-making procedure after the PKB

Phasing

Decision-making on the measures included in this PKB will take place in three stages:

- 1 the current PKB procedure;
- 2 preparation of the project decisions by the competent administrative bodies. In many cases, this will entail the adoption and approval of a plan. The relevant project decisions need to be taken prior to implementation of the PKB. A project decision is an integrated decision on a specific measure at a specified location. These project decisions are listed in the Annexe and will be adopted after this PKB enters into force;
- 3 specific decisions needed to implement the project, e.g. permits needed for excavation or construction activities.

Apart from a project decision, for example based on the Spatial Planning Act, an investment decision by the Minister

of Transport, Public Works and Water Management is needed before a measure can be implemented. The procedures are described in internal guidelines for water management infrastructure.

Administrative level at which a project decision is taken

This PKB will be followed by administrative project decisions for each measure. Project decisions are legally binding and specify how the project will be implemented or contracted out. This PKB lists the government authorities responsible for taking each specific project decision and indicates the relevant procedure by referring to the law in question. The principle here is that matters that can be dealt with at local level should be the responsibility of the relevant local authority, although the scale and nature of the project are important factors.



Procedure for national projects

The procedure for national projects, as set out in the Spatial Planning Act, applies to measures with a dimension or impact that transcends local level.

The national project procedure applies in the following cases:

- ~ far-reaching and complex measures affecting a relatively large area;
- ~ a set of measures which are closely interrelated in terms of their hydrological and spatial effects, for which it is in the interests of efficiency that a single body, i.e. central government, takes the project decision;
- ~ projects which command little private or public support in the region concerned.

The local authorities concerned will be involved in preparing national project decisions.

The government authority charged with preparing and adopting each project decision, and the law mandating it, are listed in the Annexe. This project decision will largely determine future land use.

The Minister of Transport, Public Works and Water Management, having consulted the Minister of Housing, Spatial Planning and the Environment may decide that a government project decision will be prepared for measures not initially the responsibility of central government if the initial project decision, or other decision needed to implement the project, was not adopted by the date shown in the column 'Project decision deadline' or the decisions needed to implement the project were not taken before the period shown in the column 'Implementation period', or progress is otherwise stagnating. The national project decision will then be adopted by the Minister of Transport, Public Works and Water Management in consultation with the Minister of Housing, Spatial Planning and the Environment.



Funding

Implementation of the measures described in this PKB depends on the amounts earmarked in the budget of the Ministry of Transport, Public Works and Water Management for the *Room for the River* programme (IF 16.02.02).

In the event that the main objective of this PKB (achieving the required safety levels) conflicts with its secondary objective (spatial quality), the main objective will prevail.



Annexe

Appendix, page 1: Basic Package Measures

Name of measure	Code/Location	Minimum Hydraulic Tasks m	at river km	Land use
Upper Rhine/Waal				
Obstacle removal at Suikerdam and polder quay to the Zandberg	1503	-0.08	870.8-871.8	nature
Extra floodplain excavation at Millingerwaard	1504	-0.09	870 - 872	nature
Dike shifting at Lent	50009a	-0.27	881.5-882.5	water, residential, nature
Groyne lowering at Waalbochten	Groyne-W1a	-0.08	866.5-867.5	N/A
Groyne lowering at Middle Waal	Groyne-W1a	-0.12	887.0-888.0	N/A
Groyne lowering at Waal Fort St. Andries	Groyne-W3	-0.08	915.5-916.5	N/A
Groyne lowering at Lower Waal	Groyne-W4	-0.06	933.5-934.5	N/A
Floodplain excavation at Brakelse Benedenwaarden and Dike relocation at Buitenpolder Het Munnikenland	W45-W48-4a	-0.11	947.3-948.3	nature
Merwedes, Bergsche Maas, Amer, Rhine-Maas estuary area				
Floodplain excavation at Avelingen Industrial Park	MW8_2a	-0.05	955	water
Returning reclaimed land to river at Noordwaard (through-flow)	MW18_1	-0.30	955	agriculture, nature
Returning reclaimed land to Overdiepsche Polder (through-flow)	M31	-0.30	239.5	agriculture
Quay lowering Biesbosch	M30a	-0.01	252	nature
Dike improvement Amer/Donge	dike ring 35, dike reach km. 246-247	-	-	N/A
Dike improvement Steurgat/Land van Altena	dike ring 24, dike reach near km. 963, 964-966, 968-970	-	-	N/A
Dike improvement Bergsche Maas/Land van Altena	dike ring 24, dike reach near km. 247-249	-	-	N/A
Dike improvement Oude Maas/Hoeksche Waard	dike ring 21, dike reach near km. 993-995	-	-	N/A
Dike improvement Oude Maas/Voorne Putten	dike ring 20, dike reach near km. 999.5	-	-	N/A
Storage at the Volkerak Zoommeer	M40_3a	-0.10	1015	N/A
		-0.03	976-978	
Pannerdensch Canal, Lower Rhine and Lek				
Floodplain excavation at Huissensche Waarden	R05-R06_alt 1a	-0.08	870.5-871.5	nature
Floodplain excavation at Meinerswijk	R09-3	-0.07	882 - 883	nature
Floodplain excavation at Doorwerthsche Waarden	R13-3c	-0.02	892.2 - 893.2	nature
Floodplain excavation at Middelwaard	R22-2	-0.03	907.2 - 908.2	nature
Floodplain excavation at De Tollewaard	R24-1b	-0.06	910.7-911.7	nature
Obstacle removal Elst Engineering School	5301b	-0.05	916.0-917.0	nature
Floodplain excavation at Honswijkerwaarden, weir island Hagestein, Hagesteinsche Uiterwaard and Heerenwaard	R43-R44-R46-R49_3	-0.06	945.2-946.2	nature, recreation
Dike improvement Lower Rhine/Geldersche Vallei	dike ring 45, dike reach near km. 905-907	N/A	N/A	N/A
Dike improvement Lower Rhine/Betuwe/ Tielerswaard and Culemborgerwaard	dike ring 43, dike reach near km. 878, 879-881, 892, 904.5, 906, 907, 908-910, 910.5, 913-914, 915, 916-917, 922-924, 925-928	N/A	N/A	N/A
Dike improvement Lower Rhine/Arnhemse Broek and Velpsebroek	dike ring 47, dike reach near km. 881-883	N/A	N/A	N/A
Dike improvement Lek/Betuwe/Tielerswaard and Culemborgerwaard	dike ring 43, dike reach near km. 930-931, 932-936, 937-938, 939, 942	N/A	N/A	N/A
Dike improvement Lek/Alblasserwaard and the Vijfheerenlanden	dike ring 16, dike reach near km. 943-948, 949 950-956, 958-965, 966-972, 980	N/A	N/A	N/A
Dike improvement Lek/Lopikerwaard and Krimpenerwaard	dike ring 15, dike reach near km. 958, 959-960, 961.5, 963-964, 965-967, 968-969, 971	N/A	N/A	N/A
IJssel				
Dike shifting at Cortenoever	50007c	-0.35	917.8-918.8	agriculture
Dike shifting at Voorster Klei	20505d	-0.29	929.1-930.1	agriculture
Floodplain excavation at Bolwerksplas, Worp and Ossenwaard	Y31-Y33-Y34_1a	-0.17	942.5-943.5	nature
Floodplain excavation at Keizerswaard and Stobbenwaarden and Olsterwaarden	Y36-Y37-Y39-2b	-0.10	946.5-947.5	nature
Flood channel at Veessen-Wapenveld	50006c	-0.63	960.7-961.7	agriculture
Floodplain excavation at Scheller and Oldeneler Buitenwaarden	Y49-2b	-0.08	976.2-977.2	nature
Dike shifting at Westenholte	20509d	-0.15	980.1-981.1	nature
Summer bed lowering at Lower IJssel*	ZbIj	-0.29	979.0-980.0	N/A

* in combination with nature-mitigating measures in floodplains

(continued)

Project decision	Project decision Law	Adopting administrative body	Deadline for project decision	Implementation period
Wbr permit	Wbr	Minister Transport & Public Works	01-01-2009	2010-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-01-2009	2010-2015
Flood control plan and zoning plan	Wwk and Wro	Rivierenland District Water Board, Mun. of Nijmegen	01-07-2007	2011-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-07-2011	2012-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-07-2011	2012-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-07-2011	2012-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-07-2011	2012-2015
Flood control plan and zoning plan	Wwk and Wro	Rivierenland District Water Board, Mun. of Zaltbommel	01-01-2010	2010-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-07-2011	2013-2015
State project decision	Wbo	Minister Transport & Public Works	01-01-2009	2011-2014
Flood control plan and zoning plan	Wwk and Wro	Brabantse Delta District Water Board, Mun. of Waalwijk	01-01-2009	2011-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-01-2013	2014-2015
Flood control plan	Wwk	Brabantse Delta District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Rivierenland District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Rivierenland District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Hollandse Delta District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Hollandse Delta District Water Board	01-01-2012	2014-2015
State project decision	Wro	Minister Transport & Public Works	01-07-2009	2012-2014
Zoning plan	Wro	Mun. of Lingewaard	01-01-2009	2012-2015
Zoning plan	Wro	Mun. of Arnhem	01-07-2008	2010-2014
Zoning plan	Wro	Mun. of Renkum	01-07-2008	2010-2014
Zoning plan	Wro	Mun. of Buren	01-07-2008	2010-2014
Zoning plan	Wro	Mun. of Buren	01-07-2008	2010-2014
Wbr permit and zoning plan	Wbr and Wro	Minister Transport & Public Works, Mun. of Elst	01-07-2008	2010-2014
Zoning plan	Wro	Mun. of Vianen, Mun. of Houten	01-07-2008	2010-2014
Flood control plan	Wwk	Vallei en Eem District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Rivierenland District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Rijn en IJssel District Water Board	01-01-2009	2012-2014
Flood control plan	Wwk	Rivierenland District Water Board	01-01-2012	2014-2015
Flood control plan	Wwk	Rivierenland District Water Board	01-01-2008	2010-2011
Flood control plan	Wwk	Stichtse Rijnlanden district Water Board		
Flood control plan and zoning plan	Wwk and Wro	Veluwe District Water Board, Mun. of Brummen	01-07-2009	2011-2015
Flood control plan and zoning plan	Wwk and Wro	Veluwe District Water Board, Mun. of Voorst Mun. of Brummen	01-07-2009	2011-2015
Zoning plan	Wro	Mun. of Deventer	01-01-2010	2011-2015
Zoning plan	Wro	Mun. of Deventer, Mun. of Olst-Wijhe	01-07-2007	2009-2015
State project decision	Wro	Minister Transport & Public Works	01-07-2009	2011-2015
Zoning plan	Wro	Mun. of Zwolle	01-01-2008	2010-2015
Flood control plan and zoning plan	Wwk and Wro	Groot Salland District Water Board, Mun. of Zwolle	01-01-2008	2010-2015
Wbr permit	Wbr	Minister Transport & Public Works	01-01-2012	2013-2015

Appendix, page 2: Alternatives and supplemental measures

Name of measure	May replace	Land use
<i>Alternatives</i>		
Pannerdensch Canal		
Groyne lowering at Pannerdensch Canal	Floodplain excavation at Huissensche Waarden	N/A
IJssel		
Flood channel at Zutphen	Dike relocation at Cortenoever and Voorster Klei	nature, agriculture, water, residential
Flood channel at Kampen	Summer bed lowering at Lower IJssel	nature, agriculture, water, residential
<i>Supplemental measures</i>		
Waal		
Floodplain excavation at Drutensche Waarden east and west	N/A	nature
Lower Rhine/Lek		
Floodplain excavation at Mauricksche Waarden	N/A	recreation, residential

Appendix, page 3: Basic Package Measures Storage depots for clean, slightly or heavily polluted soil

Name of measure	Soil quality**	Project decision deadline	Execution period
Waal			
Oosterhoute floodplains	LV	01-07-2007	2008-2010
Gouverneursche Polder	LV	01-07-2007	2008-2010
Kerkenwaard	LV	01-07-2007	2008-2010
Merwedes, Bergsche Maas, Amer, Rhine-Maas estuary area			
Putten Haringvliet in combination with covering remediation locations at Haringvliet, recovery measures and/or nature development	LV	01-01-2009	2010
Kerkenwaard	LV	01-07-2007	2008-2010
Lower Rhine			
Ingense Waarden	LV	01-07-2007	2008-2010
IJssel			
Well at the Flevo centrale, in combination with recovery measures and/or nature development	LV	01-07-2007	2008-2010
Havikerwaard	LV	01-07-2007	2008-2010
Scheller and Oldeneler Floodplains (integral part of the measure with same name on Page 1)	LV	01-01-2008	2010-2015
The Floodplains	LV	01-07-2007	2008-2010
All of the river branches			
Kaliwaal *	SV		
Cromstrijen/Hollandsch Diep *	SV + LV		
Sluffer *	SV + LV		
Depot IJsselooog *	SV		

* Existing depot

** The quality of the soil to be removed is indicated for each depot, determined according to the Active River Bed Soil Management policy memorandum and, where applicable, on the basis of the effects: the "ABR and ABM Rules" (August 2005).

V = clean to slightly polluted soil

SV = heavily polluted soil

The decision from Chapter 7 is also of vital importance to the measures mentioned in this document; if necessary, a state project decision will be made for the depots to be selected.

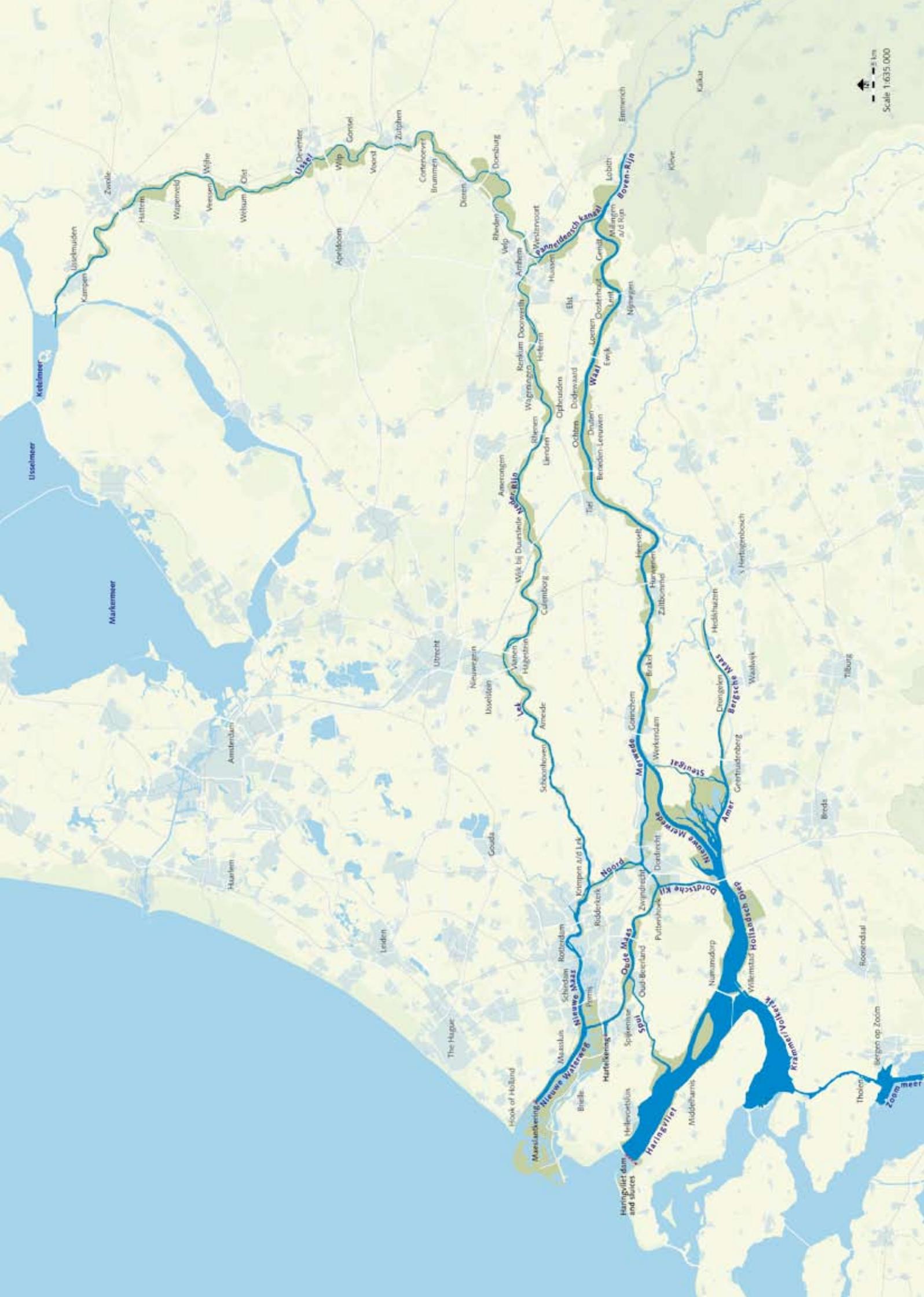
(continued)

Project decision	Project decision Law	Adopting administrative body	Final deadline for inclusion in PKB	Project decision deadline	Implementation period
Wbr permit	Wbr	Minister Transport & Public Works	01-01-2009	01-07-2011	2011-2015
Flood control plan and zoning plan	Wwk / Wro	Veluwe District Water Board, Mun. of Zutphen	01-01-2009	01-01-2010	2011-2015
Flood control plan and zoning plan	Wwk and Wro	Groot Salland District Water Board, Mun. of Kampen	01-01-2009	01-01-2010	2011-2015
zoning plan	Wro	Mun. of Druten	01-01-2009	01-01-2009	2012-2015
zoning plan	Wro	Mun. of Buren	01-01-2009	01-01-2009	2012-2015



Maps

Map 1: Topography of plan area



IJsselmeer

Markmeer

Krabbendijk

Krabbendijk

Krabbendijk

Krabbendijk

Markmeer

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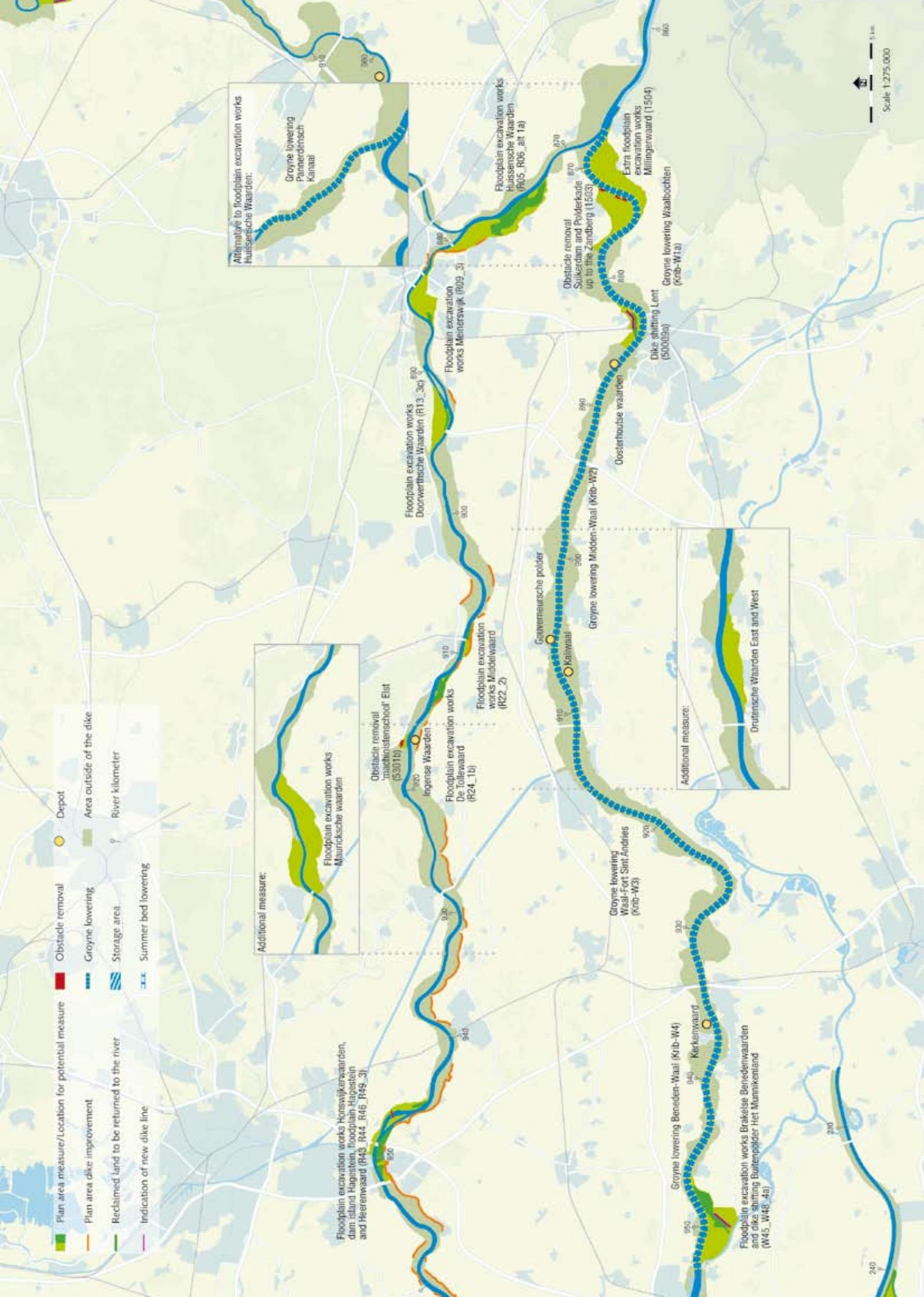
Leiden

Map 2: Overview of the Basic Package, alternatives, supplemental measures and depots for the short term

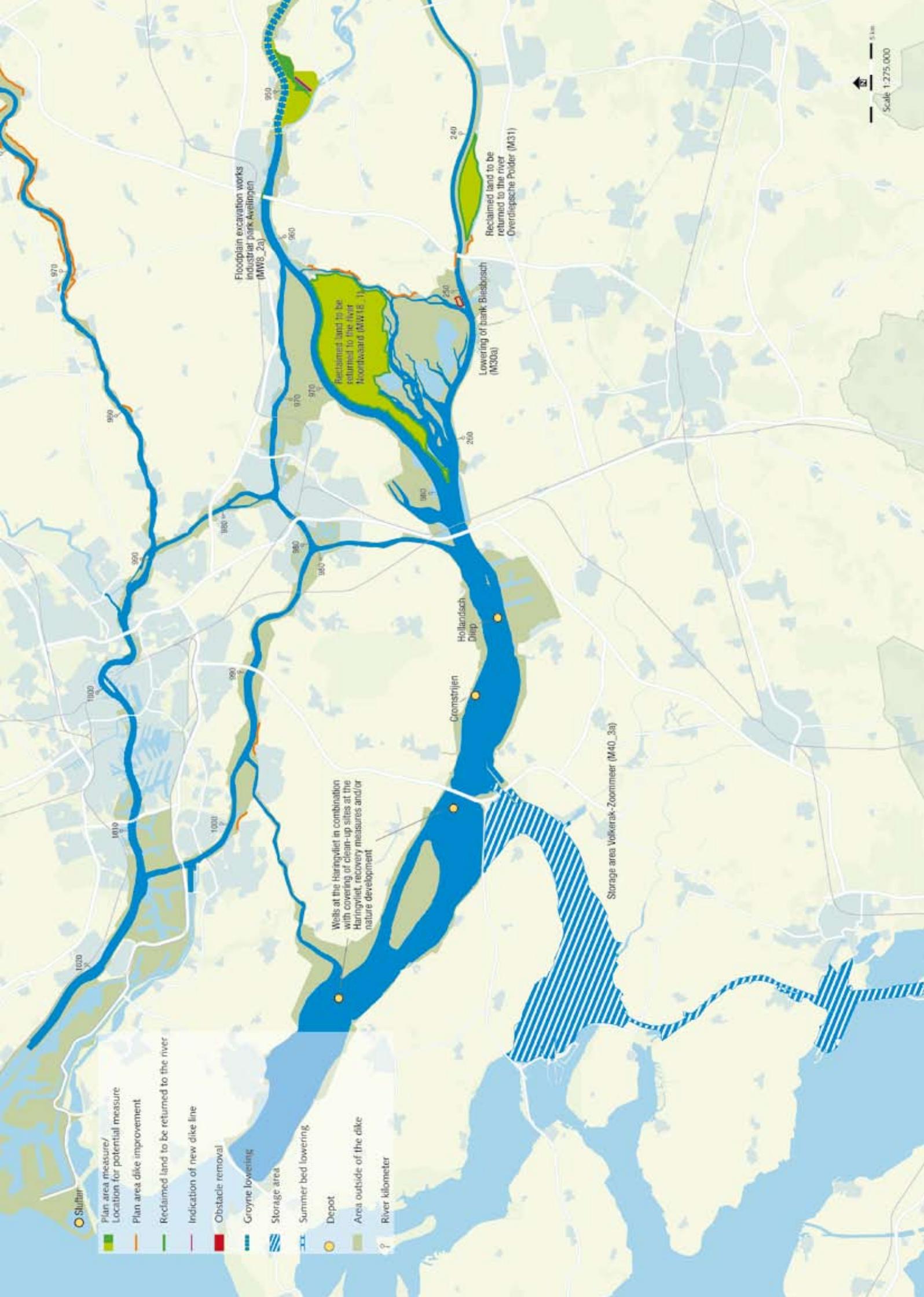
-  Obstacle removal
-  Floodplain excavation works
-  Flood channel
-  Dike shifting
-  Summer bed lowering
-  Dike improvement
-  Groyne lowering
-  Storage area
-  Reclaimed land to be returned to the river
-  Depot
-  Area outside of the dike
-  River kilometer



**Map 3: The Basic Package, alternatives, supplemental measures and depots for the short term - KAN
(Arnhem-Nijmegen Junction) and Central Rivers Region**



Map 4: Basic Package and depots for the short term



- Slufter
- Plan area measure/
Location for potential measure
- Plan area dike improvement
- Reclaimed land to be returned to the river
- Indication of new dike line
- Obstacle removal
- Groyne lowering
- Storage area
- Summer bed lowering
- Depot
- Area outside of the dike
- ⊙ River kilometer

Floodplain excavation works
industrial park Avellopingen
(MWS_2a)

Reclaimed land to be
returned to the river
Moordwaard (MWS_1)

Lowering of bank Biesbosch
(M30a)

Reclaimed land to be
returned to the river
Overdijpsche Polder (M31)

Wells at the Haringvliet in combination
with covering of clean-up sites at the
Haringvliet, recovery measures and/or
nature development

Storage area Volkerak-Zoommeer (M40_3a)

Hollandsch
Diep

Cromstrijen

1020

1010

1000

990

980

970

960

1000

990

980

970

960

950

940

930

1000

990

980

970

960

950

940

930

920

910

900

890

880

870

860

850

840

830

820

810

800

790

780

770

760

750

740

730

720

710

700

690

680

670

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630

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610

600

590

580

570

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550

540

530

520

510

500

490

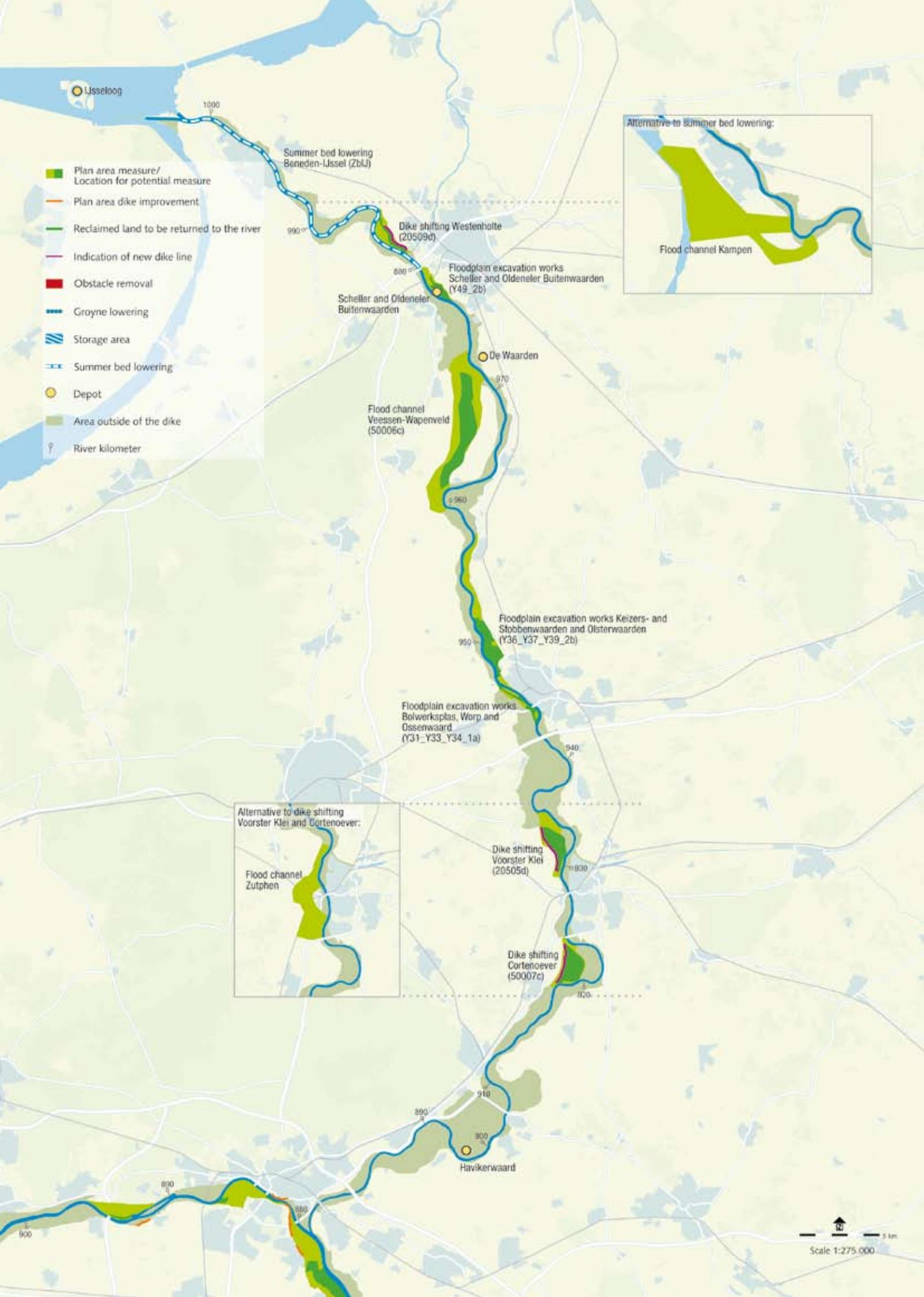
480

470

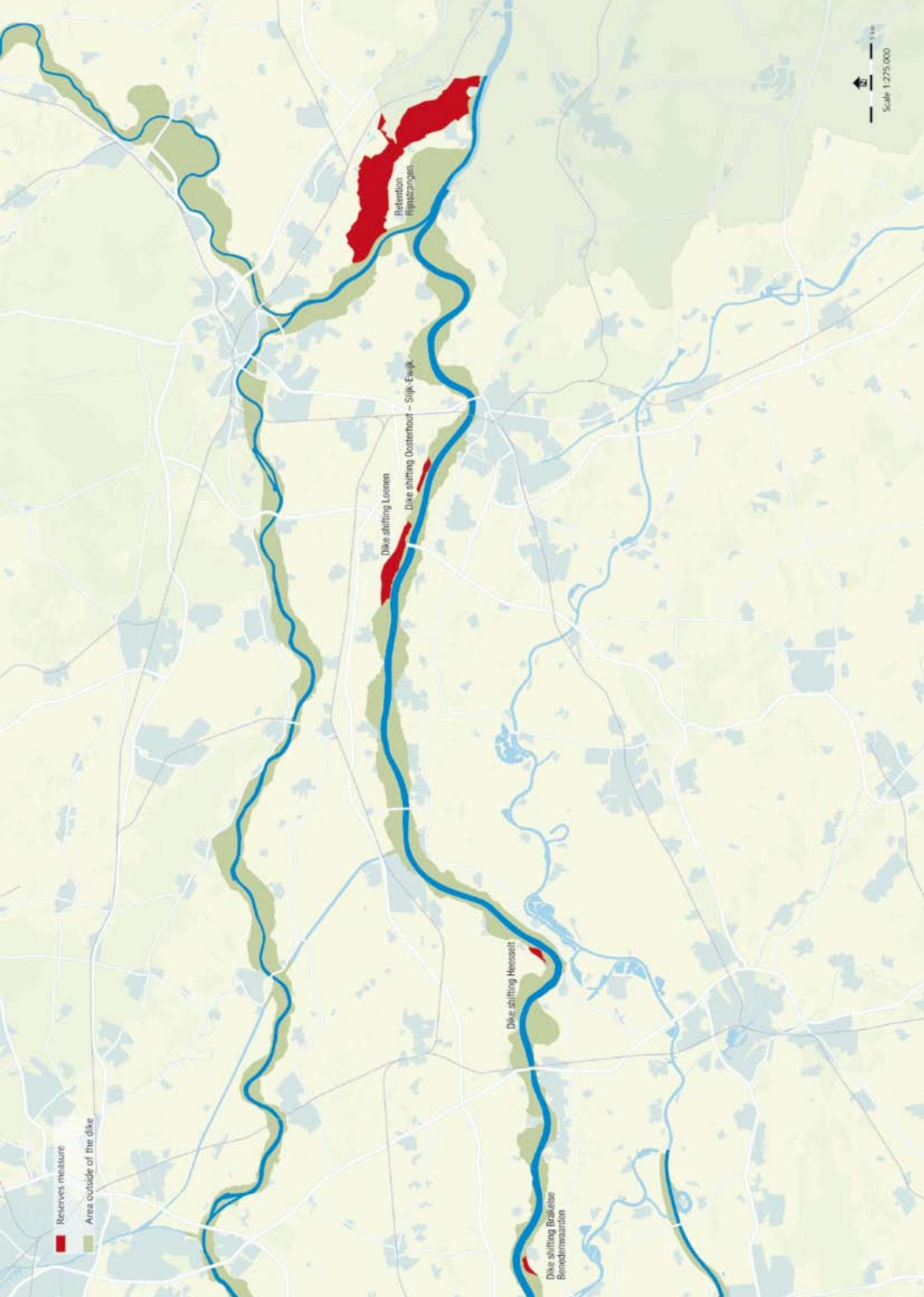
460

450

Map 5: Basic Package, alternatives and depots for the short term - IJssel



Map 6: Reserves for the long term - KAN and Central Rivers Region



Reserves measure

Area outside of the dike

Dike shifting Loenen

Dike shifting Oosterhout - Slijk-Ewijk

Dike shifting Hesselit

Dike shifting Brakelse
Benedenwaarden

Pierlütön
Pijpslangen

Scale 1:275,000
5 km

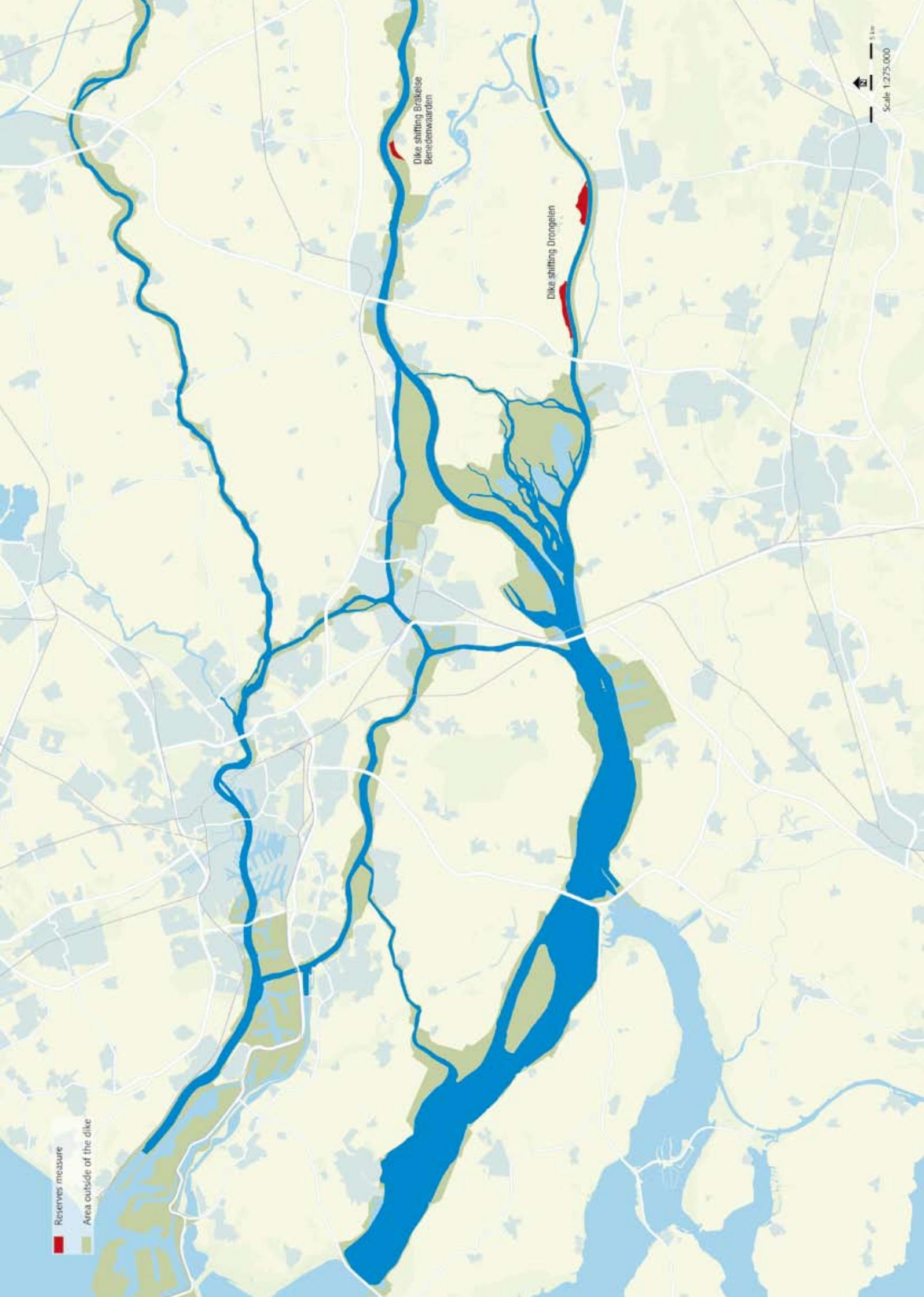
Map 7: Reserves for the long term - Area below the rivers

Reserves measure
Area outside of the dike

Dike shifting Brakelse
Beneetwaarden

Dike shifting Drongelen

Scale 1:275,000
5 km



Map 8: Reserves for the long term - IJssel

- Reserves measure
- Area outside of the dike

Dike shifting Noorddiep

Flood channel Kampen

Flood channel Deventer

Flood channel Zutphen is exchangeable with:

Dike shifting Voorster Klei

Dike shifting Cortenoever

Flood channel Zutphen

