



Breathe golf

Original

The running game

Atmosphere

Smart

Sustainable

Environment

Economy



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Jim Arthur – Practical
greenkeeping



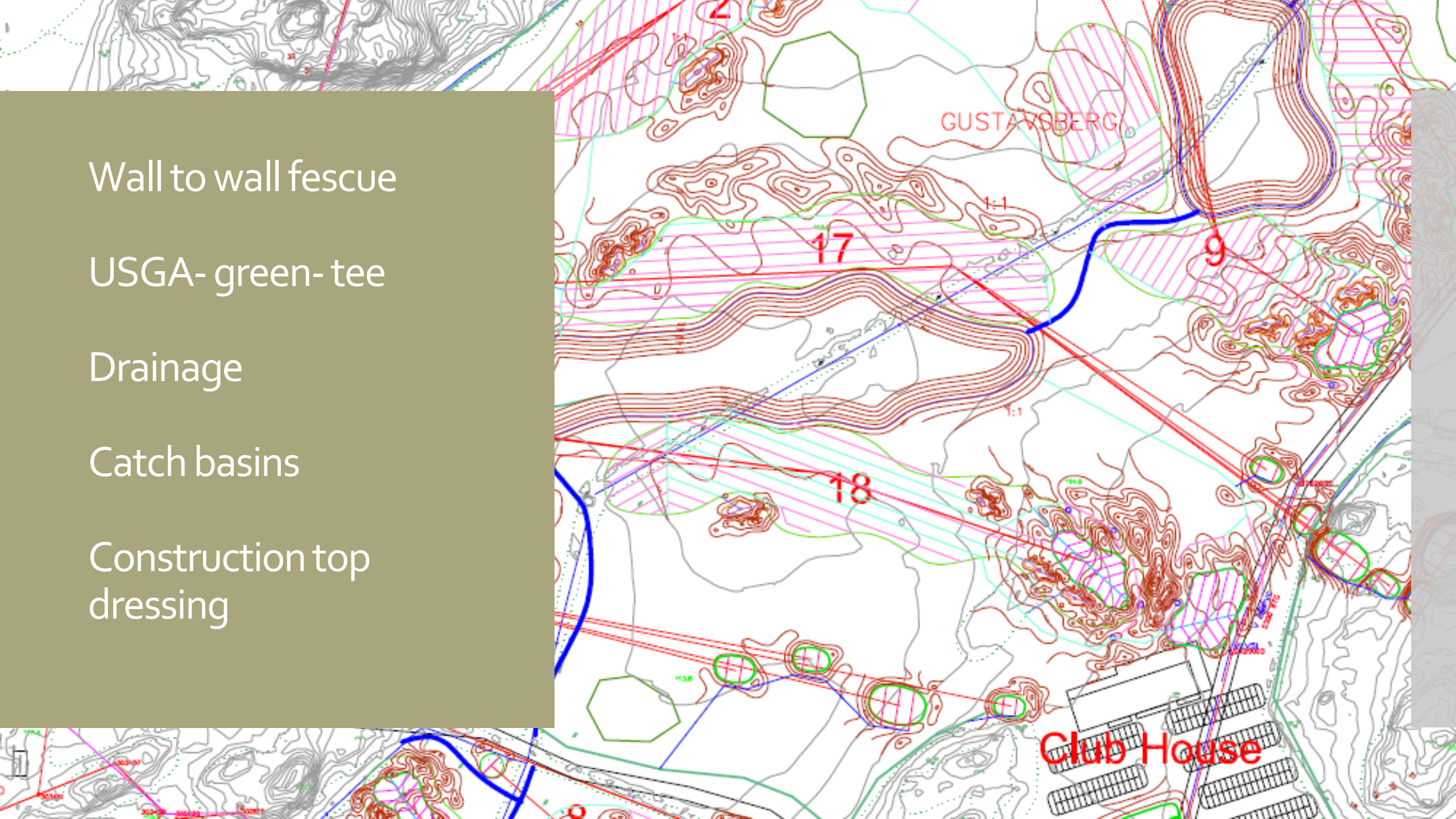
Wall to wall fescue

USGA- green- tee

Drainage

Catch basins

Construction top
dressing























CR-7

TURFCO





-You need to know where you are.

-Then you can know where you need to go



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- A group of approximately ten people, including men and women, are gathered on a golf course. They are dressed in outdoor or golf attire, such as jackets, scarves, and hats. In the foreground, a square frame is drawn on the grass, with a golf club head positioned inside it. The background shows a typical golf course landscape with trees and a sand trap under an overcast sky.
- Current status
 - Desired status
 - Strategies



Current situation analysis for green

Today's conditions

Date	
Analysis performed by	
Weather	
Temperatur	
Rainfall in the last 24 hours	
Irrigation last 24 hours	
Today's maintenance	
Aeration (when and how)	

Playability

	Results	Target
Firmness (Clegg Hammer)		
Hole-out test (Greenstester)		
Stimp (feet)		
Difference in speed between greens		

Basic conditions

	Results	Target
Number of playable pin positions		
Hours of sunshine in December		
Air circulation		
Number of golf rounds		
Surface runoff		
Incoming surface water		
Infiltration rate (mm/h)		
Organic material (OM246)		
Thickness of turf (thatch + mat)		
Layers in the profile		
Compaction (depth)		
Root depth		
PH in the green profile		
PH in irrigation water		
Moisture (TDR)		
Coverage irrigation		
Application pesticides		
Nutrient requirements (kg N/Ha/year)		



Current situation analysis for green

Today's conditions

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Aeration (when and how)	

Playability

	Results	Target
Firmness (Clegg Hammer)		>100
Hole-out test (Greenstester)		10/10
Stimp (feet)		10
Difference in speed between greens		+/- 1

Basic conditions

	Results	Target
Number of playable pin positions		>15
Hours of sunshine in December		>5
Air circulation		Good
Number of golf rounds		<25 000
Surface runoff		No standing water
Incoming surface water		No incoming water
Infiltration rate (mm/h)		>70
Organic material (OM246)		<4
Thickness of turf (thatch + mat)		<25 mm
Layers in the profile		No layers
Compaction (depth)		No compaction
Root depth		>25 cm
PH in the green profile		5,5-6,0
PH in irrigation water		5,5-6,0
Moisture (TDR)		10-12%
Coverage irrigation		80%
Application pesticides		0-1
Nutrient requirements (kg N/Ha/year)		<100



Grass composition	Results (%)	Target
Bent and fescue		
Annual bluegrass		

Damage and diseases	Results (%)	Target
Coverage with grass		
Wear and tear from machines		
Dry patches		
Dry spots affecting ball roll		
Active fungal diseases		
Fungi affecting ball roll		
Algae / Black Layer		
Moss		
Weed		
Larvae		
Birds		
Ants		
Nematodes		



Photo. Green profile



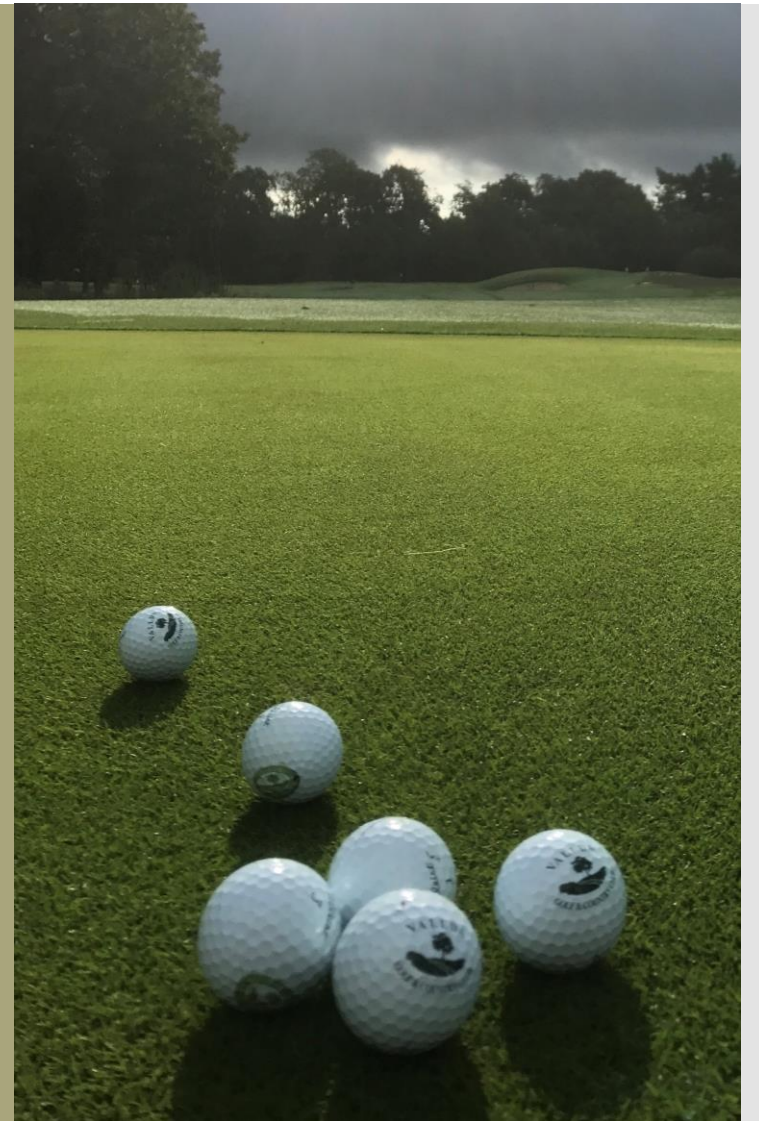
Photo. One square meter of green



Grass composition	Results (%)	Target
Bent and fescue		>90
Annual bluegrass		<10

Damage and diseases	Results (%)	Target
Coverage with grass		100%
Wear and tear from machines		No wear
Dry patches	
Dry spots affecting ball roll		
Active fungal diseases		
Fungi affecting ball roll		
Algae / Black Layer		
Moss		
Weed		
Larvae		
Birds		
Ants		
Nematodes		

Challenges Swedish golf greens





Current situation analysis for green

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Aeration (when and how)	

Playability

	Results	Target
Firmness (Clegg Hammer)		
Hole-out test (Greenstester)		
Stimp(feet)		
Difference in speed between greens		

Basic conditions

	Results	Target
Number of playable pin positions		
Hours of sunshine in December		
Air circulation		
Number of golf rounds		
Surface runoff		
Incoming surface water		
Infiltration rate (mm/h)		
Organic material (OM246)		
Thickness of turf (thatch + mat)		
Layers in the profile		
Compaction (depth)		
Root depth		
PH in irrigation water		
Moisture (TDR)		
Coverage irrigation		
Application pesticides		
Nutrient requirements (kg N/Ha/year)		



Different sand mixes

Coarser / finer

Capillary
breaking layer



A wide-angle photograph of a golf course green. The green is a vibrant, well-maintained grass, sloping gently from the foreground towards the background. A white flag on a thin pole stands prominently on the right side of the green. To the left, a dense line of tall, leafy trees casts long, dark shadows across the grass. The background shows more trees and a clear, bright blue sky. The overall scene is peaceful and well-lit, suggesting a sunny day.

Two cases

18 plus 9 holes

18-hole course

- Open 7 months
- 90% Poa 10% Bent
- 200 kg of nitrogen
- 4 cm roots
- 4 applications with fungicides

9- hole course

- Open 12 months
- 30 % Poa 70% Bent
- <100 kg of nitrogen
- 14 cm roots
- 1 applications with fungicides

Degerfors Golf Club

- Velvet bent
- Were known for severe fungal attacks
- Fertilizers today 70 kg of nitrogen per year
- Keeps pH low
- Cut the greens twice a week
- No fungus



