

# グリーンインフラの社会実装と パートナーシップ

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# NYC GREEN INFRASTRUCTURE PLAN

A SUSTAINABLE STRATEGY FOR CLEAN WATERWAYS

Michael R. Bloomberg, Mayor  
Cas Holloway, Commissioner



to increase opportunities for recreation on the waterfront. DEP uses landside and wa

# 新規開発（民有地）からの排水を調整する砕石基礎

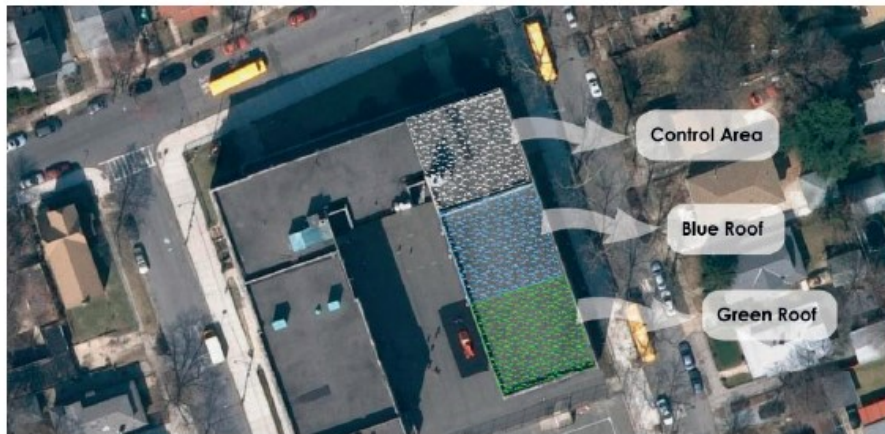
Figure 14: Potential Gravel Bed to Control Runoff from New Development



Source: NYC Green Infrastructure Plan 2010, Department of Environmental Protection

# ブルーフ／グリーンーフ

Figure 17: Blue Roof / Green Roof Comparison Study



## Blue roofs

Blue roofs are non-vegetated source controls that detain stormwater. Weirs at the roof drain inlets can create temporary storage and gradual release of stormwater on new, flat roofs.

In partnership with DOE, DEP will design, construct, and evaluate both the blue roof and green roof technologies on PS 118 in Queens (Figure 17). Data from the study will be collected to compare the stormwater management performance of green, blue, and control roofs during a three-year monitoring period. Because all three surfaces will be on the same building, this pilot will compare costs and benefits under similar environmental conditions.

DEP is also testing technologies that would allow for rooftop detention on existing sloped roofs; these technologies include trays, check dams, and silt socks. A DEP repair yard in the Newtown Creek watershed will host a blue roof pilot to compare these technologies (Figure 18).

Figure 18: Pilot - Blue Roof Retrofit Project



# 雨水タンク（雨水貯留槽）

## Rain barrels

Rain barrels can help reduce stormwater runoff that enters the City's sewer system. DEP distributed 1,000 rain barrels in the spring and summer of 2008 and 2009 in Queens and Brooklyn. The objective of the demonstration project was to determine homeowners' interest and ability to install and maintain rain barrels, and to use stored rainwater for irrigation (Figure 19).

The rain barrels connect directly to the existing downspout to collect water for watering lawns and gardens, which often account for up to 40% of a household's summer water consumption in areas with single-family homes. Using the stored water can reduce the demand on the City's water supply during the summer's hottest days.

Figure 19: Rain Barrel Distribution and Workshops



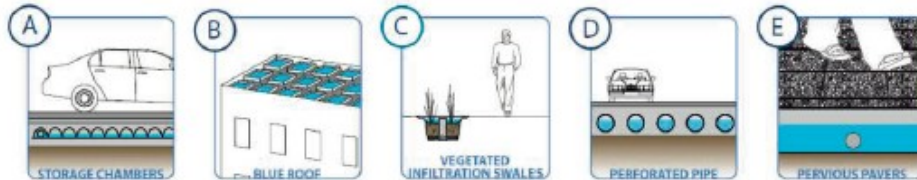
Source: NYC Green Infrastructure Plan 2010, Department of Environmental Protection

# 住宅地への導入

## High density residential complex retrofit

Multi-family residential complexes make up approximately four percent of all combined sewer watershed area. In partnership with NYCHA, DEP will construct multiple green infrastructure elements in a high-density residential housing complex (Figure 20). On the roof of a community building, DEP will test a modular tray system for detaining stormwater storage. Around the complex, two parking lots will be reconstructed with different source control technologies: a perforated pipe system that stores up to 600 cubic feet of stormwater and a subsurface storage chamber that stores up to 780 cubic feet of stormwater. A system of bioswales and bioretention areas will manage stormwater runoff from the sidewalk area. And a 150-foot by 8-foot section of sidewalk will be replaced with porous concrete drained by a stone reservoir that provides delayed discharge for stormwater.

Figure 20: Pilot - Model High Density Housing Retrofit



# 公共空間への導入(Right of Way)

Figure 22: Pilot – Streetside Enhanced Tree Pits and Infiltration Swales



Commercial Corridor:  
Pre-Construction



Commercial Corridor:  
Post-Construction Enhanced Tree Pit



Low Density Residential Street:  
Pre-Construction



Low Density Residential Street:  
Post-Construction Infiltration Swale



Low Density Residential Street:  
Pre-Construction



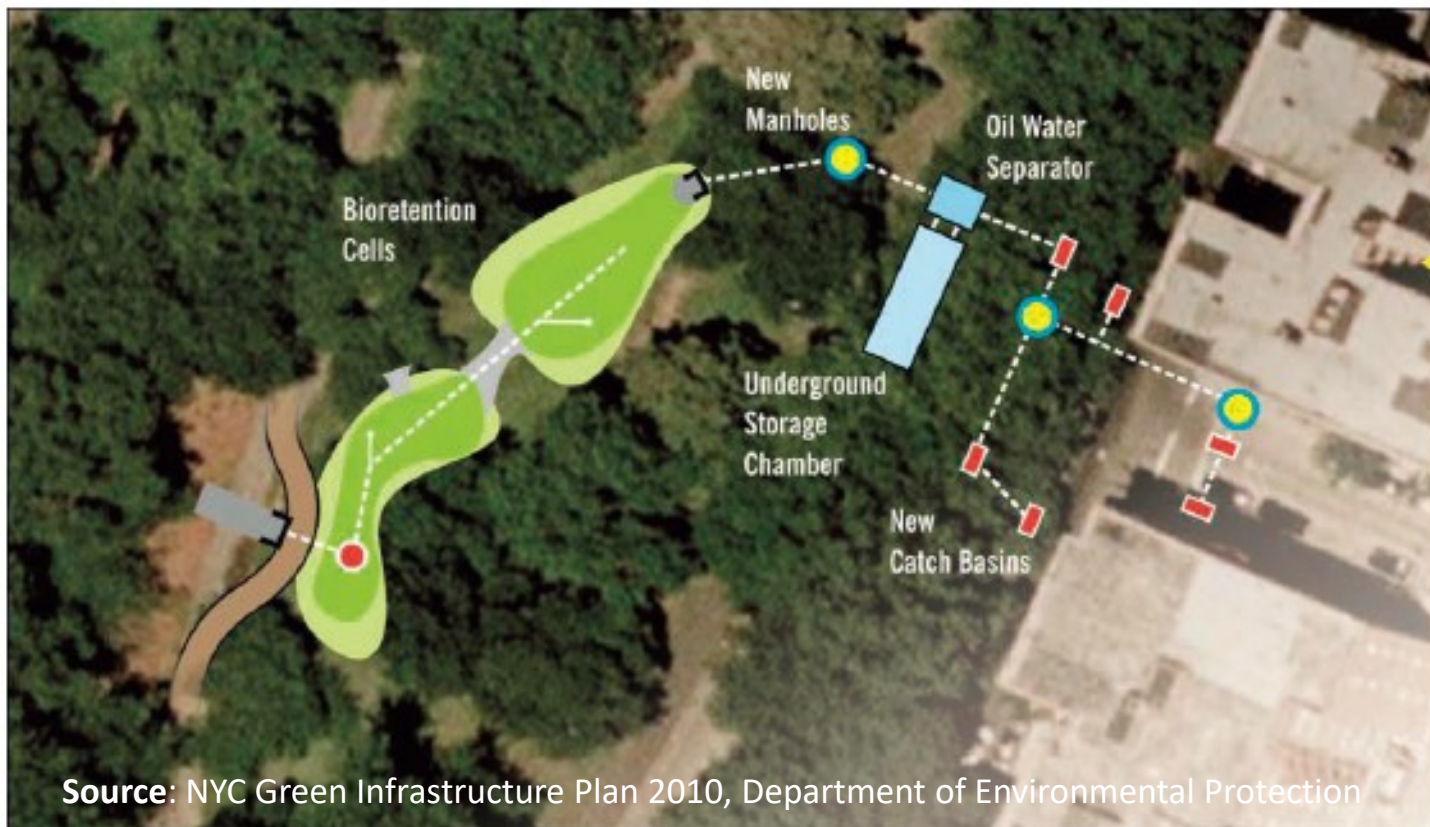
Low Density Residential Street:  
Post-Construction Enhanced Tree Pit

Source: NYC Green Infrastructure Plan 2010, Department of Environmental Protection

Table 15: NYC Park Demonstration Projects

| Green Infrastructure Pilot          | Sponsoring Agency | Location      | Type   | Status                | Approximate Construction  |
|-------------------------------------|-------------------|---------------|--|-----------------------|---------------------------|
| Shoelace Park (224th st)            | DEP               | Bronx River   | Detention/bioinfiltration                          | Design                | September - November 2010 |
| Starlight Park                      | DPR/NYS DOT       | Bronx         | Rain gardens (11)                                  | Design                | 2010                      |
| Shoelace Park (211th st)            | DPR               | Bronx River   | Bioswale   | Construction          | 2010                      |
| Shoelace Park (226th st)            | DEP               | Bronx River   | Detention/bioinfiltration                          | Proposed              | 2012                      |
| Shoelace Park (219th st)            | DPR               | Bronx River   | Rain Garden  | Completed             | 2009                      |
| Last Chance Pond                    | DPR               | Staten Island | Constructed wetlands                               | Design                | TBD                       |
| Meadow Lake                         | DPR               | Queens        | Wetland restoration and bioswales and rain gardens | Design / Pre-Contract | 2012                      |
| Hunters Point South Waterfront Park | EDC/DPR           | Queens        | ROW, swales  | Design                | TBD                       |

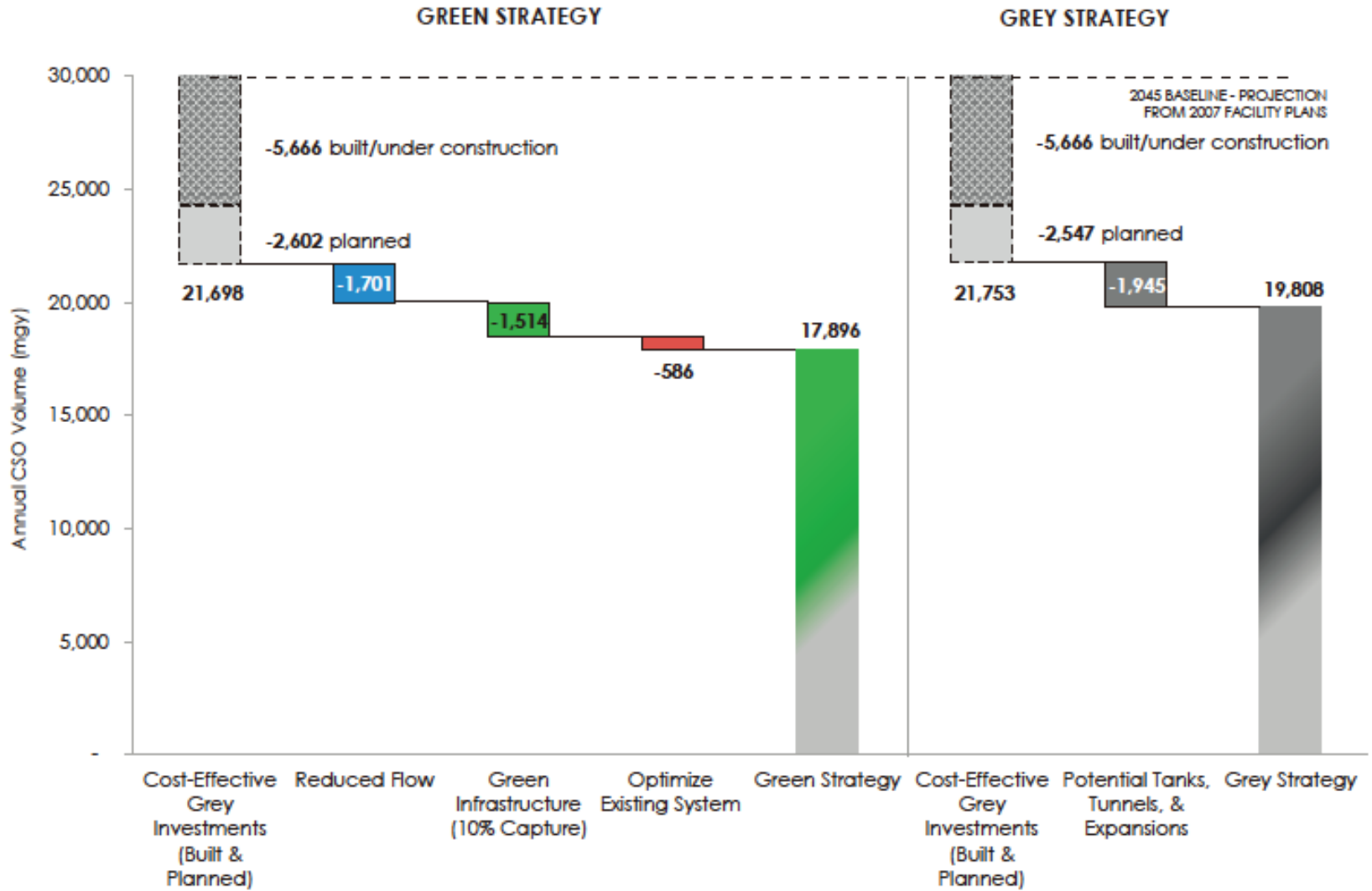
Figure 24: Pilot - Detention and Bioinfiltration at Shoelace Park



Source: NYC Green Infrastructure Plan 2010, Department of Environmental Protection

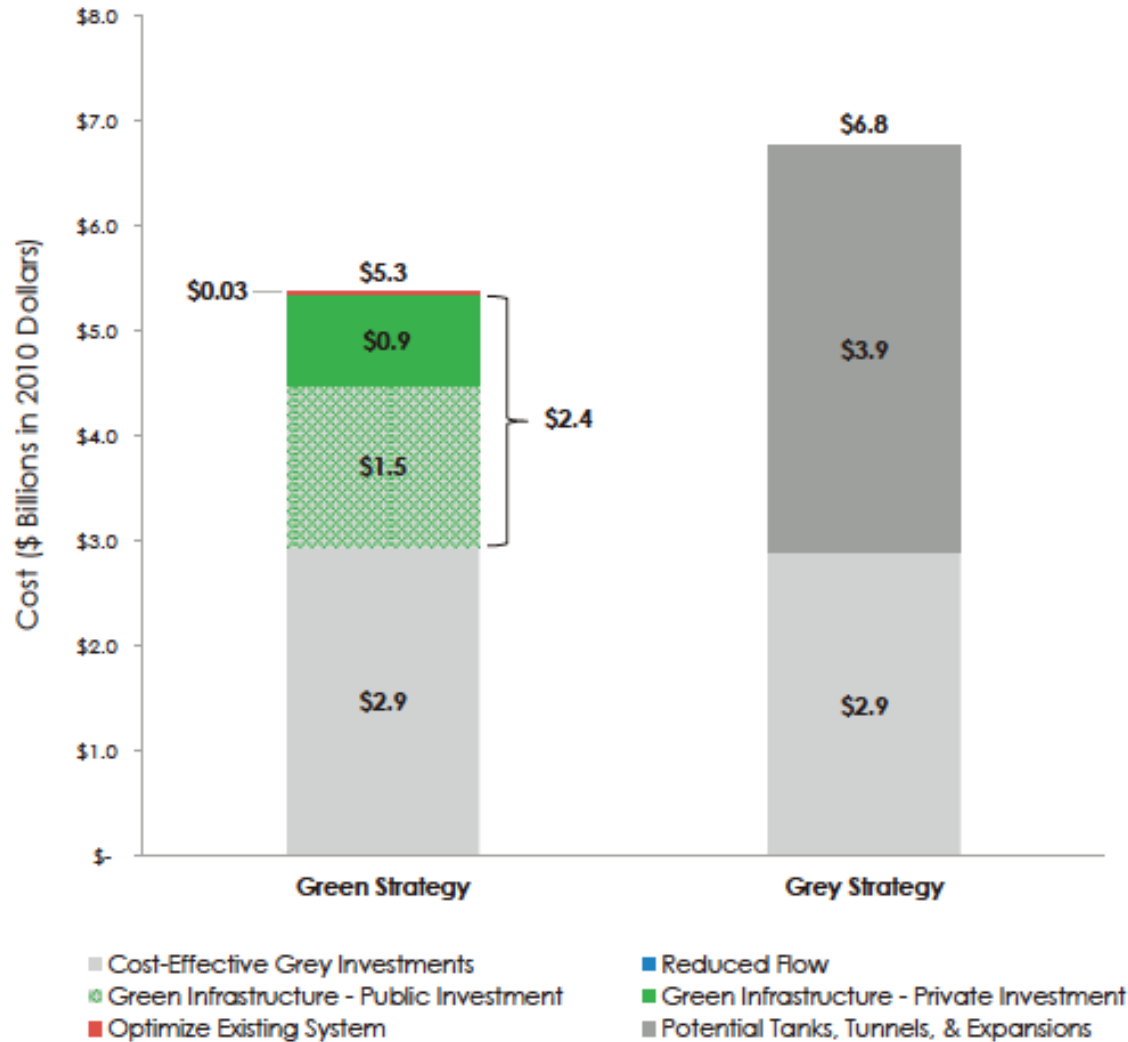
都市公園への導入提案

**Figure 1: Predicted CSO Volume\***



**Source:** NYC Green Infrastructure Plan 2010, Department of Environmental Protection

**Figure 3: Citywide Costs of CSO Control Scenarios (after 20 years)**



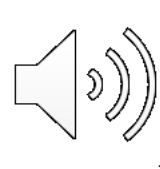
**Source:** NYC Green Infrastructure Plan 2010, Department of Environmental Protection

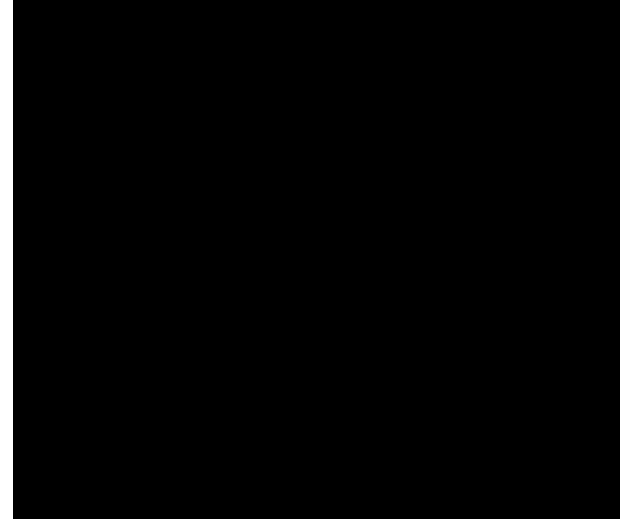


# 官と官の連携

- 合流式下水道越流水（Combined sewer overflow）対策としてのグリーンインフラ
- ニューヨーク市の**上下水道**は**環境保全局**が所管
- ニューヨーク市の交通局，公園レクリエーション局，デザイン建設局，都市計画局，教育局，衛生局，総合政策局，住宅局，経済開発公社，住宅公社との連携（ヨコの連携）
- ニューヨーク州の環境保全局，連邦政府環境保護局（EPA）との連携（タテの連携）
- パートナーシップ形成（特にコミュニティグループ，教育機関等）のための投資

# Sutcliffe Park, London





## Sutcliffe Park, London



# Discover Sutcliffe Park

## THE LAKE

The lake is a beautiful place of great beauty, its waters reflect the changing sky, the surrounding trees and its fringe of reeds. Look out for darting dragonflies, and listen for sweet warblers during the summer.

## VIEWING DECK

A great place to relax and take in the park, with panoramic views of the lake and wetlands.

## COMMUNITY SPACE

An area for meeting and performance, the place is at the heart of the new park and is a great place to pause and take in the surroundings.

## WETLANDS

A magnet for wildlife, a vibrant and colourful mosaic of marsh plants, reed beds and glistening pools. This low-lying area is likely to be flooded at least once a year, and is the restored river floodplain. Watch out for brightly coloured damselflies, heron or even snipe from the boardwalk.

## CIRCULAR WALKS

Get fit and explore the 2600 metres of new surfaced footpaths. Pause at the numerous seating places on route, carefully located with attractive views.

## RIVER QUAGGY

Restored along its historic course, the River Quaggy has been uncovered after at least 50 years beneath the ground in a large pipe. The River meanders over 500 metres through marshy meadows.



## THE OAK COMPASS

Each oak tree is located on the point of a compass: North, South, East and West with points in between. A place for orientation.

## KEY



**TREES**  
The outline to the tree, the colour indicates species and height (all trees shown in this key are 10m tall).



**GRASS**  
Indicates areas of the park which are grassed (including the restored river floodplain). Grass is shown in green.



**WETLANDS**  
Indicates areas of the park which are wetlands (including the restored river floodplain). Wetlands are shown in blue.



**CIRCULAR WALKS**  
Indicates the location of the circular walks.



**SEATING AND BOARDWALKS**  
Indicates the location of seating and boardwalks.



**VIEWING DECK**  
Indicates the location of the viewing deck.



**POOLS**  
Indicates the location of pools.

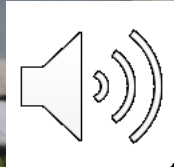
**SUTCLIFFE PARK** is a very special place, where it has been possible to protect 100 houses and businesses from flooding downstream. This has been achieved by reshaping the land and restoring a natural river floodplain.

Great care has been taken by the Environment Agency to design a scheme that not only protects people against flooding, but also restores a landscape rich in natural beauty and wildlife, whilst ensuring there is safe and easy access for all throughout the Park.

The Agency team of engineers, landscape architects, biodiversity specialists and river geomorphologists have worked closely with Greenwich Council and Quaggy Waterways Action Group to create this exciting new open space on the doorstep of local people.

The low lying parts of the park are likely to flood once a year, but it will be rare that the whole basin floods and the park is closed.

Illustration: Susan Rogers for the Landscape Architects at the Natural Environmental Assessment Service of the Environment Agency, 2004.



# 公物（管理）概念の再検討

## 人工公物 都市公園

都市公園法 / 都市公園区域

事故 → 行政責任（管理瑕疵）？

浸水・湛水 → あってはならないこと（事故）？ Cf. 津波防災緑地

## 自然公物 河川

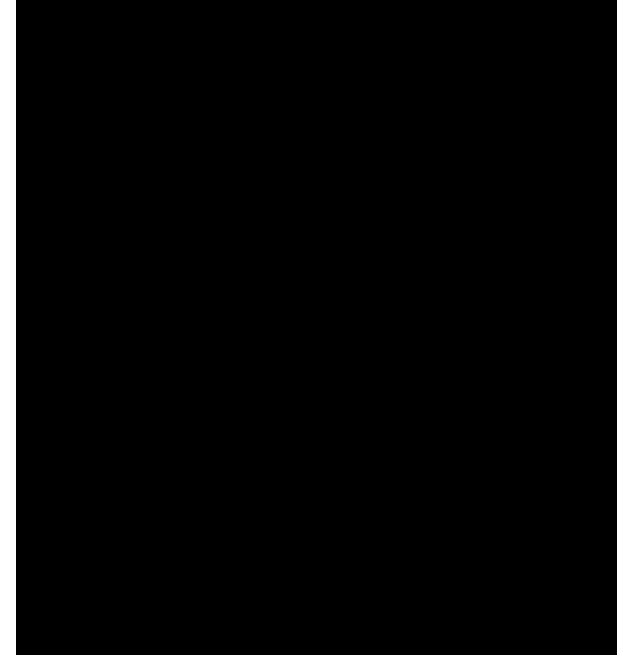
河川法 / 河川区域

事故 → 自己責任？

氾濫・洪水 → 自然現象（攪乱）あるいは自然災害

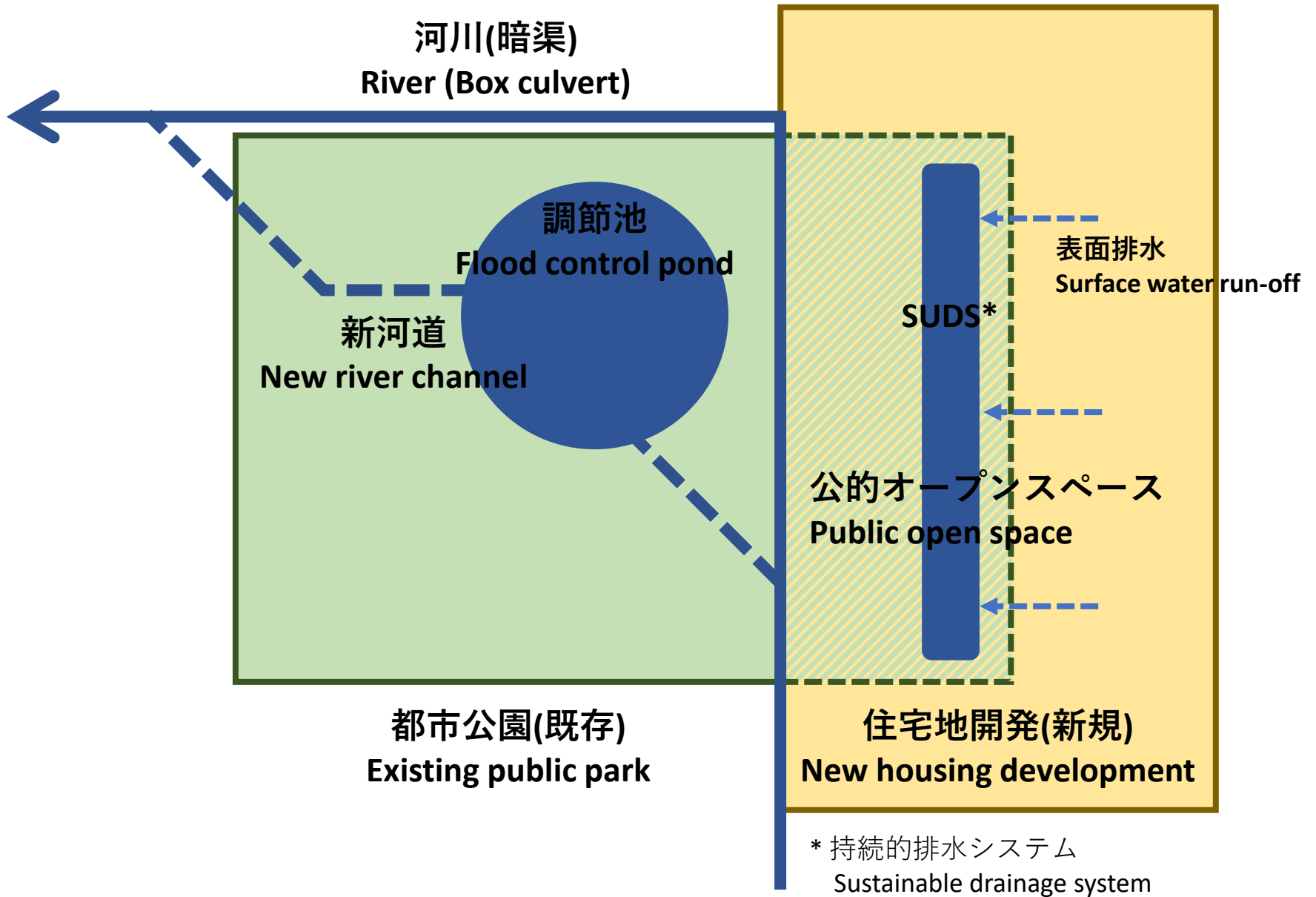
人工公物 + 自然公物 = ？

都市公園区域・公園施設 + 河川区域・治水施設 = 占用？ 兼用工作物？ その他？ Cf. 調節池



## Sutcliffe Park and Kidbrooke Village





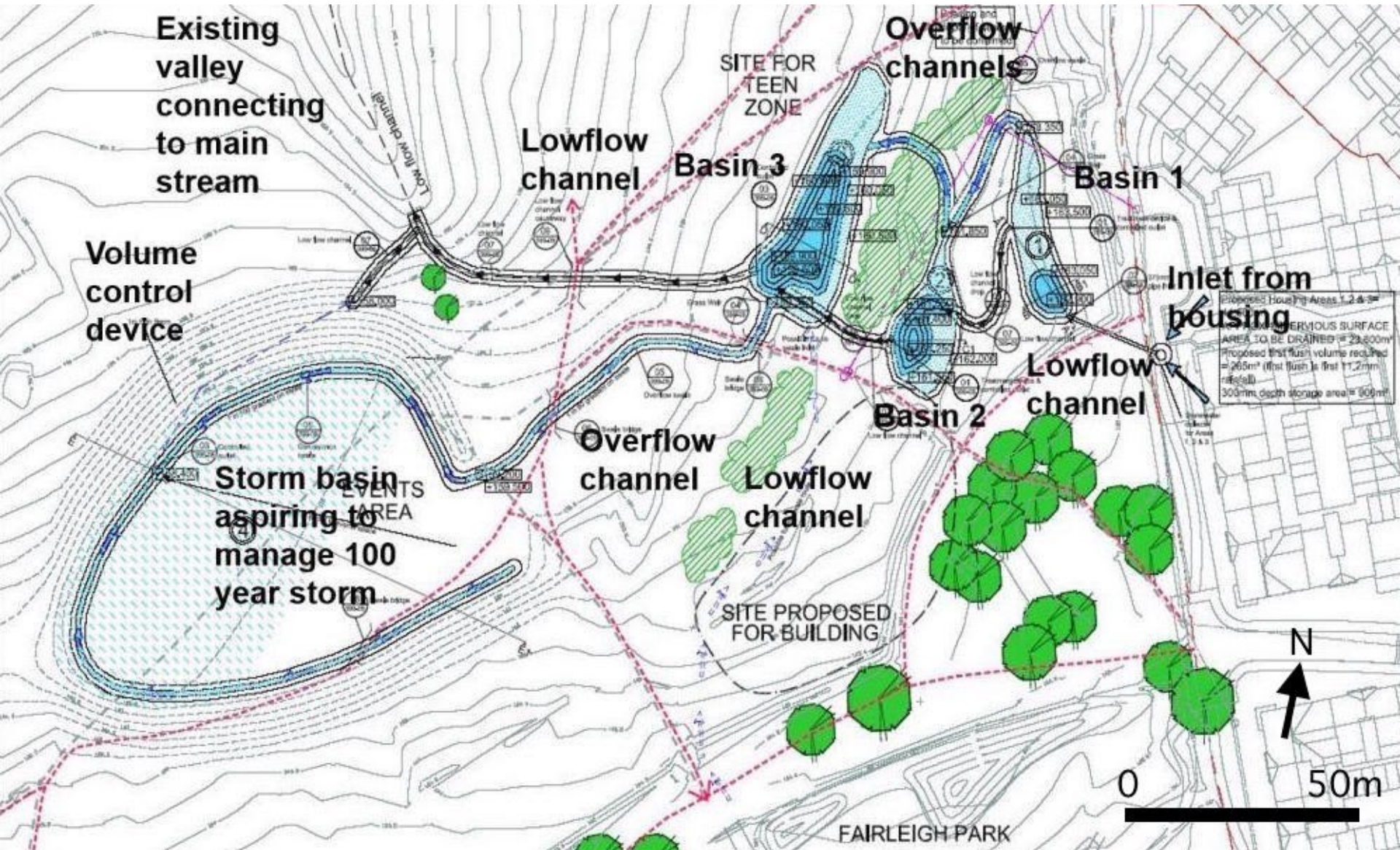
## Type A : 公的OS拡張型 Public open space extension

# Manor Fields Park, Sheffield





# Manor Fields Park, Sheffield



# Manor Fields Park, Sheffield



Customer reference number:

M2

**APPLICATION FOR CANCELLATION OF SURFACE WATER DRAINAGE CHARGE**

Customer Name:

Address of Property:

Type of Property:

Detached  Semi-detached  Terraced  Flat  Mobile Homes

Where does the surface water from your property drain to?

Soakaways  Watercourse/River/Stream  Grassed area  Waterbutts

Other (please provide details).....

Does your driveway slope towards the road?

Yes  No

If yes, please confirm where the surface water from your driveway drains to?

Soakaways  Highway drain  Grassed area

Other (please provide details) .....

What is the approximate year the property was built? .....

I confirm:

- There is no surface water drainage connection to this property
- My plan shows where the surface water goes

I agree access to my property to check the drainage system. I will tell you straight away if my property is connected to the sewer for surface water drainage.

If a dog(s) is (are) present at the property, I agree to keep the animal(s) secure and away from our representative during any visit.

Signature of the person who pays the sewerage charges for the property:

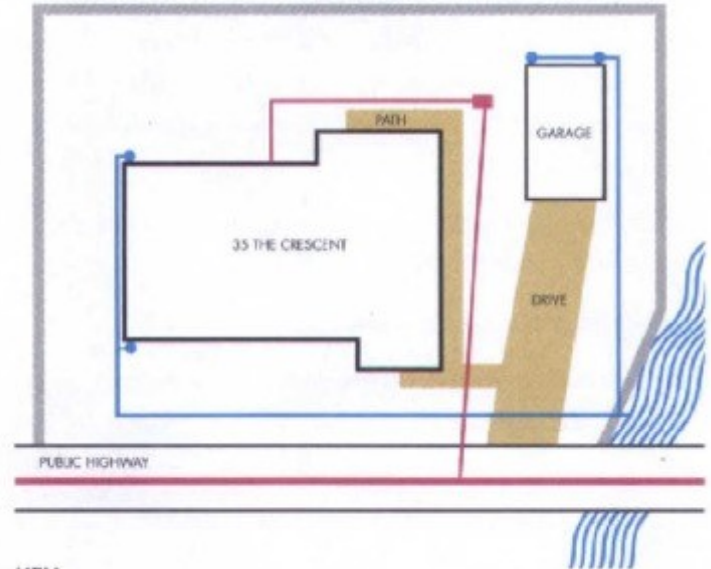
Date:

Telephone Number: Home .....  
Work .....  
Mobile .....

Email address:

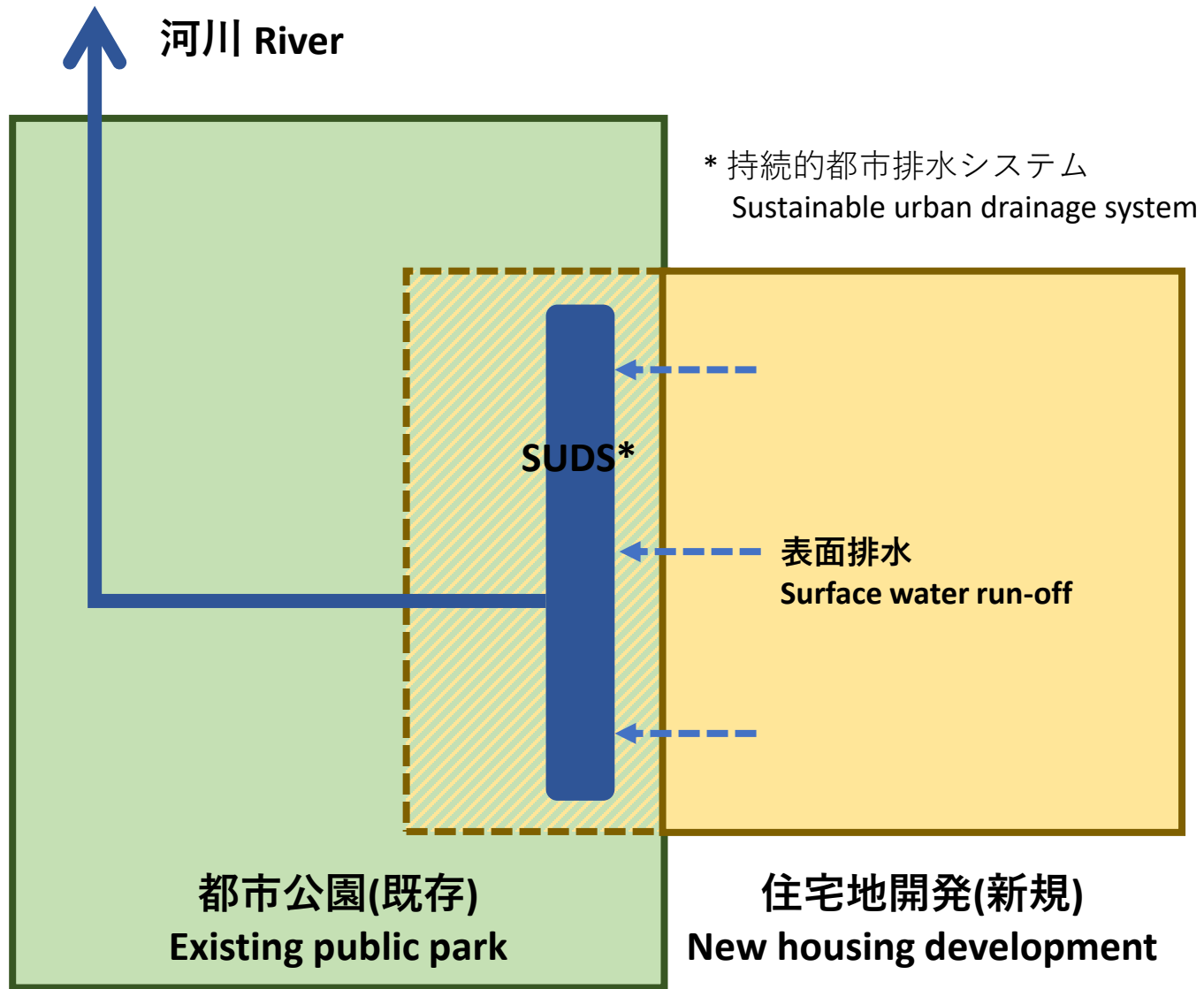
**Please return this application, together with your plan to:**  
Yorkshire Water, PO Box 52, Bradford, BD3 7YD

**PROPERTY WHERE FOUL WATER GOES TO THE SEWER AND SURFACE WATER DOES NOT.**



**KEY**

- Private Surface Water
- Private Foul water
- Public Sewer
- Drainpipe
- Property Boundary



## Type B : Park-PFI型 Private financial initiative for public park