SERAUXMEN SPORTSFIELDS

Building it right…
…for all the right reasons.

Jim Plasteras
Manager | Parks Operations
City of Nanaimo, B.C.
Parks, Recreation and Culture Department

SportsTurf MANAGERS ASSOCIATION

Canada

So where in the world is Nanaimo BC?

CITY OF NANAIMO
THE HARBOUR CITY


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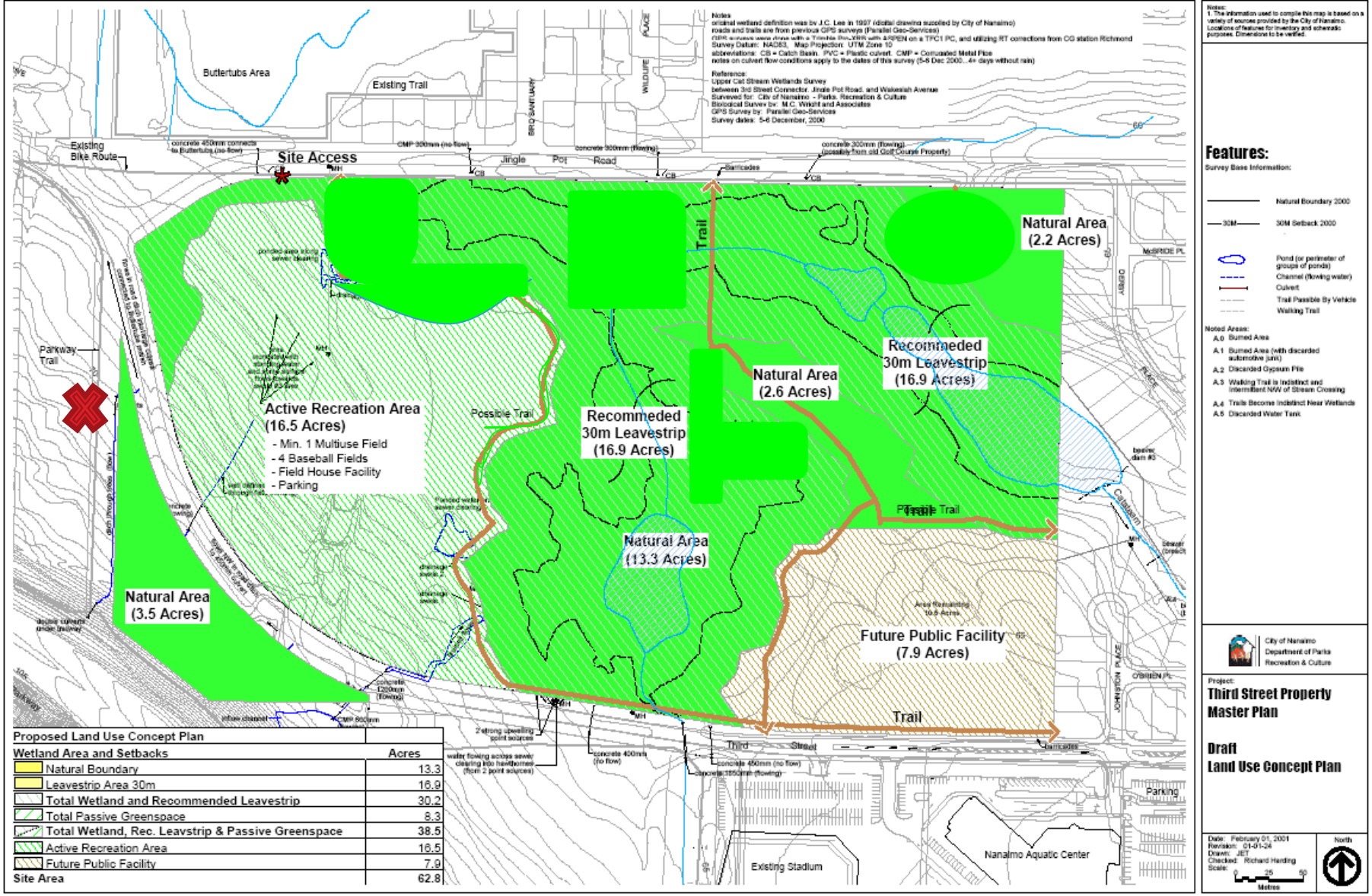
Greenland
OX
Baffin Bay
ufort Sea
KL7
Alaska
VE8
VY1
Yukon
North West Territories
VY0
Nunavut
Hudson Bay
Labrador Sea
Gulf of Alaska
British Columbia
VE7
Alberta
VE6
VE5
VE4
Manitoba
Canada
VE3
Ontario
Saskatchewan
VE2
Quebec
VO2
Labrador
Newfoundland
New Brunswick
P.E.I
CY9
VY2
VO1
FP
St Pierre & Miguelon
CY0
St Paul Is
Sable Is
VE9
Nova Scotia
VE1
Maine
W1
New Hampshire
Vermont
W2
Massachusetts
Rhode Island
Connecticut
New York
Pennsylvania
W3
New Jersey
Delaware
Maryland
District of Columbia
Virginia
North Carolina
South Carolina
W4
Georgia
Florida
Alabama
Mississippi
Louisiana
Tennessee
Kentucky
West Virginia
Ohio
Indiana
Illinois
W8
Michigan
W9
Wisconsin
Minnesota
North Dakota
South Dakota
W0
Iowa
Nebraska
Kansas
Missouri
Colorado
Wyoming
Montana
Idaho
W7
Nevada
Utah
Oregon
Washington
California
W6
Arizona
New Mexico
Oklahoma
Texas
W5
United States of America
Atlantic Ocean
Pacific Ocean
Gulf of Mexico
Sargasso Sea
VP9 Bermuda
C6
Bahamas
Cuba
CO
VP5
VP2V
KP2
KP3
VP2E
FS,PJ7
PJ5
V2
FG
J7
FM7
J6
J8
8P
J3
9Y
Trinidad
Surinam
PZ
8R
Guyana
YV
Venezuela
HK
Colombia
HP
Panama
TI
Costa Rica
YN
Nicaragua
YS
El Salvador
HR
Honduras
TG
Guatemala
V3
Belize
XE
Mexico
ZF
KG4
6Y
KP1
KP5
PJ6
HH HI
YV0
V4
VP2M
HK0
P4
PJ2
PJ4
Caribbean Sea
Cocos Is
TI9
FO
Clipperton Is
Revilla
Gigedo
XF4
Hawaii
KH6
KH3
Johnston Is
KH5K
Kingman Reef
KH5
Palmyra Atoll

The City of Nanaimo:

- Is located on Vancouver Island off the west coast of Canada and has a population of about 87,000.
- Is 100 km (62miles) north of Victoria.
- Is 4,215 kilometers (2,620 miles) northwest of Daytona Beach.
- Has a temperate climate. Cool and damp from late November to April. Warm and relatively dry, from May thru October.
- Has a plant hardiness zone rating of 8 as categorized by both Agriculture Canada and the USDA. Examples of other zone 8 cities include Madrid, Paris, Milan, Memphis and Raleigh North Carolina.
- Is of course the home of the world famous Nanaimo Bar.

SERAUXMEN SPORTSFIELDS

The **SERAUXMEN** Service Club is a group of local young men dedicated to *"help groups and individuals within the Nanaimo region."*



Proposed Land Use Concept Plan	
Wetland Area and Setbacks	Acres
Natural Boundary	13.3
Leavestrip Area 30m	16.9
Total Wetland and Recommended Leavestrip	30.2
Total Passive Greenspace	8.3
Total Wetland, Rec. Leavstrip & Passive Greenspace	38.5
Active Recreation Area	16.5
Future Public Facility	7.9
Site Area	62.8

There are 16 acres of sand-based sports turf within 63 acres of previously undeveloped City parkland. (3 Street Master Plan)

West Coast Brigade 1940 - **Royal Canadian Army**

The project was very much a shared effort. Without the serious involvement of service clubs, field user groups, Vancouver Island University (VIU), corporate and private donors and the City of Nanaimo, this project would not have happened.

CITY OF NANAIMO
THE HARBOUR CITY

March 9th Site clearing began.

After the site was cleared, the emphasis turned to methodical de-watering of the site.

This involved intercepting, detouring and settling out ground water before releasing it into the Jinglepot Marsh. (background)

There could and would be, no net water loss or any negative affects to water quality as it entered the marsh.

Intercepting and detouring water from the build site. All major inflows onto the property were located and water detoured as you see here. As mentioned, any water that was in the marsh will stay in the marsh.

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Dewatering with consideration of the environment.

Notice the swale with water running towards the road. Clear crushed gravel weirs were put in place every 15 feet to filter the water before it reached the marsh. Silt fencing is seen further down and hay bales are in place behind the silt fence, as water continued in the swale to the marsh.

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Parks, Recreation & Culture

SAND-BASED SPORTSFIELD CONSTRUCTION STANDARDS

PREPARED BY - JIM PLASTERAS | MANAGER OF PARKS OPERATIONS

The following construction standards relate to sand-based sportsfields and are Industry current and best practices. The City of Nanaimo will strive to meet all specifications when constructing new sportsfields.

With clearing and dewatering complete, rough grading began.

It was essential to ensure the entire site drain very well.

Native soils with good drainage.

* Rock hammering was needed to get to sub-grade

and no rock would be too big!

Over 30 tandem trucks of rock were removed from the sportsfield build area. It was stock piled and reused as base material for the parking lot and road. In fact nothing was taken off site as we focused on recycling and reusing materials.

Organic debris piles in the distance. A large stump grinder was brought on site and the shredded material was reused as a mulch, on untouched native areas.

Shaping the “natural benches” overlooking VIU Mariners home fields for soccer and baseball. The land provided natural amphitheatre style spectator seating.

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The benches were shaped and reshaped several times until we were satisfied.

Shaping retention Pond 1

This pond would receive all drainage water off the site where it would settle before continuing through a culvert, under the field to Pond 2.

Many activities were happening simultaneously at this stage of the project, which required very close attention to quality control.

installing conduit for electrical, Cable ,IT, fiber optic and empty conduit for future use.

* Sub - surface drainage system being installed. A properly functioning drainage system is critical for turfgrass success unless,

you can rely on surface drainage.

Pond 1 now functional is collecting, retaining and settling out water before it enters the marsh. The culvert inlet is protected with large rock from any damage or entry.

P2 receives settled out water from P1. Secondary settling occurs here and when the pond is full, the water overlands through clean gravel and vegetation as it makes its way into the marsh.

*ALL WATER SAMPLES FOR LAB ANALYSIS TAKEN HERE

- ✓ -Sub grade met.
  -Elevations checked.
  -All drainage systems working correctly.
  -Underground services installed except irrigation.

It was now time for sand delivery.

About the grow medium.

- The sportsfields are 100% sand based with a 3% organic amendment carefully blended in for superior establishment during grow-in.
- Our sand specification is very detailed and the sand was scrutinized very closely before a decision was made.
- **OFTEN TIMES THIS IS THE STAGE WHERE COMPROMISES ARE MADE AND CONSEQUENTLY THE REASON FOR A SPORTSFIELD'S FAILURE. UNDERSTANDING THE IMPORTANCE OF SAND SPECIFICATIONS AND THE DEPTH REQUIRED FOR OPTIMUM TURF GROWTH AND DRAINAGE IS CRITICAL.**

1) SAND PARTICLE SIZE DISTRIBUTION REQUIREMENTS

The development of specifications for sand-based sports fields is based on the USDA system of soil particle size classes. Particle size is determined by a soils laboratory, which conducts a sieve analysis using USDA standard sieves as listed below:

	Sieve Opening (mm)	USDA Class	Class Size Range (mm)
10	2	Fine Gravel (FG)	Greater than 2.00
18	1	Very Coarse Sand (VCS)	1.00 - 2.00
35	0.5	Coarse Sand (CS)	0.50 - 1.00
60	0.25	Medium Sand (MS)	0.25 - 0.50
140	0.105	Fine Sand (FS)	0.10 - 0.25
270	0.053	Very Fine Sand (VFS)	0.05 - 0.10
		Silt (S)	0.002 - 0.05
		Clay (C)	Less than 0.002

The sportsfield growing medium sand will be composed of 60 - 80% (by weight) of CS and MS particle size as indicated by the shaded area of the chart above. Particles finer than MS should not amount to more than 25% by weight of the total with no more than 8% being VFS, S, or C (f"fines"). Particles larger than 2.00mm (VCS) will screened out. The sand will be washed and be naturally low in organic matter content. (1-4%)

Gradation of particle sizes shall fall within the specified range. "Percent to be reported as the mass of the particles whose size is less than the designated sieve opening but greater than the next designated sieve opening; angular or fragmented sand particle shapes will not be acceptable.

Sand shall have saturated hydraulic conductivity between 100mm and 300mm per hour. Confirm source of sand prior to delivery to site and obtain approval of Project Manager.

Testing: The Contractor will obtain samples and pay for testing by the testing laboratory for basic analysis to ensure uniformity and report to Project Manager before proceeding. Schedule as follows:

1. **Beginning of Delivery**
2. **At midpoint of Delivery**
3. **End of Delivery- TOTAL SAND REQUIRED: UP TO 3900 MT**

Sand arriving and quality control.

Sand samples randomly and frequently collected and sent to lab for K (hydraulic conductivity) testing.

Saturated Hydraulic Conductivity - Standard Proctor Compacted (15-Blow)								Oven Dry
								Bulk
				K sat	K sat	K sat	K sat	Density
		Sample ID Lab #		Compaction	cm/s	cm/hr	mm/hr	in/hr	kg/m^3
Sample received:	25-Aug-05		Sample #1 05-355-1	15 blow	5.58E-03	20.1	200.9	7.9	1607
Soilcon Job#	05-355								
Company:	City of Nanaimo								
Client Name:	Jim Plasteras								
Project ID:	Serauxmen Fields-Nanaimo								
Analysis:	15 Blow Compacted								
	Saturated Hydraulic Conductivity								
Date Completed:	7-Sep-05								

Of particular interest was hydraulic conductivity. Each sample must meet a certain ability to drain. Between **100 - 300 mm/hour (4”-12”)** is our requirement. The sand needs to drain and retain water and nutrient.

Sand depth was continuously checked.

An organic plant food source derived from aerobically composted turkey litter, hydrolyzed feathermeal and sulfate of potash was used as our sand amendment.

Blending in amendment.

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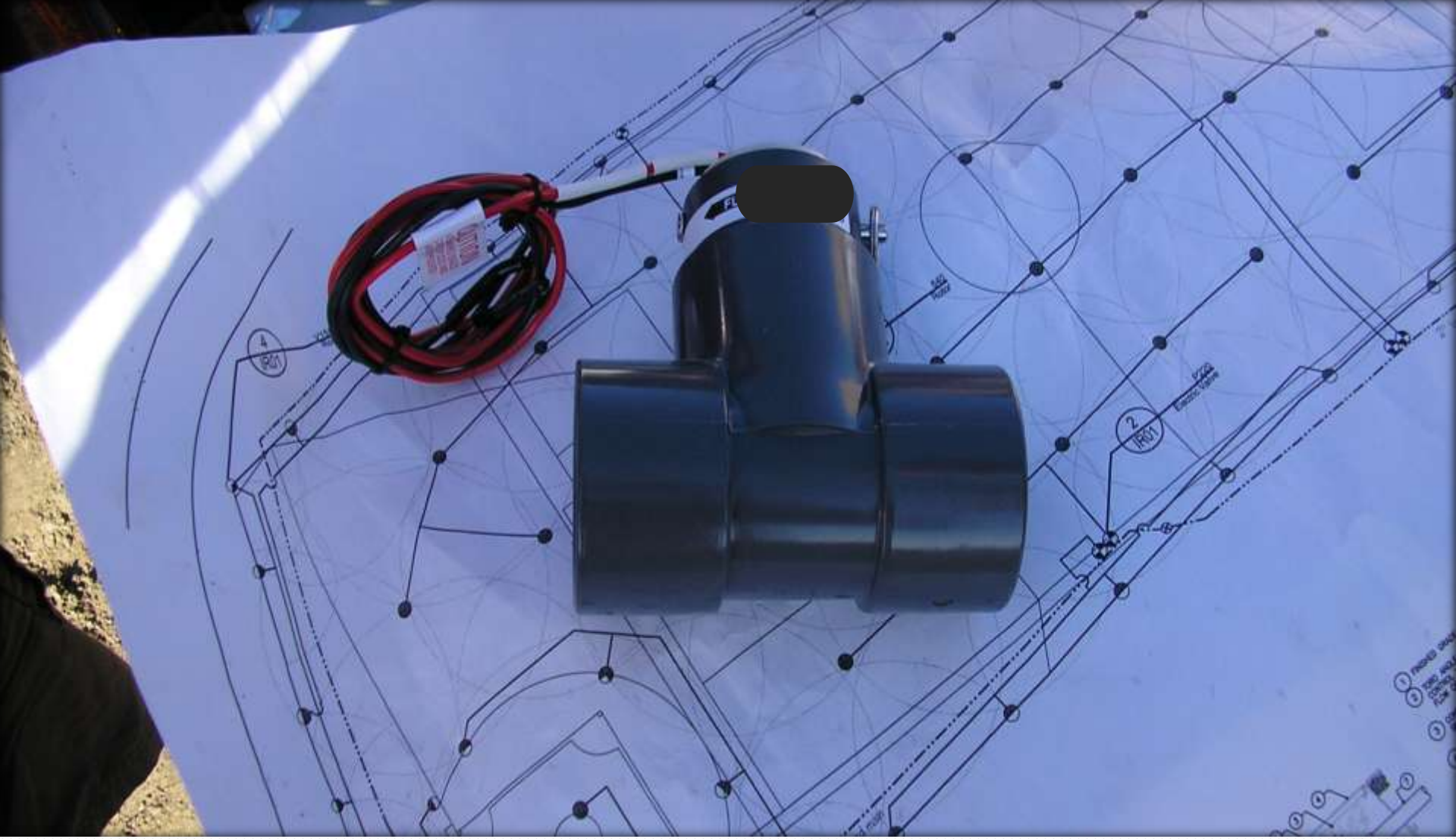
Installing irrigation system

All sportsfields in Nanaimo are irrigated by a Central Control Irrigation System (CCIS) and the majority are watered using evapotranspiration (ET) information. All systems were audited, corrections made, re- audited and then the CCIS was installed.



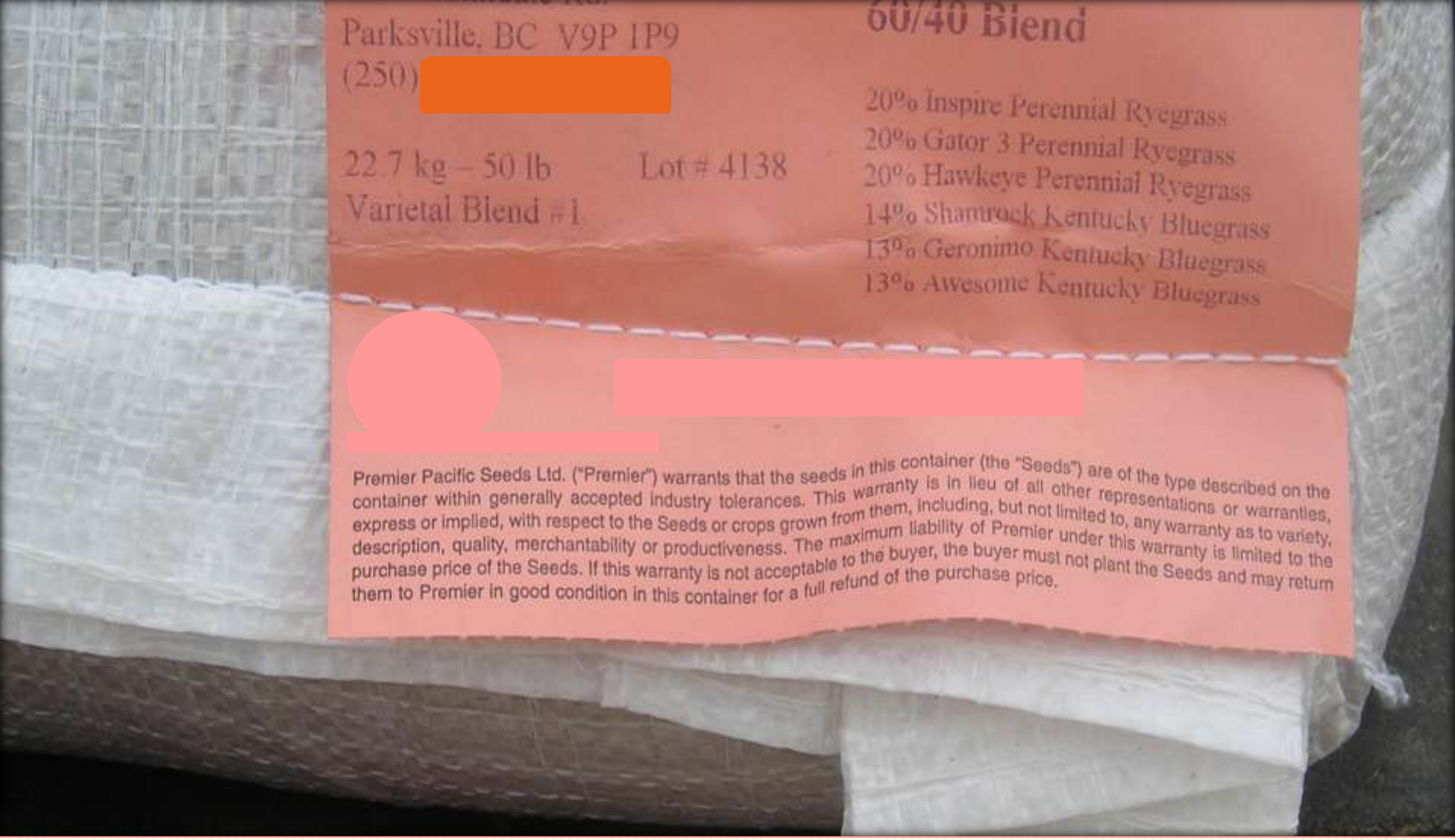
Pictures are as-built proof as to…

…what methods and materials were used,

and that no steps were missed.

* With finish grade and irrigation installation nearing completion it was time for me,

to check things out one last time before seeding.



60/40 Perennial Ryegrass (3v) / Kentucky Bluegrass (3v)

Rate: 12lbs./1000 sq.ft.

Seeding underway September 20th . The project timing was completely based on a September seeding, which is optimum in our climate.

Germination of sportsfield and the natural seating area behind Mariner baseball Field.

* After germination comes the very important grow-in phase...

…where there can be many challenges and surprises as we nurture sportsturf to optimum density, vigour and root development before put into service.

Black heavy gauge chain link fencing is used as the colour blends with the landscape.

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VIU MARINERS

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P1 serving to settle water before escaping under the field to P2.

P2 functioning very well at capacity.

Arial view facing North

After P1 had served its purpose a backfill plan was carefully engineered, all drain lines connected and the pond eliminated.

Nanaimo Oceanside Rotary Field House now sits where the **X** is.

Streetside view.

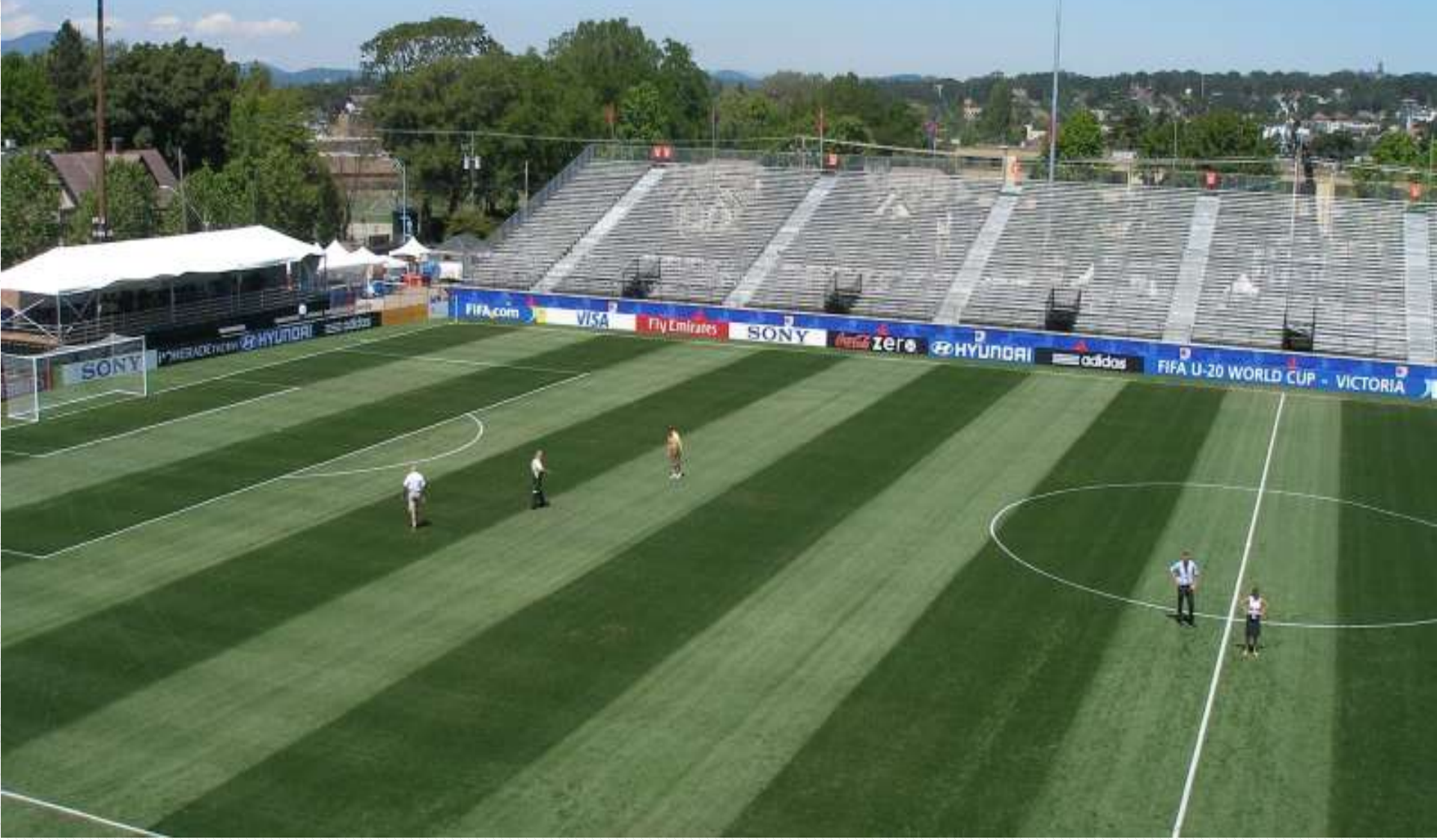
And the word got out so we hired *Sprite*, a stock trained Border Collie to take care of goose control on Nanaimo's sportsfields and other Park open spaces.

IN SUMMARY:

PLAN IT RIGHT, HIRE THE RIGHT PEOPLE AND

Build it right,……..for all the right reasons!

Thank you.



JIM PLASTERAS | MANAGER | PARKS OPERATIONS
CITY OF NANAIMO | BRITISH COLUMBIA | CANADA
***PAST PRESIDENT – WESTERN CANADA TURFGRASS ASSOCIATION**
***FIFA U20 WORLD CUP - NATURAL TURF CONSULTANT**