

# **YOUR SPORTS FIELD FROM FINANCE TO MAINTENANCE**



# CHICKEN OR THE EGG

- Planning – The How and What
- Finance Vehicle – Design Bid Build, Lease – LeaseBack
- Construction
- Budget – Where is the money
- Maintenance – The Can
- Case study – What went wrong?



# WHAT'S INVOLVED PLANNING

- What type of site? The answer to this question will dictate what is designed.
- Why? Different **standards** for different sports fields.
- Customers and staff.



# WHY DOES TYPE OF SITE MATTER?

- You will plan differently depending on the what the sports field will be used for. K-5 vs. High School.
- What? Baseball, football, multipurpose



# KNOW YOUR DEMAND

- Who plays when - Conflicts
- Who plays where - Needs
- Who plays what – Type of field



# TYPES OF ATHLETIC FIELDS

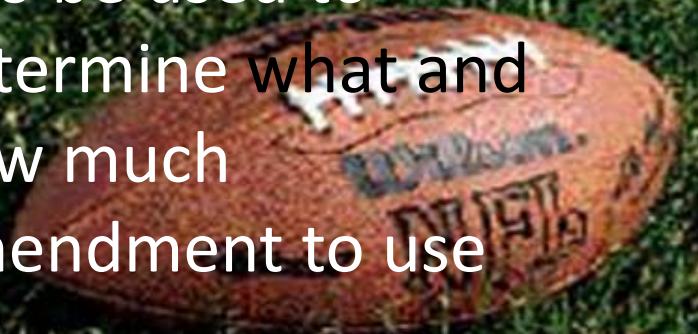
- Native soil
- Amended native soil
- Sand based
- Seed, sod, synthetic
- The field type will all be based on to a large extent on the soil sampling



# Soil Samples - Why



- Samples need to be tested by a reliable lab
- If you don't understand the results, have them explained
- These samples will also be used to determine what and how much amendment to use



# Develop Standards

- Daily
- Weekly
- Bi-weekly
- Monthly
- Bi-monthly
- Semi-annually
- Seasonal
- These will vary depending on the playability vs. the aesthetic quality. This is where maintenance comes into play.





# KNOW YOUR CUSTOMER

Youth, High School, Adult, Professional



External

Internal



# Internal and External Customers

- Internal:
- Students
- Coaches
- Administrators
- External:
- The Community/City
- Youth Sports Groups



# KNOW YOUR STAFF

- Know their weaknesses
- Know their strengths
- Right person wrong job
- Observation
- Training/Teaching



# FACTORS INFLUENCING DELIVERY VEHICLES

- Type of project:
  - Complete facility or sports field
  - Level of control
  - Likelihood of changes
- Size of project:
  - Type of **contractors**



# FACTORS INFLUENCING DELIVERY VEHICLES

- Material selections/standards/project intent
- Budget constraints
- Political environment
- Design expertise
- Owner capabilities
- Time considerations



# FINANCE VEHICLES

## DESIGN-BID-BUILD

### PROS

- Open bidding
- Competitive pricing
- Simple structure
- Single point accountability

### CONS

- Builder not involved with design
- Price not determined until after design
- Long lead items
- Time lost if redesign
- Low bid



# FINANCE VEHICLES

## LEASE-LEASEBACK

### WHAT IS LEASE-LEASEBACK?

The philosophy behind the lease-leaseback is to engage the contractor and the architect at an early enough stage so as to minimize costly change orders once construction begins, thus staying within the guaranteed maximum price (GMP) set by the owner. It fosters architect-builder coordination early on and throughout the process, something that doesn't always happen in a design-bid-build process



# FINANCE VEHICLES LEASE-LEASEBACK

## Terminology

- Why is this a lease? Don't you own the property?
- Guaranteed Maximum Price
- Contingencies. Owners/contractors
- How does this help?





# FINANCE VEHICLES

## LEASE-LEASEBACK

### PROS

- Projects completed on time
- On budget
- Facilitates architect-contractor-owner relationship
- Cost savings
- GMP
- Value engineering
- Use of Requests for proposals

### CONS

- New process not that well understood
- Is it legal?
- Concerns that flexibility could lead to faulty practices
- National acceptance?



**TIME FOR CONSTRUCTION  
NOW WHAT?  
BET YOU THOUGHT YOUR  
WORK WAS DONE**



# NOW WHAT?

- Landscape architect or sports field designer?  
Beauty of lease-leaseback...you can make the call. This needed to be decided in the early planning stages so it can be incorporated into the GMP.



# HAVE AN ACTION PLAN

- Utilize Professionals – Landscape architect vs. sports field designer
- Demand quality supplies – Visit the suppliers
- Don't rush the job – This may be the toughest
- Establish a chain of command – You should be in charge
- Keep good records - DOCUMENT
- Final walk through



# DEVELOP SPECIFICATIONS

- We must collect a great deal of data about the field and use before design
- We use all the data collected to determine drainage and root zone depth
- We must write very tight specifications to meet the data collected



# DEVELOP SPECIFICATIONS

- Most common specifications still used on 90% of natural turf Fields being built:
- 3 – 5 cubic yards per 1,000 sq. ft. of amendment incorporated 6" deep
- Notice no mention of drainage...it is in the civil drawings
- Know what to look for or better yet assist in writing the specifications



# CHANGE YOUR THINKING

- Look at different ways to till the soil - amendments
- Consider laser grading.
- Conventional grading + or -.1 of a foot
- Laser grading + or - .1 of an inch



# SPORTS FIELD DRAINAGE

- Mistakes – 2% grade middle of football field, if soccer is going to use the same field the players on the outside won't see the ball.
- 2% slope from home plate towards the out field, the center fielder will be at eye level with home plate
- Reduce grade to 1 – 1.5%





# DRAINAGE IS THE MOST OVERLOOKED IN SPORTS FIELD DESIGN

- Slit sand or sand channel
- Multi- flow
- Surface
- Sub-surface



# Drainage – No Problem



# TURF SELECTION

- Cool, warm and synthetics
- Zones – Cool, warm and transitional
- Who plays when
- What works best for you management practices
- Plays a roll in construction and maintenance



# Big Roll



# Sod



# SOD SPECIFICATIONS

- No bugs, grubs
- Grown on sand loam with a slightly higher sand content than what it is going to be laid on
- Big roll sod, quicker install and less seams
- Plastic netting must be removed
- Know what turf you want





## Hydro-Seeding/Sprigging



# CONVENTIONAL SEEDING



# SYNTHETIC TURF





# PROS AND CONS OF SYNTHETICS

- Maintenance cost
- Do they wear?
- Are there wear patterns?
- Do they get hot?
- 24/7



# SYNTHETIC TURF AS A TOOL

- Synthetics vs. natural grass
- Why would you use synthetics?
- Where would you use synthetics?
- How much do they cost?
- Is there maintenance on synthetics?



# WATER ANALYSIS

- Test your water supply
- Clay has a negative anionic charge
- Sodium, potassium, calcium and magnesium have a positive charge
- Cations are attracted to and held by clay
- Reclaimed water is high in sodium
- We can change the amendments



# IRRIGATION

- What are the turfs needs?
- Water sampling?
- What are the weather conditions?
- Is centralization for you?



# FERTIGATION

Fertigation has been used in the golf industry for over 20 years

- It may be the fastest way to grow-in a new field
- It may be the best way to help repair a damaged field



# EVERY SPORTS FIELD IS DIFFERENT

- Don't accept what has been done in the past



**Know your maintenance  
budget,  
yeah right**



# BUDGET

- We must know the size of the field to determine water, fertilizer, chemical, top-dress, seed and all other maintenance costs that will be associated with maintaining that field
- Knowing your budget will assist you in knowing what you can afford to build
- Money (construction) vs. money (maintenance)





# WHY THINK ABOUT MAINTENANCE?

- This is the “can”, can you maintain what you built?  
Remember if you build it they will come and come and come.....and they will expect the best
- Do you have what you need?



# EQUIPMENT

- Mowers – Reel - Rotary
- Spreaders
- Top-dressers
- Sprayers
- Tractors - Implements
- Aerators – A MUST HAVE
- Tools for synthetics



# RIGHT TOOL-RIGHT JOB

A 10 acre field will take the 60" deck approx. 3 hr. and 15 min. The 11' deck mower will mow the same 10 acre field in approx. 1hr. 15 min., a 2 hr. man hour savings per 10 acres. If the operator mows 100 acres the savings will be 20 man hours.



# CASE STUDY NOT A BAD FIELD/S



- Picture taken 09/08
- Field installed in 04/07
- Not too bad showing some signs of water stress



# DEVELOPING & FIX?



# WHAT HAPPENED?



- Picture taken 01/09
- Excess wear?
- Soil problems?
- Irrigation problems
- Drainage problems?



# WHAT HAPPENED.....



- 3/09
- Grading problem?
- What do you think?



# THE ANSWER IS.....

- All of the above!
- Major flaw was the civil engineer convinced this District to have the grade set at ½% in order to save a million dollars on importing soil into the campus area
- There was no consideration for friction the grass would create, catch basins were located in the play field.





# CONTINUE....

- The warning track on the varsity baseball field is elevated above the outfield turf...yes you run up hill.
- There was no drainage!
- Yes the ½% was the same on the entire field including the infield soil.
- Soil tight clay



# ATTEMPTED FIXES

- The dark green is new sod, tall fescue the field was originally Princess Bermuda.
- The catch basins were removed, some channel drain was installed and while you can't see it, there were grass swales incorporated into the playing field!
- Cost \$200,000.00



# FINAL FIX

- The final fix will be a complete re-do of the fields.
- Estimated to be \$2,000,000.00 not including legal fees.
- Sadly the varsity team has yet to play on the field.



# IN PROGRESS



# IN PROGRESS



# STILL GOING



# CLOSER



# FINAL COST

\$1,000,000.00

NOT INCLUDING LOST  
TIME ON THE FIELD





# HAPPY ENDING





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QUESTIONS

