

4 Detailed Cost Schedule

4.1 NPA1 - North Sector (North of Airport)

The cost mechanism for NPA1 is shown in Table 4-1 and is summarised below with a plan of the related estimated infrastructure, flood risk and environmental constraints shown in Table 4-1, along with relevant traffic lights where appropriate.

Wastewater

• Three options for the provision of wastewater treatment are Whitlingham WWTW, Rackheath WWTW and a new WWTW.

Water Supply

Water would be supplied from Heigham WTW.

Water Resources

 Additional water resources are from connections to Thorpe St Andrew BH and Colney BH, GOGDS, River Wensum reuse and off line storage.

Flood Risk

- Flood risk to the PGA has been assigned a green traffic light as less than 10% of the PGA is within Flood Zone 2 or 3.
- Flood risk from the PGA has been assigned the following traffic lights based on Section 3.4.2:
- From Whitlingham WWTW amber (discharges to tidal reach of River Yare).
- From Rackheath WWTW green (discharges to Dobbs Beck).
- From a new WWTW green (discharges to Stone Beck).
- SUDS have been assigned a green traffic light (good SUDS suitability).

Environment

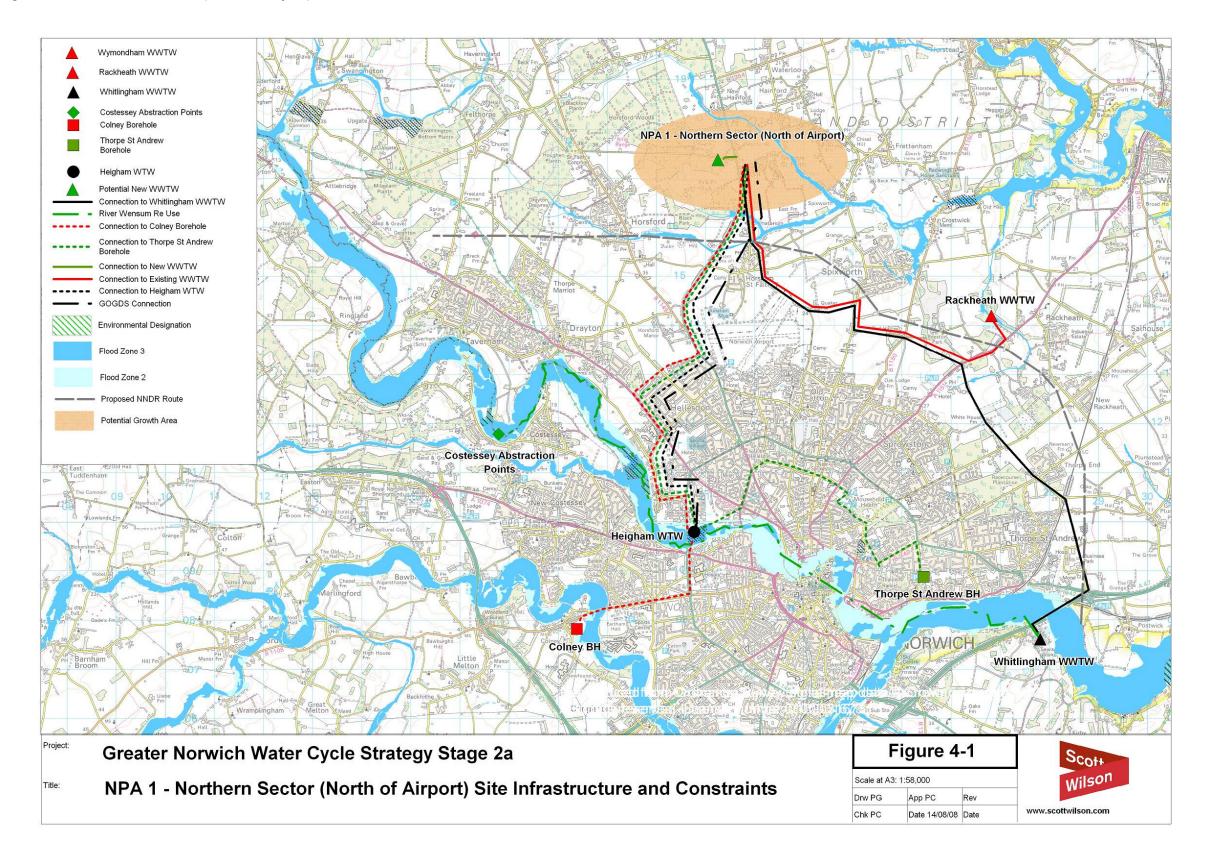
- Conservation designation has been assigned the following traffic lights:
- From Whitlingham WWTW amber (no conservation designated areas within the PGA but discharge into the River Yare would flow through a designated SAC site)
- From Rackheath WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- From a new WWTW amber (no conservation designated areas within the PGA but discharge into Stone Beck would flow through an SAC site further downstream).
- The PGA has been assigned a red traffic light in relation to Groundwater Vulnerability
- The PGA has been assigned a green traffic light in relation to Source Protection Zone requirements.

Table 4-1: NPA1 total summary costs

PDS	\$\frac{1,000}{5,500,000}\$ \$\frac{1,000}{5,700,000}\$ \$\frac{1}{3,400,000}\$ \$\frac{20,000}{5,000,000}\$ \$\frac{3,300,000}{6,900,000}\$	5,000 - 7,600,000 - 700,000 8,300,000 - 4,800,000 - 13,500,000 700,000 19,000,000	10,000 9,300,000 - 1,400,000 10,700,000 - 5,800,000	2 14/08/2008 15,000 9,900,000 - 2,000,000 11,900,000 - 6,200,000 22,300,000	01/09/2008 ND PM 20,000 - 9,900,000 - 2,700,000 12,600,000		ject no.	
PDS	1,000 - 5,500,000 - 200,000 5,700,000 - 3,400,000 - 3,300,000 200,000	5,000 - 7,600,000 - 700,000 8,300,000 - 4,800,000 - 13,500,000 700,000	10,000 9,300,000 - 1,400,000 10,700,000 5,800,000	15,000 9,900,000 - 2,000,000 11,900,000	20,000 - 9,900,000 - 2,700,000 12,600,000			
PDS	1,000 - 5,500,000 - 200,000 5,700,000 - 3,400,000 - 3,300,000 200,000	5,000 - 7,600,000 - 700,000 8,300,000 - 4,800,000 - 13,500,000 700,000	10,000 9,300,000 - 1,400,000 10,700,000 5,800,000	15,000 9,900,000 - 2,000,000 11,900,000	20,000 - 9,900,000 - - 2,700,000 12,600,000			
	5,500,000 	7,600,000 	9,300,000 1,400,000 10,700,000 5,800,000	9,900,000 - 2,000,000 11,900,000	9,900,000 - 2,700,000 12,600,000			
	5,500,000 	7,600,000 	9,300,000 1,400,000 10,700,000 5,800,000	9,900,000 - 2,000,000 11,900,000	9,900,000 - 2,700,000 12,600,000			
ı	200,000 5,700,000 3,400,000 - 3,300,000 200,000	700,000 8,300,000 4,800,000 - 13,500,000 700,000	1,400,000 10,700,000 5,800,000	2,000,000 11,900,000 - 6,200,000	2,700,000 12,600,000			
1	5,700,000 - 3,400,000 - 3,300,000 200,000	4,800,000 - 13,500,000 700,000	10,700,000 - 5,800,000 - 18,000,000	- 6,200,000	12,600,000			
1	3,300,000 200,000	13,500,000 700,000	18,000,000	-	- 6,200,000			
	3,300,000 200,000	13,500,000 700,000	18,000,000	-	6,200,000			
	200,000	700,000		22 300 000	-			
			1,400,000 25,200,000	2,000,000 30,500,000	27,100,000 2,700,000 36,000,000			
	- -	-	-	-	-			
	3,300,000 200,000 3,500,000	13,500,000 700,000 14,200,000	18,000,000 1,400,000 19,400,000	22,300,000 2,000,000 24,300,000	27,100,000 2,700,000 29,800,000			
PDS	1,000 2,100,000 1,100,000 3,200,000	5,000 2,600,000 1,700,000 4,300,000	10,000 3,200,000 2,100,000 5,300,000	15,000 3,700,000 2,400,000 6,100,000	20,000 4,300,000 2,600,000 6,900,000			
PDS	1 000	5 000	10 000	15 000	20,000			
155	3,900,000 2,000,000 3,100,000 1,600,000 4,700,000	4,800,000 3,100,000 3,800,000 2,400,000 6,200,000	5,900,000 3,800,000 4,700,000 3,000,000 7,700,000	7,000,000 4,400,000 5,500,000 3,500,000 9,000,000	8,000,000 4,900,000 6,300,000 3,900,000 10,200,000			
PDS	1,000	5,000	10,000	15,000	20,000			
	6,900,000	9,200,000	11,600,000	13,400,000	15,300,000			
	3,100,000	4,200,000	5,200,000	6,000,000	6,300,000			
	1,800,000	8,700,000	17,400,000	26,100,000	34,700,000			
	PDS	PDS 1,000 2,100,000 3,500,000 1,100,000 3,200,000 2,000,000 2,000,000 2,000,000 4,700,000 4,700,000 6,900,000 3,100,000 3,100,000 4,700,000 3,100,000 4,700,000	PDS 1,000 5,000 1,100,000 3,200,000 1,100,000 4,300,000 1,000,000 3,000,000 1,000,000 4,800,000 2,000,000 3,100,000 1,600,000 2,400,000 4,700,000 5,000 1,600,000 2,400,000 4,700,000 5,000 1,600,000 2,400,000 4,700,000 5,000 4,700,000 4,200,000 3,100,000 4,200,000 4,200,000 4,200,000	PDS 1,000 5,000 10,000 2,100,000 3,200,000 4,700,000 3,100,000 4,700,000 1,600,000 4,700,000 1,600,000 2,000,000 4,700,000 2,000,000 4,700,000 2,000,000 4,700,000 5,000 11,600,000 5,000 11,600,000 5,000 11,600,000 5,000 5,000 5,000 5,000 00 5,000	PDS	PDS	PDS	PDS



Figure 4-1: NPA1 - North Sector (North of Airport) site infrastructure and constraints





4.2 NPA2 - North East Sector (Inside the NNDR)

The cost mechanism for NPA2 is shown in Table 4-2 and is summarised below with a plan of the related estimated infrastructure, flood risk and environmental constraints shown in Figure 4-2, along with relevant traffic lights where appropriate.

Wastewater

Three options for the provision of wastewater treatment are Whitlingham WWTW, Rackheath WWTW and a new WWTW.

Water Supply

Water would be supplied from Heigham WTW.

Water Resources

 Additional water resources are from connections to Thorpe St Andrew BH and Colney BH, GOGDS, River Wensum reuse and off line storage.

Flood Risk

- Flood risk to the PGA has been assigned a green traffic light as less than 10% of the PGA is within Flood Zone 2 or 3.
- Flood risk from the PGA has been assigned the following traffic lights:
 - From Whitlingham WWTW amber (discharges to tidal reach of River Yare).
- From Rackheath WWTW green (discharges to Dobbs Beck).
- From a new WWTW green (discharges to Stone Beck).
- SUDS have been assigned a red traffic light (poor SUDS suitability).

Environment

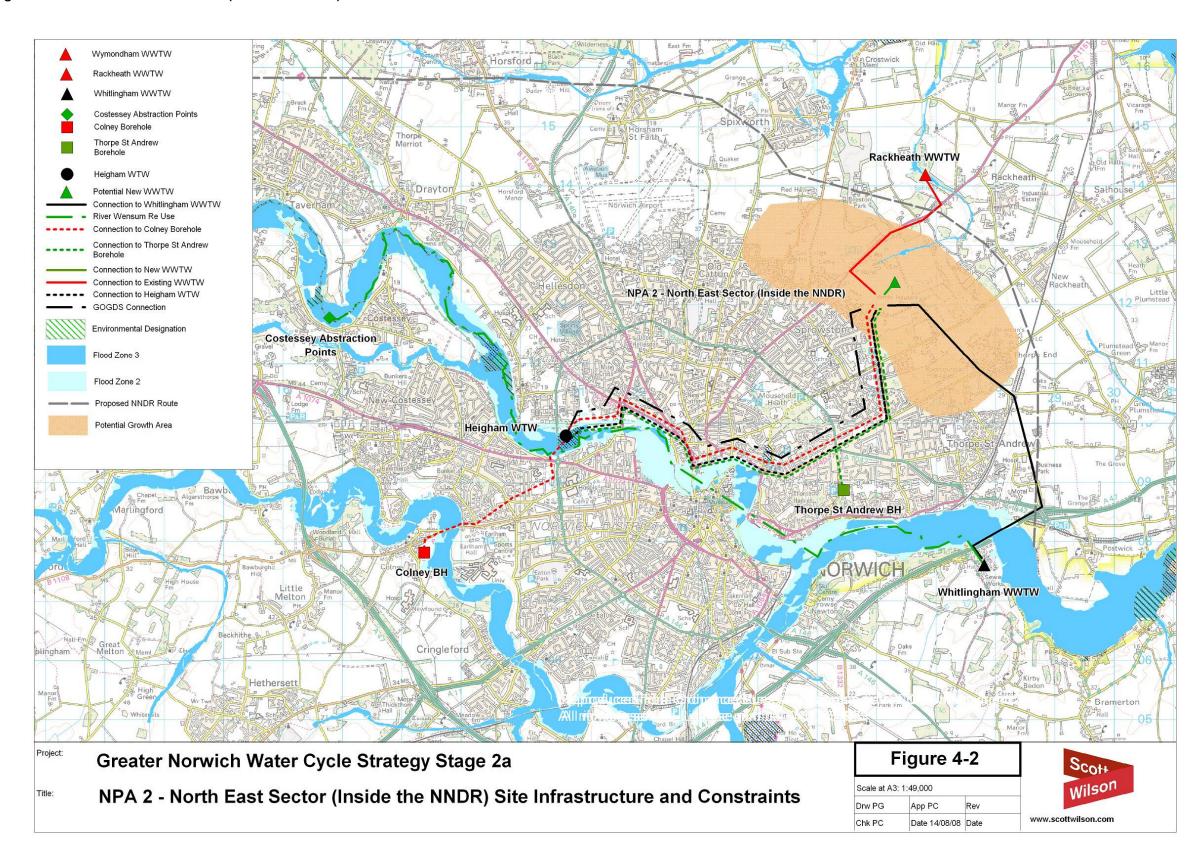
- Conservation designation has been assigned the following traffic lights:
 - From Whitlingham WWTW amber (no conservation designated areas within the PGA but discharge into the River Yare would flow through a designated SAC site)
- From Rackheath WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- From a new WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- The PGA has been assigned a red traffic light in relation to Groundwater Vulnerability
- The PGA has been assigned an amber traffic light in relation to Source Protection Zone requirements.

Table 4-2: NPA2 total summary costs

) PDS	1,000 - 2,500,000 - 2,500,000 2,700,000 - 1,200,000 - 3,300,000 200,000 4,700,000	Orig Check 5,000 - 3,500,000 - 700,000 4,200,000	10,000 - 4,200,000 - 1,400,000 5,600,000	2 14/08/2008 15,000 - 4,500,000 - - 2,000,000 6,500,000	Section Date 01/09/2008 ND PM 20,000 - 4,500,000 - 2,700,000 7,200,000	Sheet 1 of 1 Job no. D1186 Project no.
posath	1,000 - 2,500,000 - 200,000 2,700,000 - 1,200,000 - 3,300,000 200,000	5,000 - 3,500,000 - - 700,000 4,200,000	10,000 - 4,200,000 - - 1,400,000 5,600,000	15,000 - 4,500,000 - - 2,000,000 6,500,000	20,000 - 4,500,000 - 2,700,000	Project no.
posath	1,000 - 2,500,000 - 200,000 2,700,000 - 1,200,000 - 3,300,000 200,000	5,000 - 3,500,000 - - 700,000 4,200,000	10,000 - 4,200,000 - - 1,400,000 5,600,000	15,000 - 4,500,000 - - 2,000,000 6,500,000	20,000 - 4,500,000 - 2,700,000	
posath	1,000 - 2,500,000 - 200,000 2,700,000 - 1,200,000 - 3,300,000 200,000	5,000 3,500,000 - - 700,000 4,200,000	4,200,000 - 1,400,000 5,600,000	15,000 - 4,500,000 - - 2,000,000 6,500,000	20,000 - 4,500,000 - - 2,700,000	
path)	2,500,000 200,000 2,700,000 1,200,000 3,300,000 200,000	3,500,000 - - 700,000 4,200,000 - 1,600,000	4,200,000 - 1,400,000 5,600,000	4,500,000 - 2,000,000 6,500,000	4,500,000 - - 2,700,000	
path)	2,500,000 200,000 2,700,000 1,200,000 3,300,000 200,000	3,500,000 - - 700,000 4,200,000 - 1,600,000	4,200,000 - 1,400,000 5,600,000	4,500,000 - 2,000,000 6,500,000	4,500,000 - - 2,700,000	
eath) O	200,000 2,700,000 1,200,000 3,300,000 200,000	700,000 4,200,000	1,400,000 5,600,000	2,000,000 6,500,000	2,700,000	
eath) O	200,000 2,700,000 1,200,000 - 3,300,000 200,000	700,000 4,200,000 - 1,600,000	- 1,400,000 5,600,000 -	2,000,000 6,500,000		
)	2,700,000 - 1,200,000 - 3,300,000 200,000	700,000 4,200,000 - 1,600,000	1,400,000 5,600,000	2,000,000 6,500,000		
)	2,700,000 - 1,200,000 - 3,300,000 200,000	4,200,000 - 1,600,000	5,600,000	6,500,000		
)	3,300,000 200,000	-	- 2,000,000	-		
0	3,300,000 200,000	-	2,000,000	-		
	3,300,000 200,000	-	2,000,000		-	
	200,000	-		2,100,000	2,100,000	
	200,000	13,500,000	18,000,000	22,300,000	27,100,000	
\	4,700,000	700,000 15,800,000	1,400,000 21,400,000	2,000,000 26,400,000	2,700,000 31,900,000	
)	_	_	_	_	_	
	-	-	-	-	-	
		-	-	-	-	
	3,500,000	14,200,000	19,400,000	24,300,000	29,800,000	
	1,000	5,000	10,000	15,000	20,000	
0						
	3,900,000	5,100,000	6,400,000	7,500,000	8,500,000	
,	1,700,000	2,600,000			4,200,000	
0	3,700,000	4,500,000	5,700,000	6,600,000	7,600,000	
	1,900,000 5,100,000	6,700,000	8,400,000 8,400,000	4,200,000 9,800,000	4,700,000 11,100,000	
PDS	1,000	5,000	10,000	15,000	20,000	
	6,900,000	9,200,000	11,600,000	13,400,000	15,300,000	
	2,900,000	3,800,000	4,800,000	5,500,000	5,800,000	
	1,800,000	8,700,000	17,400,000	26,100,000	34,700,000	
) PDS	PDS 1,000 2,600,000 1,300,000 3,900,000 1,700,000 1,700,000 1,900,000 5,100,000 1,000	200,000 700,000 3,500,000 14,200,000 14,200,000 1,000 5,000 2,600,000 3,100,000 1,300,000 5,100,000 3,900,000 4,100,000 1,700,000 2,600,000 1,700,000 4,500,000 1,900,000 2,900,000 1,900,000 5,100,000 1,900,000 5,000 6,900,000 9,200,000 2,900,000 2,900,000 9,200,000 2,900,000 3,800,000	PDS 1,000 5,000 10,000 1,700,000 1,700,000 19,400,000 19,400,000 19,400,000 19,400,000 19,400,000 19,400,000 19,400,000 19,400,000 1,700,000 2,500,000 2,500,000 3,900,000 5,100,000 6,400,000 1,700,000 4,100,000 5,100,000 1,700,000 1,700,000 1,900,000 2,600,000 3,700,000 1,900,000 2,900,000 3,600,000 5,100,000 5,100,000 6,700,000 6,700,000 1,900,000 5,100,000 1,900,000 5,100,000 1,900	PDS 1,000 5,000 10,000 1,000 2,000,000 24,300,000 24,300,000 14,200,000 19,400,000 24,300,000 19,400,000 24,300,000 10,00	PDS



Figure 4-2: NPA2 - North East Sector (Inside the NNDR) site infrastructure and constraints





4.3 NPA3a - North East Sector (Outside the NNDR, vicinity of Rackheath)

The cost mechanism for NPA3a is shown in Table 4-3 and is summarised below with a plan of the related estimated infrastructure, flood risk and environmental constraints shown in Figure 4-3, along with relevant traffic lights where appropriate.

Wastewater

 Three options for the provision of wastewater treatment are Whitlingham WWTW, Rackheath WWTW and a new WWTW.

Water Supply

Water would be supplied from Heigham WTW.

Water Resources

 Additional water resources are from connections to Thorpe St Andrew BH and Colney BH, GOGDS, River Wensum reuse and off line storage.

Flood Risk

- Flood risk to the site has been assigned a green traffic light as less than 10% of the PGA is within Flood Zone 2 or 3.
- Flood risk from the site has been assigned the following traffic:
- From Whitlingham WWTW amber (discharges to tidal reach of River Yare);
- From Rackheath WWTW green (discharges to Dobbs Beck).
- From a new WWTW green (discharges to Dobbs Beck).
- SUDS have been assigned a red traffic light (poor SUDS suitability).

Environment

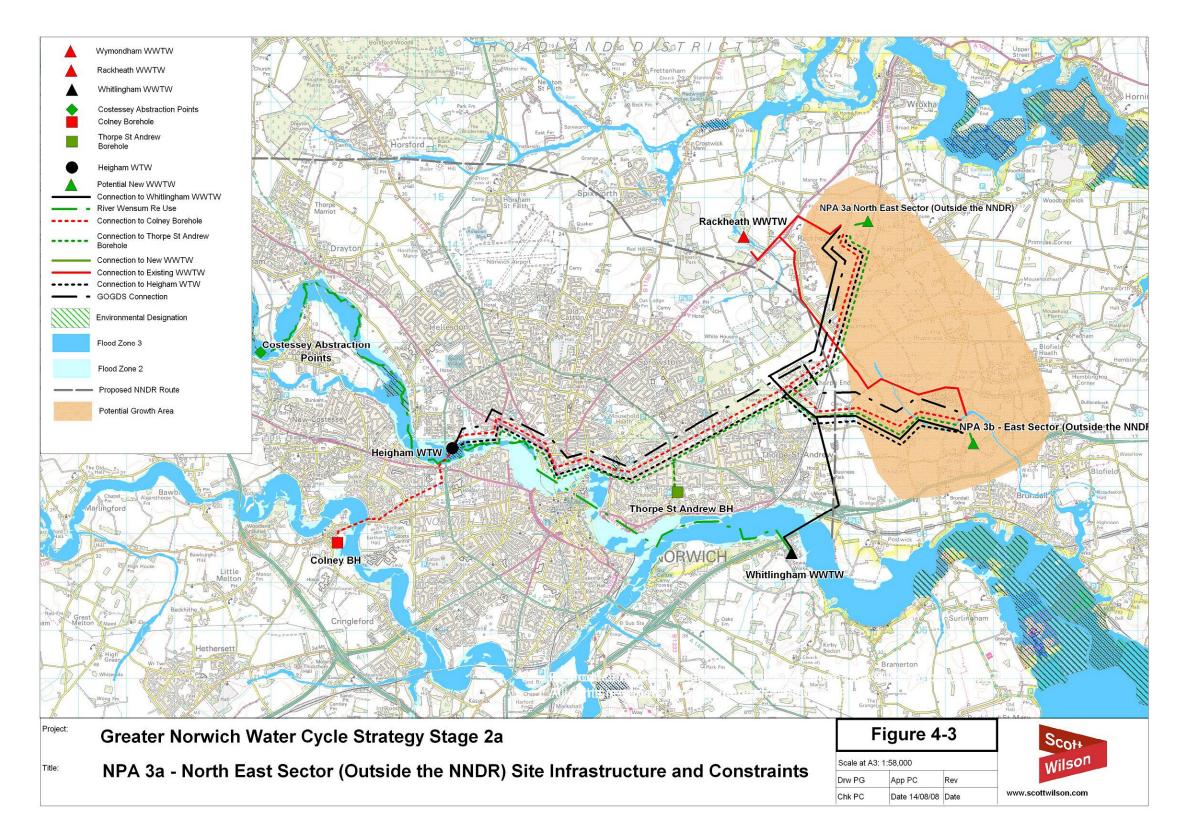
- Conservation designation has been assigned the following traffic lights:
 - From Whitlingham WWTW amber (no conservation designated areas within the PGA but discharge into the River Yare would flow through a designated SAC site)
- From Rackheath WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- From a new WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- The PGA has been assigned a red traffic light in relation to Groundwater Vulnerability
- The PGA has been assigned a green traffic light in relation to Source Protection Zone requirements.

Table 4-3: NPA3a total summary costs

Job Title	Norwich	Water Cycle	Study - Costin	n Calce			Section Date	т	Sheet ob no.		
	NPA3a	Trator Oyon		01/09/2008	Project no.						
Element Originator	Checked	no	Suffix	Orig	1	2	ND		T	Т	\neg
PC	ND	Revsion	Date	Check		14/08/2008	РМ			土	
Wastewater Whitlingham											
Trunk Sewer - Rising	Dist (m)	PDS	1,000	5,000	10,000	15,000	20,000				
Trunk Sewer - Gravity Pumping Stations New WWTW (vol)	8,800		3,300,000 - -	4,700,000 - -	5,700,000 - -	6,000,000 - -	6,000,000 - -				
New WWTW (nut) Total Costs (£)			200,000 3,500,000	700,000 5,400,000	1,400,000 7,100,000	2,000,000 8,000,000	2,700,000 8,700,000				
Upgrade Existing Trunk Sewer - Rising	Rackheath Dist (m)		-	_	_	-	_				
Trunk Sewer - Gravity Pumping Stations	2,750		1,100,000	1,500,000	1,800,000	1,900,000	1,900,000				
New WWTW (vol) New WWTW (nut) Total Costs (£)			3,300,000 200,000 4,600,000	13,500,000 700,000 15,700,000	18,000,000 1,400,000 21,200,000	22,300,000 2,000,000 26,200,000	27,100,000 2,700,000 31,700,000				
New WWTW											
Trunk Sewer - Rising Trunk Sewer - Gravity	Dist (m)		-	-	-	-	-				
Pumping Stations New WWTW (vol) New WWTW (nut) Total Costs (£)			3,300,000 200,000 3,500,000	13,500,000 700,000 14,200,000	18,000,000 1,400,000 19,400,000	22,300,000 2,000,000 24,300,000	27,100,000 2,700,000 29,800,000				
Water Supply Heigham											
Water Main Pumping Stations Total Costs (£)	Dist (m) 12,500	PDS	1,000 2,900,000 1,500,000 4,400,000	5,000 3,600,000 2,300,000 5,900,000	10,000 4,400,000 2,900,000 7,300,000	15,000 5,200,000 3,300,000 8,500,000	20,000 6,000,000 3,600,000 9,600,000				
Maximise Boreholes	Dist (m)	PDS	1,000	5,000	10,000	15,000	20,000				
Pipework from Thorpe S Pumping Stations Pipework from Colney Pumping Stations Total Costs (£)		.50	4,300,000 2,200,000 3,700,000 1,900,000 5,600,000	5,200,000 3,400,000 4,500,000 2,900,000 7,400,000	6,500,000 4,200,000 5,700,000 3,600,000 9,300,000	7,600,000 4,800,000 6,600,000 4,200,000 10,800,000	8,800,000 5,400,000 7,600,000 4,700,000 12,300,000				
Water Resources		PDS	1,000	5,000	10,000	15,000	20,000				
Wensum Reuse			6,900,000	9,200,000	11,600,000	13,400,000	15,300,000				
GOGDS			4,300,000	5,800,000	7,200,000	8,400,000	8,800,000				
Off line Storage			1,800,000	8,700,000	17,400,000	26,100,000	34,700,000				



Figure 4-3: NPA3a - North East Sector (Outside the NNDR, vicinity of Rackheath) site infrastructure and constraints





4.4 NPA3b - East Sector (Outside the NNDR)

The cost mechanism for NPA3b is shown in Table 4-4 and is summarised below with a plan of the related estimated infrastructure, flood risk and environmental constraints shown in Figure 4-4, along with relevant traffic lights where appropriate.

Wastewater

Three options for the provision of wastewater treatment are Whitlingham WWTW,
 Rackheath WWTW and a new WWTW

Water Supply.

Water would be supplied from Heigham WTW

Water Resources

 Additional water resources are from connections to Thorpe St Andrew BH and Colney BH, GOGDS, River Wensum reuse and off line storage

Flood Risk

- Flood risk to the site has been assigned a green traffic light as less than 10% of the PGA is within Flood Zone 2 or 3.
- Flood risk from the site has been assigned the following traffic
 - From Whitlingham WWTW amber (discharges to tidal reach of River Yare);
- From Rackheath WWTW green (discharges to Dobbs Beck).
- From a new WWTW green (discharges to Dobbs Beck).
- SUDS have been assigned an amber traffic light (average SUDS suitability).

Environment

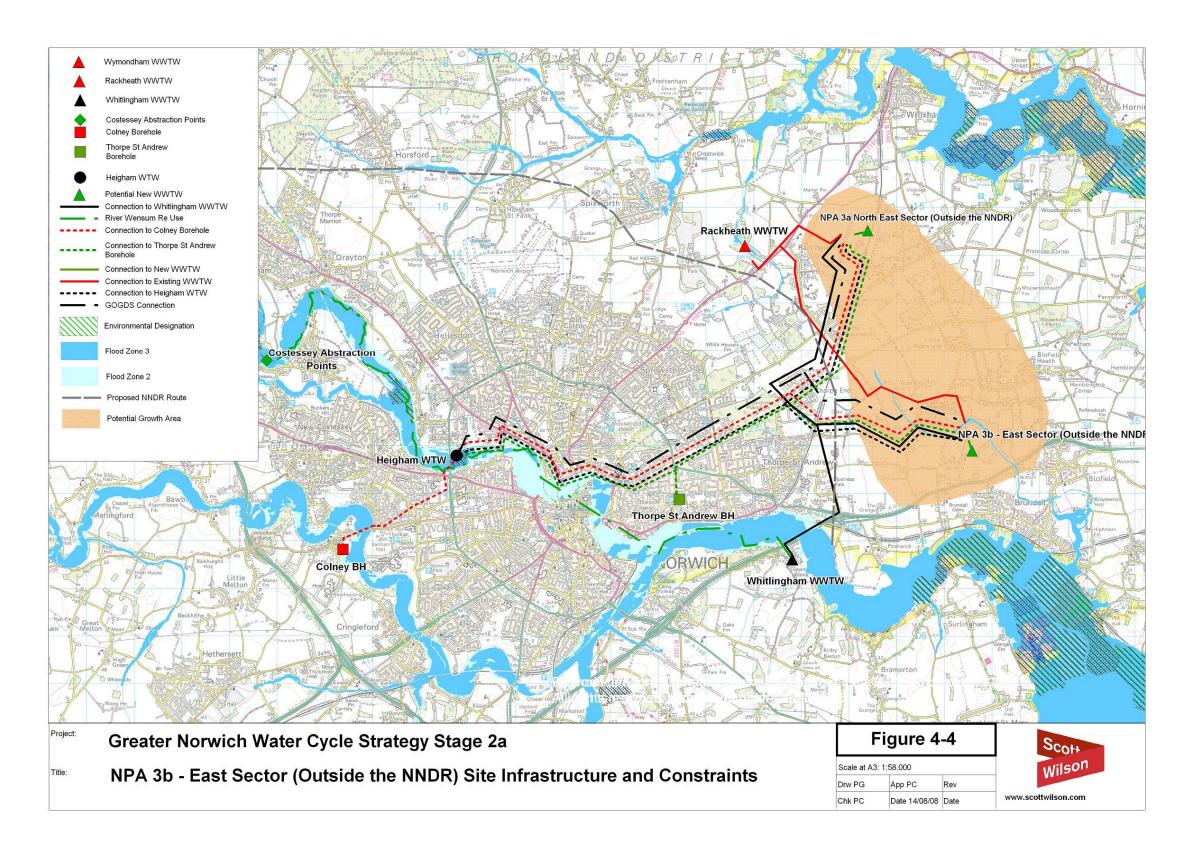
- Conservation designation has been assigned the following traffic lights:
- From Whitlingham WWTW amber (no conservation designated areas within the PGA but discharge into the River Yare would flow through a designated SAC site)
- From Rackheath WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- From a new WWTW amber (no conservation designated areas within the PGA but discharge into Dobbs Beck would flow through an SAC site further downstream).
- The PGA has been assigned a red traffic light in relation to Groundwater Vulnerability.
- The PGA has been assigned a green traffic light in relation to Source Protection Zone requirements.

Table 4-4: NPA3b total summary costs

Job Title	Norwich '	Water Cycle	Study - Costin	g Calcs			Date	Je	ob no.	D1	118
Florid	NPA3b						01/09/2008	Ē	oject no.	_	
Element Originator	Checked	ion	Suffix	Orig	1	2	ND			П	
PC	ND	Revsion	Date	Check		14/08/2008	PM	<u></u>		₫	_
Wastewater Whitlingham											
Trunk Sewer - Rising	Dist (m)	PDS	1,000	5,000	10,000	15,000	20,000				
Trunk Sewer - Gravity Pumping Stations New WWTW (vol)	6,800		2,600,000	3,600,000	4,400,000	4,700,000	4,700,000				
New WWTW (nut) Total Costs (£)			200,000 2,800,000	700,000 4,300,000	1,400,000 5,800,000	2,000,000 6,700,000	2,700,000 7,400,000				
Upgrade Existing Trunk Sewer - Rising	Rackheath Dist (m)										
Trunk Sewer - Rising Trunk Sewer - Gravity Pumping Stations	7,500		2,800,000	4,000,000	4,800,000	5,200,000	5,200,000				
New WWTW (vol) New WWTW (nut) Total Costs (£)			3,300,000 200,000 6,300,000	13,500,000 700,000 18,200,000	18,000,000 1,400,000 24,200,000	22,300,000 2,000,000 29,500,000	27,100,000 2,700,000 35,000,000				
New WWTW	Diet (==)										
Trunk Sewer - Rising Trunk Sewer - Gravity Pumping Stations	Dist (m)			-	-	-	-				
New WWTW (vol) New WWTW (nut) Total Costs (£)			3,300,000 200,000 3,500,000	13,500,000 700,000 14,200,000	18,000,000 1,400,000 19,400,000	22,300,000 2,000,000 24,300,000	27,100,000 2,700,000 29,800,000				
Water Supply Heigham											
Water Main Pumping Stations Total Costs (£)	Dist (m) 12,250	PDS	1,000 2,900,000 1,500,000 4,400,000	5,000 3,500,000 2,200,000 5,700,000	10,000 4,300,000 2,800,000 7,100,000	15,000 5,100,000 3,200,000 8,300,000	20,000 5,800,000 3,600,000 9,400,000				
Maximise Boreholes Pipework from Thorpe S Pumping Stations Pipework from Colney	Dist (m) t A 18,250	PDS	1,000 4,200,000 2,100,000 3,600,000	5,000 5,200,000 3,300,000 4,400,000	10,000 6,500,000 4,100,000 5,500,000	15,000 7,500,000 4,800,000 6,400,000	20,000 8,700,000 5,300,000 7,400,000				
Pumping Stations Total Costs (£)			1,800,000 5,400,000	2,800,000 7,200,000	3,500,000 9,000,000	4,000,000 10,400,000	4,500,000 11,900,000				
Water Resources		PDS	1,000	5,000	10,000	15,000	20,000				
Wensum Reuse			6,900,000	9,200,000	11,600,000	13,400,000	15,300,000				
GOGDS			4,300,000	5,700,000	7,100,000	8,200,000	8,600,000				
Off line Storage			1,800,000	8,700,000	17,400,000	26,100,000	34,700,000				



Figure 4-4: NPA3b - East Sector (Outside the NNDR) site infrastructure and constraints





4.5 NPA4 - South East Sector (Vicinity of Poringland)

The cost mechanism for NPA4 is shown in Table 4-5 and is summarised below with a plan of the related estimated infrastructure, flood risk and environmental constraints shown in Figure 4-5, along with relevant traffic lights where appropriate.

Wastewater

 Three options for the provision of wastewater treatment are Whitlingham WWTW, Poringland WWTW and a new WWTW

Water Supply

Water would be supplied from Heigham WTW

Water Resources

 Additional water resources are from connections to Thorpe St Andrew BH and Colney BH, GOGDS, River Wensum reuse and off line storage

Flood Risk

- Flood risk to the site has been assigned a green traffic light as less than 10% of the PGA is within Flood Zone 2 or 3.
- Flood risk from the PGA has been assigned the following traffic lights:
- From Whitlingham WWTW amber (discharges to tidal reach of River Yare);
- From Poringland WWTW green (discharges to River Tas)
- From a new WWTW green (discharges to tributary of River Yare)
- SUDS has been assigned a red traffic light (poor SUDS suitability)

Environment

- Conservation designation has been assigned the following traffic lights:
- From Whitlingham WWTW amber (no conservation designated areas within the PGA but discharge into the River Yare would flow through a designated SAC site)
- From Poringland WWTW amber (no conservation designated areas within the PGA but discharge into River Tas would flow through an SAC site further downstream).
- From a new WWTW amber (no conservation designated areas within the PGA but discharge into tributary of the River Yare would flow through an SAC site further downstream).
- The PGA has been assigned a red traffic light in relation to Groundwater Vulnerability
- The PGA has been assigned a red traffic light in relation to Source Protection Zone requirements.

Table 4-5: NPA4 total summary costs

Job Title	Norwich	Water Cycle	e Study - Costin	g Calcs			Section Date	Id	Sheet b no.		
	NPA4	,	01/09/2008	Project no.							
Element riginator											
PC	ND	Revsion	Date	Check		14/08/2008	PM			1	
Wastewater Whitlingham											
Trunk Sewer - Rising	Dist (m)	PDS	1,000	5,000	10,000	15,000	20,000				
Trunk Sewer - Gravity	6,750		2,600,000	3,600,000	4,300,000	4,600,000	4,600,000				
Pumping Stations New WWTW (vol)			-	-	-	-	-				
New WWTW (nut)			200,000	700,000	1,400,000	2,000,000	2,700,000				
Total Costs (£)			2,800,000	4,300,000	5,700,000	6,600,000	7,300,000				
Upgrade Existing	Poringland										
Trunk Sewer - Rising	Dist (m)		-	-	-	-	-				
Trunk Sewer - Gravity	3,500		1,400,000	1,900,000	2,300,000	2,400,000	2,400,000				
Pumping Stations New WWTW (vol)			3,300,000	13,500,000	18,000,000	22,300,000	27,100,000				
New WWTW (nut)			200,000	700,000	1,400,000	2,000,000	2,700,000				
Total Costs (£)			4,900,000	16,100,000	21,700,000	26,700,000	32,200,000				
New WWTW	Dist (m)										
Trunk Sewer - Rising	Dist (III)		-	-	-	-	-				
Trunk Sewer - Gravity Pumping Stations	-		-	-	-	-	-				
New WWTW (vol)			3,300,000	13,500,000	18,000,000	22,300,000	27,100,000				
New WWTW (nut) Total Costs (£)			200,000 3,500,000	700,000 14,200,000	1,400,000 19,400,000	2,000,000 24,300,000	2,700,000 29,800,000				
Water Cupric											
Water Supply Heigham											
Water Main	Dist (m) 10,000	PDS	1,000 2,300,000	5,000 2,900,000	10,000 3,600,000	15,000 4,200,000	20,000 4,800,000				
Pumping Stations	10,000		1,200,000	1,800,000	2,300,000	2,600,000	2,900,000				
Total Costs (£)			3,500,000	4,700,000	5,900,000	6,800,000	7,700,000				
Maximise Boreholes											
Pipework from Thorpe St	Dist (m) A 15.750	PDS	1,000 3,700,000	5,000 4,500,000	10,000 5,600,000	15,000 6,500,000	20,000 7,500,000				
Pumping Stations			1,900,000	2,900,000	3,600,000	4,100,000	4,600,000				
Pipework from Colney Pumping Stations	13,750		3,200,000 1,600,000	3,900,000 2,500,000	4,900,000 3,100,000	5,700,000 3,600,000	6,600,000 4,000,000				
Total Costs (£)			4,800,000	6,400,000	8,000,000	9,300,000	10,600,000				
Water Resources		PDS	1,000	5,000	10,000	15,000	20,000				
Wensum Reuse			6,900,000	9,200,000	11,600,000	13,400,000	15,300,000				
GOGDS			3,500,000	4,600,000	5,800,000	6,700,000	7,000,000				
Off line Storage			1,800,000	8,700,000	17,400,000	26,100,000	34,700,000				
			.,500,000	-,. 30,000	,.00,000		2 .,. 00,000				



Figure 4-5: NPA4 - South East Sector (Vicinity of Poringland) site infrastructure and constraints

