

XGD SYSTEMS DRAINAGE PLAN

# St. Clair Country Club







**I am a craftsman with a scientist’s brain and a businessman’s savvy.**

At XGD, our craftsmen ply their skills on traditional golf courses.

I am proud of the group of craftsmen that have trained and honed their skills at XGD Systems and have grown into team leaders in our organization.

Our experts have knelt down on every project to check and re-check the precision of our work, the exactness of a grade, the grain of the sod that has been transplanted. It is this precision that has helped restore and transform 2,000 of the greatest golf holes in North America.

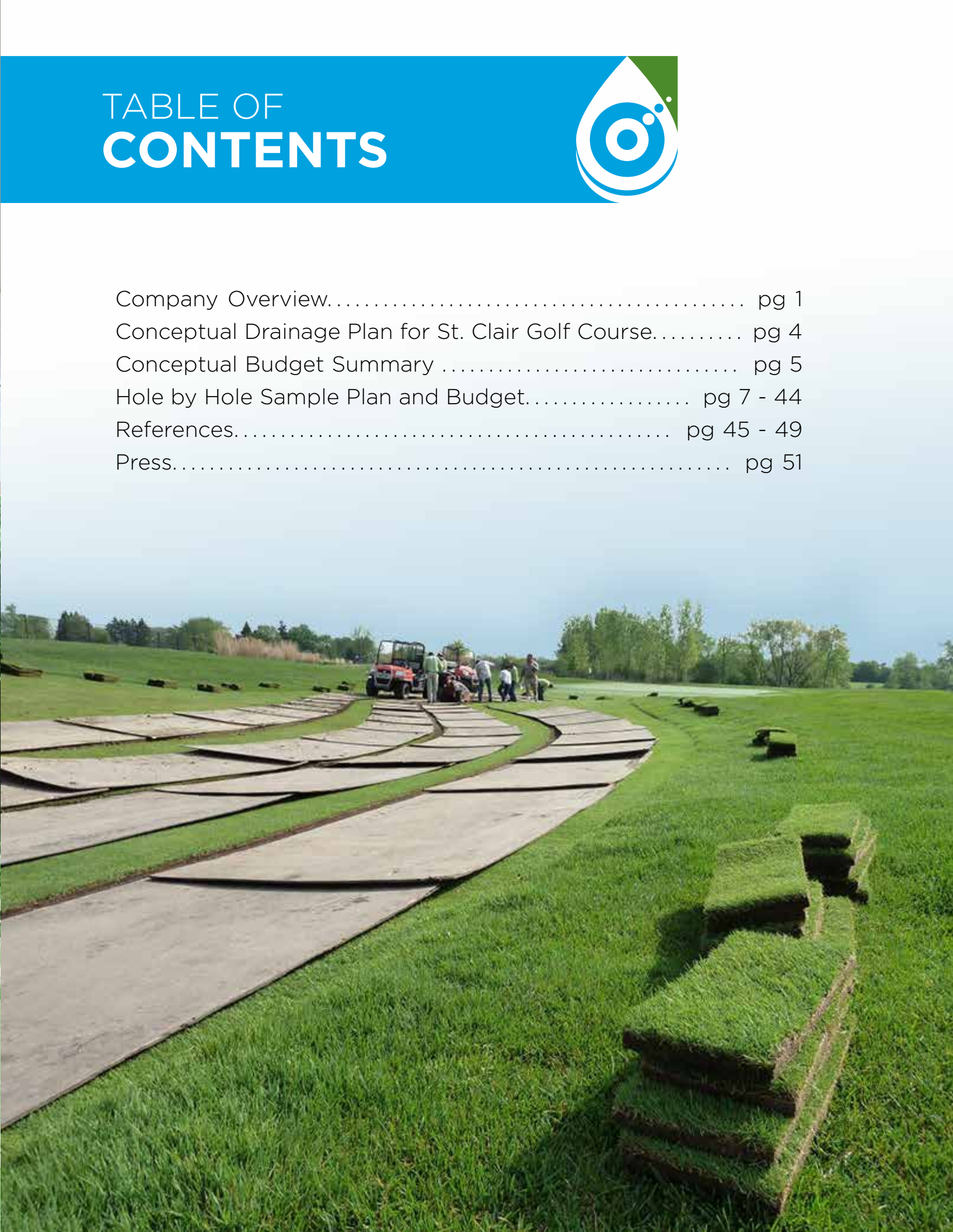
We do precision, lightning-fast work. Our handiwork has launched the future of hundreds of courses across North America by guaranteeing that the past lives on.

Our track record speaks for itself. Some of the most historic courses in the world serve as our best testimonials. We’ve tripled our labor force over the last five years and are recognized as the industry leader in golf green restorations.

Our system makes healthier greens. A healthier green is better able to handle stress from heat, drought, disease and pests. Playability is enhanced when the greens can be cut for preferred speed rather than left shaggy to defend against stress. We keep courses playable – and members happy.

We navigate the tension between technological advancements in greens management and the way golfers cherish the past, wanting to putt across a well loved and gracefully contoured surface. That drives us to be constantly innovating and perfecting our system. After all, golf is our passion too.

*Geoff*  
Geoff Corlett  
President, XGD Systems



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# COMPANY OVERVIEW



## Every day we make golf history by guaranteeing its future.

Golfers cherish the legacy of their course. That slippery putt from above the hole on a particularly tough green can be a defining feature of the course. But such cherished emblems can be very difficult to maintain when factoring in demands for perfect turf conditions from the modern-day golfer.

At XGD Systems, we use the traditional techniques fortified with an injection of technology to transform well loved greens, approaches, bunkers, fairways and tees into high-performing, sophisticated surfaces that deliver playability and profitability in today's turf-management systems – all while maintaining the course's soul and character for future generations.

Take greens as an example. Greens built pre-1970 are usually important touchstones and selling points for

the whole course. But they're often push-up greens, where the rich topsoil excavated to create surrounding bunkers and approaches was "pushed-up" and contoured into a bathtub-like cavity.

Those greens were great for holding water through hot, dry summers before today's irrigation systems. But they can make life tricky for a modern-day superintendent trying to manage moisture, maintain playability and encourage healthy greens.

Almost 25 years ago, soon after our parent company, TDI, started providing laser-controlled drainage installation to golf courses, we saw a need to restore these legacy greens to their original grandeur and yet make them manageable with the sophisticated technical equipment available to this generation's superintendent.

We weren't satisfied with the status quo. Before we came along, the only solution was completely rebuilding to sand

greens, losing the original contours. Instead, we developed a drainage installation process to surgically install 2-inch diameter drainage pipe to precise widths and depths.

Through research and development we've perfected and trademarked our drainage installation process. We understand the business side of golf course management too. Members do not want to play to provisional greens for a full season while new greens are constructed. Our process and highly skilled staff can have a green restored and playable within two to three days.

And now we take this same determination and proven track record to the rest of the course – rehabilitating holes from tee to green.

Trust only XGD to restore your tees, fairways and greens while protecting the history and significance of your course.

# OUR TEAM

XGD Systems began in August of 2004 as a spin-off company under the umbrella of TDI Golf. TDI Golf was first incorporated in 1987; by 1990, we had expanded our mission to include drainage and restoration services to the golf course industry. XGD Systems came about as an industry means to monitor the growth of TDI's greens drainage division. Since our first green in 1992, XGD Systems has completed 3000+ greens. We have also grown to presently include six installation crews. Our focus has remained unchanged. XGD Systems has developed and perfected the greens drainage process and installation, becoming the finest greens drainage organization to service the North American golf course industry.

## GEOFF CORLETT - PRESIDENT



### PROFESSIONAL CREDITS:

- B.Sc. Agriculture, University of Guelph ON Canada
- Landscape Architecture, Ryerson Polytechnical Institute, Toronto Canada
- Professional Agrologist designation

Geoff founded TDI Golf 1987, as a specialized golf course construction and remodeling company. The quality of work under his direction has allowed the company to achieve accolades from the golf course industry and business world. TDI Golf Canada has been recognized as one of the best-managed companies, top 100 fastest growing companies (1997, 1998), and runner up as the best golf course builder for 3 years.

Geoff remains involved in all functions of the business, with specific emphasis on field operations. He reviews all sites on a frequent basis, in order to monitor quality control of work in progress.

Outside of Geoff's accomplishments with TDI Golf he has been a Speaker on drainage and construction techniques for golf courses at major turf symposiums throughout the country. He has achieved designation as a Professional Agrologist for his expertise in soil science.

## MARK LUCKHARDT - VICE PRESIDENT OF SALES



### PROFESSIONAL CREDITS:

- Turfgrass Managers Short Course, University of Guelph, ON Canada
- Certified Stormwater Operator
- Licensed Drainage Contractor
- Hazardous Waste Incident Response Operations Certification

Before joining TDI over 15 years ago, Mark garnered experience in the turfgrass industry as the Assistant Superintendent at Hockley Valley Golf Resort, during the grow-in of the golf course, and installation of their own irrigation system.

Mark helped develop and fine-tune the XGD process 14 years ago. After a long stint with TDI as a senior project manager, Mark returned to XGD over 6 years ago to lead the operation from two installation crews to the six installation crews we presently have. His background in turf maintenance, and his recent completion of over 2000 greens drained to our XGD specifications, enable him to provide all clients with timely project completions, with quality that is completely unparalleled in the business.

## MARK ROWAN - TECHNICAL REPRESENTATIVE



### PROFESSIONAL CREDITS:

- Associate's Degree, Recreation Management, State University of New York at Delhi
- Bachelor of Science (BS) Turfgrass Management, Penn State University
- Advanced Drainage Certificate, Ontario Ministry of Agriculture and Food

Mark has been with XGD since 2007, beginning in Project Management. Since that time, he has evolved into the position of our Northeast Technical Representative responsible for all sales and installations, in a very large geographic market.

## JACKIE TAYLOR - ADMINISTRATOR

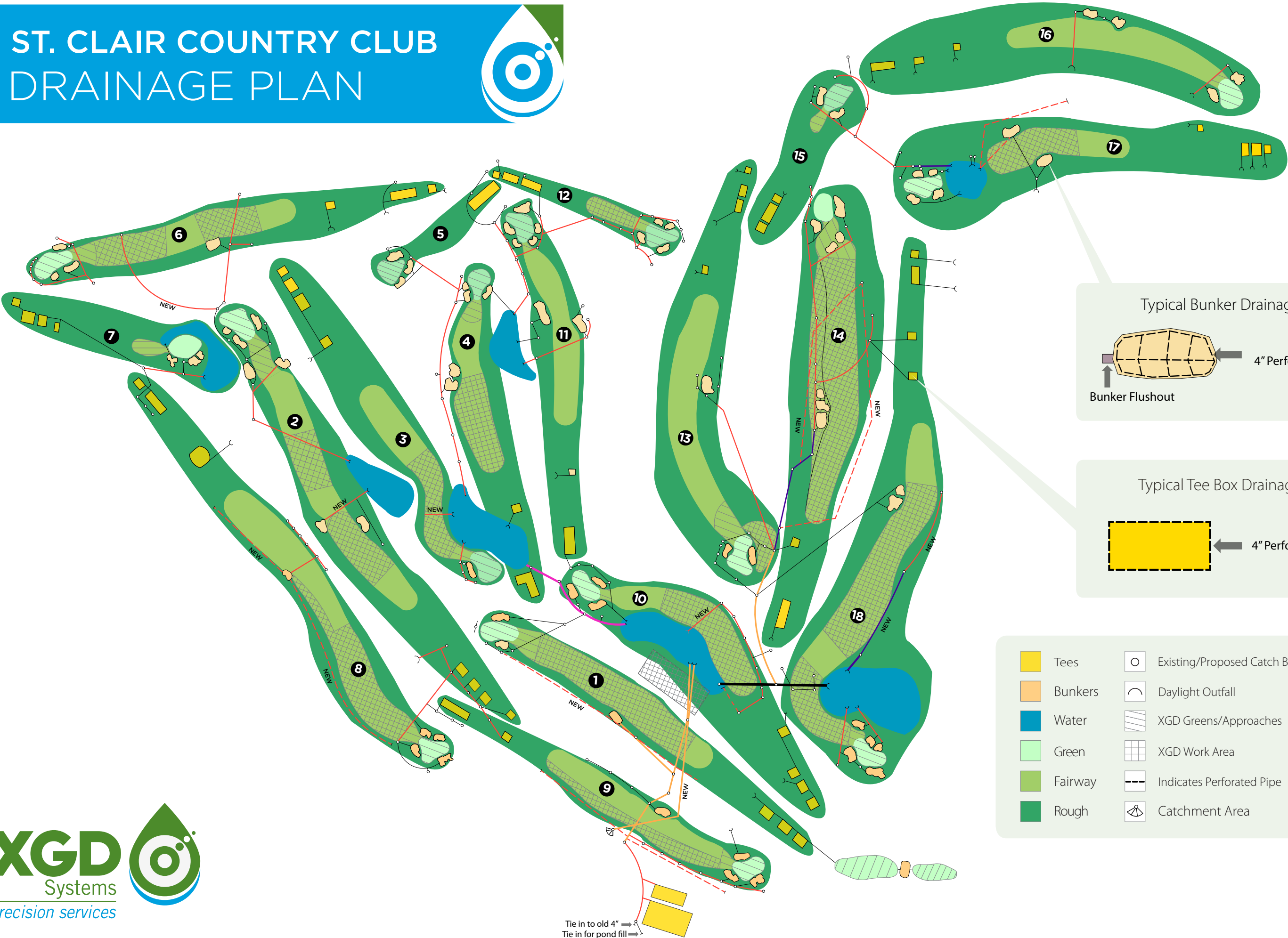
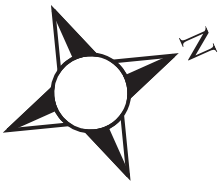


### PROFESSIONAL CREDITS:

- Microsoft Office User Specialist
- 15+ Years of Office Experience
- Graduate of Niagara College, Welland, ON, Canada

Jackie has been with the TDI Golf & XGD Systems team since 2007 and is responsible for ensuring the smooth operation of the XGD Systems Office.

# ST. CLAIR COUNTRY CLUB DRAINAGE PLAN



Typical Bunker Drainage

4" Perforated Pipe

Bunker Flushout

Typical Tee Box Drainage

4" Perforated Pipe

Tees	Existing/Proposed Catch Basin	4" Pipe
Bunkers	Daylight Outfall	6" Pipe
Water	XGD Greens/Approaches	8" Pipe
Green	XGD Work Area	10" Pipe
Fairway	Indicates Perforated Pipe	15" Pipe
Rough	Catchment Area	24" Pipe



## BUDGET PROPOSAL SUMMARY

All Holes	Area	
Green/Collar/Approach Areas	451,100	SF
Fairway Areas	752,400	SF

### **XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of a drainage system on 6-foot spacings.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Areas	451,100	SF	\$	1.61	/SF	\$	<b>726,271.00</b>
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### **XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of a drainage system on 8-foot spacings.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	94,050	LF	\$ 6.53	/LF	\$ 614,146.50
4" XGD Solid Drainage with Native Backfill	800	LF	\$ 11.50	/LF	\$ 9,200.00
6" XGD Solid Drainage with Native Backfill	1,160	LF	\$ 12.61	/LF	\$ 14,627.60
6" Interceptor Drain	4,875	LF	\$ 19.61	/LF	\$ 95,598.75
8" XGD Solid Drainage with Native Backfill	400	LF	\$ 16.54	/LF	\$ 6,616.00
10" XGD Solid Drainage with Native Backfill	700	LF	\$ 19.75	/LF	\$ 13,825.00
10" Outlet with Rip Rap Protection & Rodent Guard	1	EA	\$ 540.00	/EA	\$ 540.00
12" Catch Basin	10	EA	\$ 409.00	/EA	\$ 4,090.00
24" Catch Basin	3	EA	\$ 650.00	/EA	\$ 1,950.00
Side Hill Catchment Area	1	EA	\$ 7,500.00	/EA	\$ 7,500.00
Mobilization					\$ 26,840.00
<b>Total of FWY</b>					<b>\$ 794,933.85</b>
<b>Greens Area Contouring &amp; Regrassing</b>					<b>\$ 177,600.00</b>
<b>Total of Greens &amp; FWY Drainage</b>					<b>\$ 1,698,804.85</b>

## XGD GREENS AREA CONTOURING & REGRASSING:

### SCOPE OF WORK

- \* Strip sod from greens areas and (save for reinstall) on approx. 20,000SF on approx. 25 areas on 15 greens.
- \* XGD will remove approx. 3 to 4-inches of topsoil from these areas and install new mix to allow for more pin placements on the greens.
- \* Fine grading of the areas will prep for existing sod installation.

25 areas on 15 Greens - 20,000 SF	\$ 8.88/SF	\$ 177,600.00
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### NOTES:

1. Our proposal is based on this work being completed while XGD is on site completing a Classic XGD Drainage project, if completed as in independent scope of work mobilization charges may be applicable.
2. These measurements are estimates provided by the club for this budget proposal, therefore XGD would bill based on measurements taken while the work is performed.
3. Club to provide location of all irrigation and utility lines.
4. XGD Systems invoices bi-weekly with invoices due 15 days from the invoice date.
5. Sales tax extra, if applicable the club is responsible for remittance to state.

## NOTES

1. This conceptual plan was created with the aid of GCS Eric Materkowski and a full day site visit, which was invaluable in helping ascertain specific watershed information useful for the creation of this plan.
2. Our on site inspection revealed generally typical clay loam topsoil on top of clay/shale subsoil that is typical to western PA.
3. XGD recommends lift and relay of the existing sod on all drainage lines cut. If not, allowances can be made to purchase new sod to restore drainage trenches.
4. All excess drainage spoils from excavated trenches will be stockpiled on site, and handled in a responsible manner.
5. Included in our conceptual budget summary is a GPS survey of the XGD Systems finished product, which will aid in producing a GPS Master Drainage Plan.
6. As these are budget numbers only, should the scopes of work be altered or changed, then unit prices will be adjusted in accordance with the directed alterations to the scope of work, increased or decreased.
7. More detailed GPS additions for greens, approaches, and fairway drainage mainline and lateral locations can be layered on to this plan at any time.

BUDGET PROPOSAL

HOLE 1

Hole Number	1
Green/Collar/Approach Area	30,000 SF
Fairway Area	65,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	8,125 LF	\$	6.53 /LF	\$	53,056.25
6" Interceptor Drain	800 LF	\$	19.61 /LF	\$	15,688.00
10" XGD Solid Drainage with Native Backfill	350 LF	\$	19.75 /LF	\$	6,912.50
10" Outlet with Rip Rap Protection & Rodent Guard	1 EA	\$	540.00 /EA	\$	540.00
24" Catch Basin	2 EA	\$	650.00 /EA	\$	1,300.00
Side Hill Catchment Area	0.5 EA	\$	7,500.00 /EA	\$	3,750.00
Mobilization				\$	3,520.00
<b>Total of FWY</b>				\$	84,766.75
<b>Total of Greens &amp; FWY Drainage</b>				\$	133,066.75

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

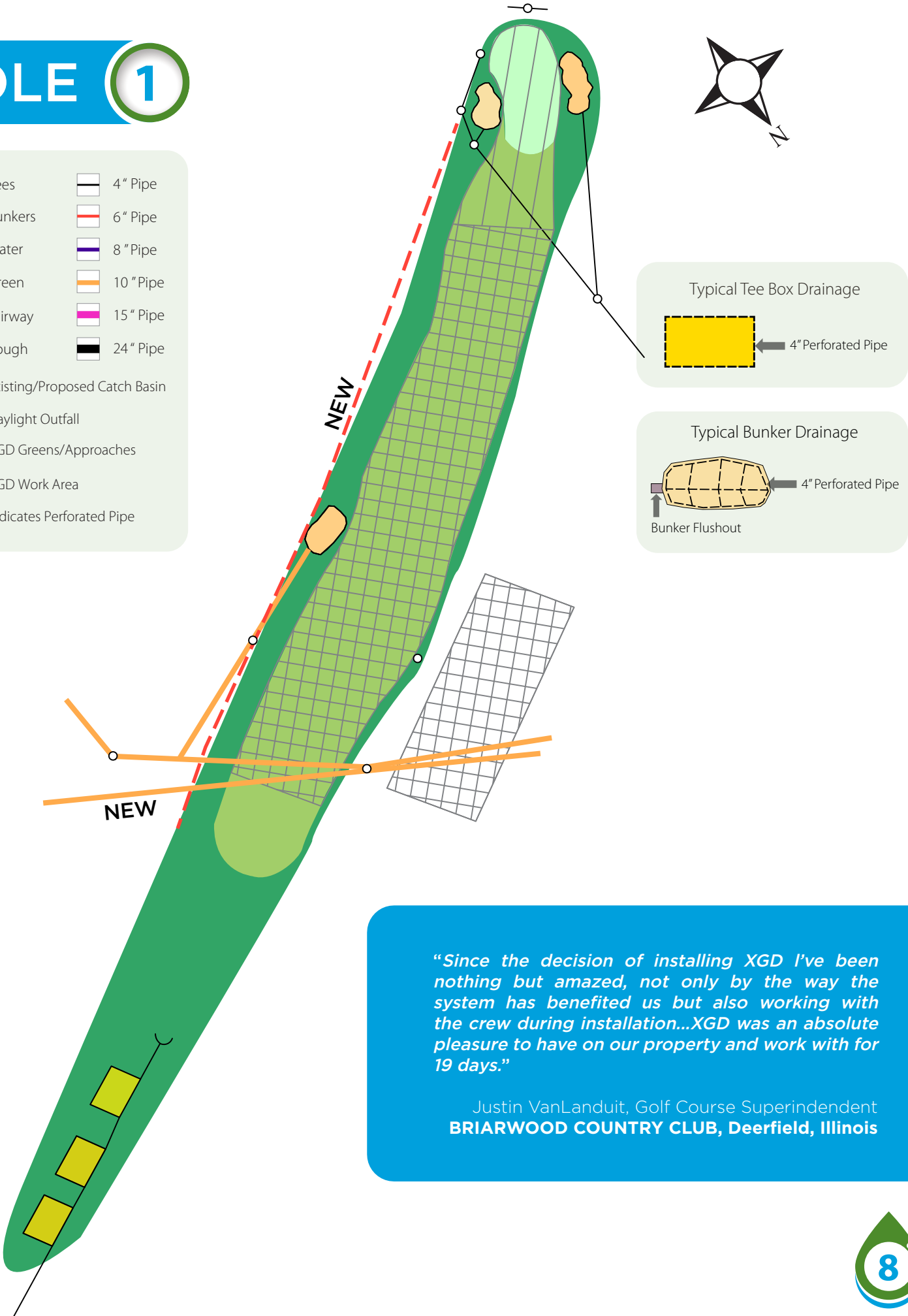
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



“Since the decision of installing XGD I’ve been nothing but amazed, not only by the way the system has benefited us but also working with the crew during installation...XGD was an absolute pleasure to have on our property and work with for 19 days.”

Justin VanLanduit, Golf Course Superindendent  
BRIARWOOD COUNTRY CLUB, Deerfield, Illinois

BUDGET PROPOSAL

HOLE 2

Hole Number	2
Green/Collar/Approach Area	30,000 SF
Fairway Area	61,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	7,625 LF	\$	6.53 /LF	\$	49,791.25
6" XGD Solid Drainage with Native Backfill	200 LF	\$	12.61 /LF	\$	2,522.00
12" Catch Basin	1 LF	\$	409.00 /LF	\$	409.00
Mobilization				\$	1,980.00
<b>Total of FWY</b>				\$	54,702.25
<b>Total of Greens &amp; FWY Drainage</b>				\$	103,002.25

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



BUDGET PROPOSAL

HOLE 3

Hole Number	3
Green/Collar/Approach Area	25,000 SF
Fairway Area	40,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	25,000 SF	\$	1.61 /SF	\$	40,250.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price	Extended Total
2" XGD Fairway Drainage with Sand Backfill	5,000 LF	\$	6.53 /LF	\$ 32,650.00
6" XGD Solid Drainage with Native Backfill	135 LF	\$	12.61 /LF	\$ 1,702.35
12" Catch Basin	1 LF	\$	409.00 /LF	\$ 409.00
Mobilization				\$ 1,320.00
<b>Total of FWY</b>				<b>\$ 36,081.35</b>
<b>Total of Greens &amp; FWY Drainage</b>				<b>\$ 76,331.35</b>

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

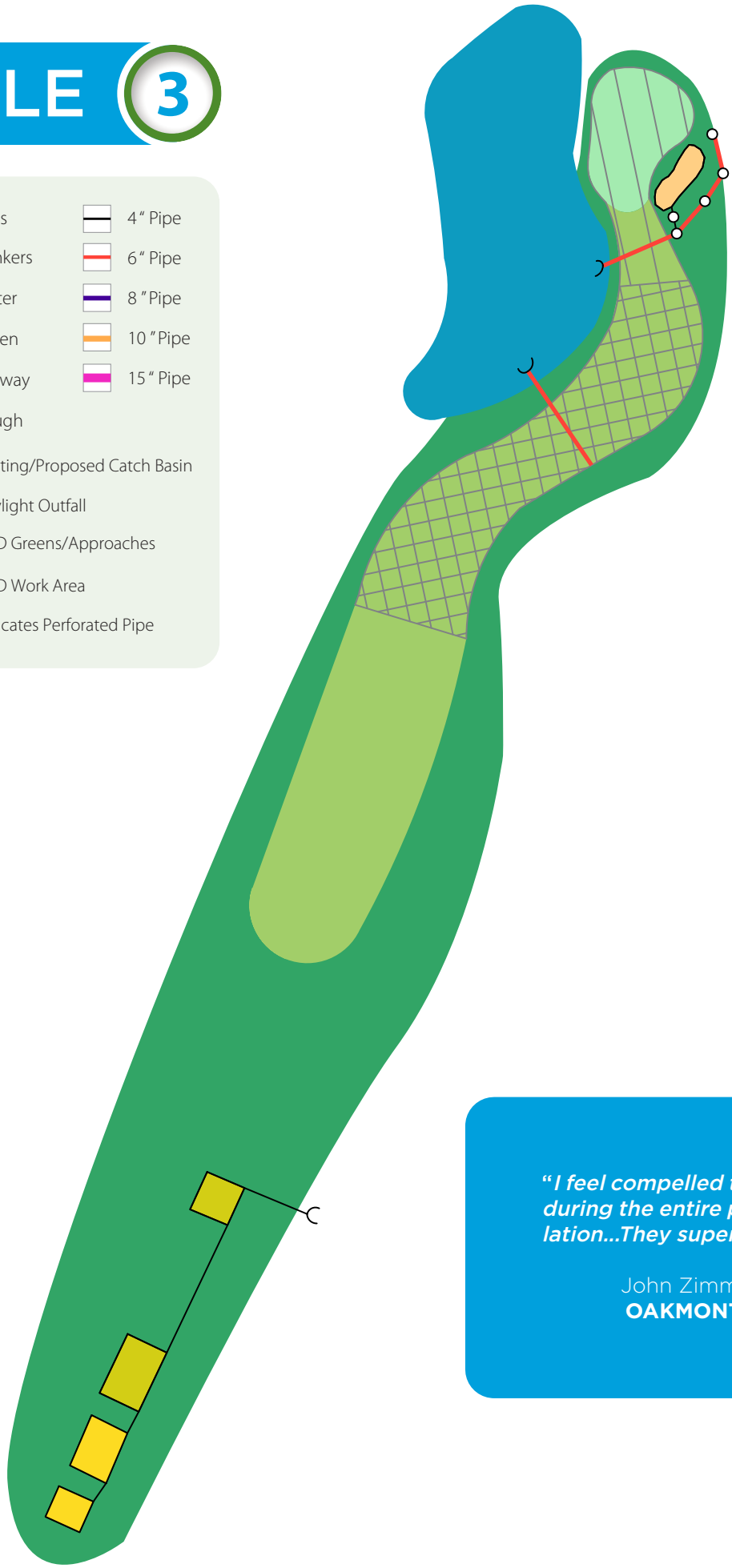
4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe



Typical Tee Box Drainage

Typical Bunker Drainage

“I feel compelled to praise the quality of their work during the entire project of greens drainage installation...They superceded my expectations.”

John Zimmers, Golf Course Superindendent  
**OAKMONT COUNTRY CLUB, Oakmont, PA**



BUDGET PROPOSAL

HOLE 4

Hole Number	4
Green/Collar/Approach Area	25,000 SF
Fairway Area	62,400 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	25,000 SF	\$	1.61 /SF	\$	40,250.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	7,800 LF	\$	6.53 /LF	\$	50,934.00
12" Catch Basin	1 LF	\$	409.00 /LF	\$	409.00
Mobilization				\$	1,760.00
<b>Total of FWY</b>				\$	<b>53,103.00</b>
<b>Total of Greens &amp; FWY Drainage</b>				\$	<b>93,353.00</b>

- Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

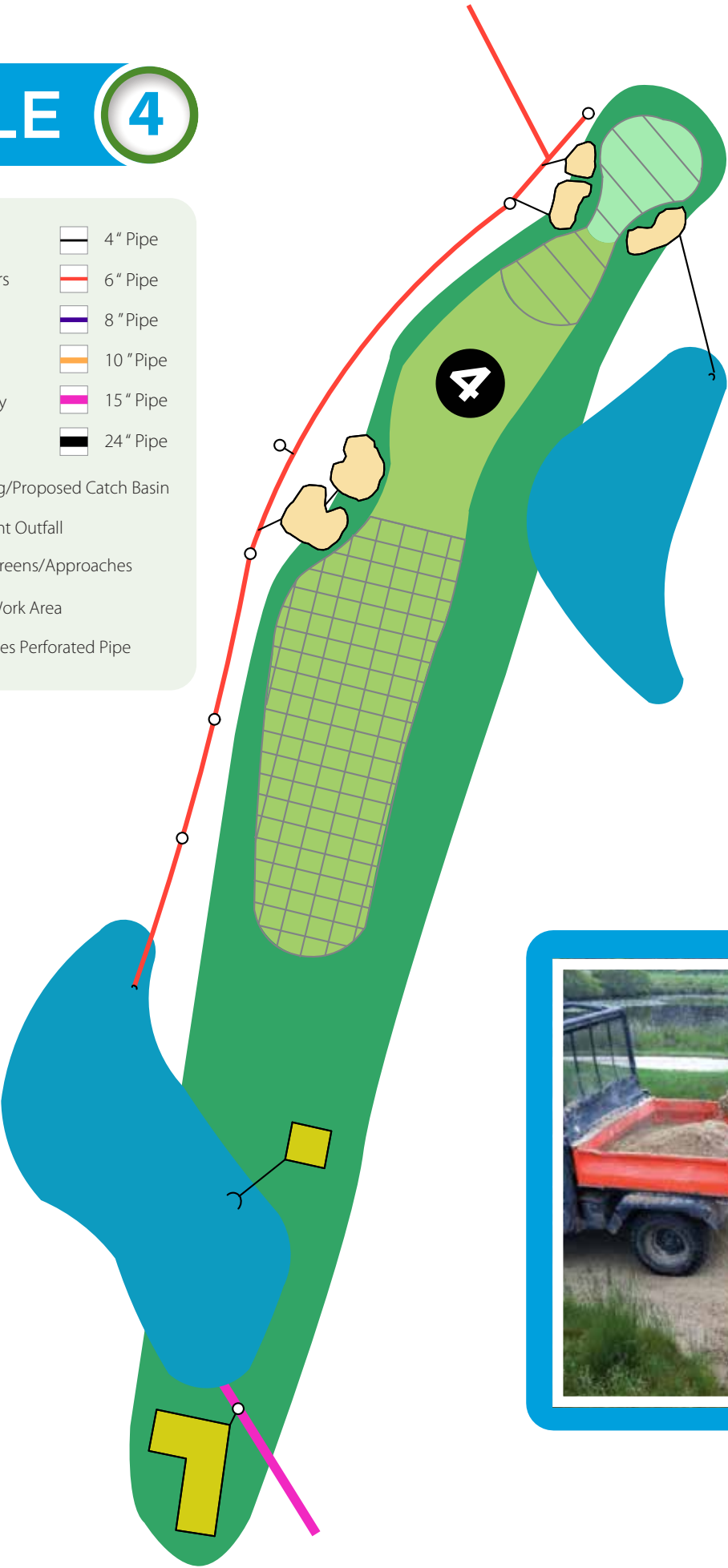
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

Typical Bunker Drainage



BUDGET PROPOSAL


















HOLE 5

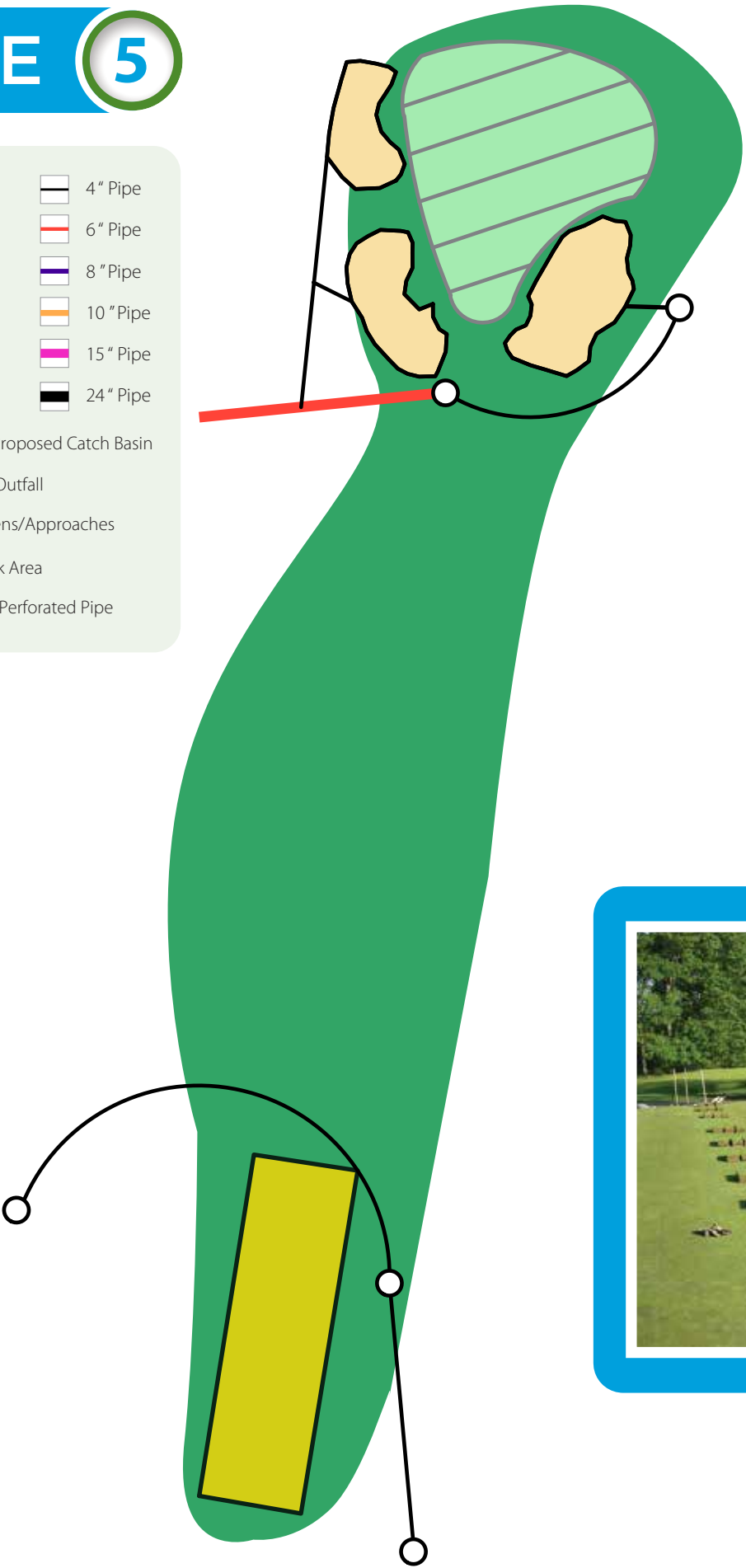
Hole Number 5  
Green/Collar/Approach Area 10,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**


- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area 10,000 SF \$ 1.61 /SF \$ 16,100.00

- |   |                               |   |          |
|---|-------------------------------|---|----------|
|  | Tees                          |  | 4" Pipe  |
|  | Bunkers                       |  | 6" Pipe  |
|  | Water                         |  | 8" Pipe  |
|  | Green                         |  | 10" Pipe |
|  | Fairway                       |  | 15" Pipe |
|  | Rough                         |  | 24" Pipe |
|  | Existing/Proposed Catch Basin |   |          |
|  | Daylight Outfall              |   |          |
|  | XGD Greens/Approaches         |   |          |
|  | XGD Work Area                 |   |          |
|  | Indicates Perforated Pipe     |   |          |

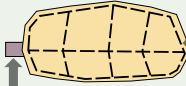


Typical Tee Box Drainage



4" Perforated Pipe

Typical Bunker Drainage



4" Perforated Pipe

Bunker Flushout





BUDGET PROPOSAL

HOLE 6

Hole Number	6
Green/Collar/Approach Area	30,000 SF
Fairway Area	74,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	9,250 LF	\$	6.53 /LF	\$	60,402.50
6" XGD Solid Drainage with Native Backfill	400 LF	\$	12.61 /LF	\$	5,044.00
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
Mobilization				\$	1,980.00
<b>Total of FWY</b>				\$	67,835.50
<b>Total of Greens &amp; FWY Drainage</b>				\$	116,135.50

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

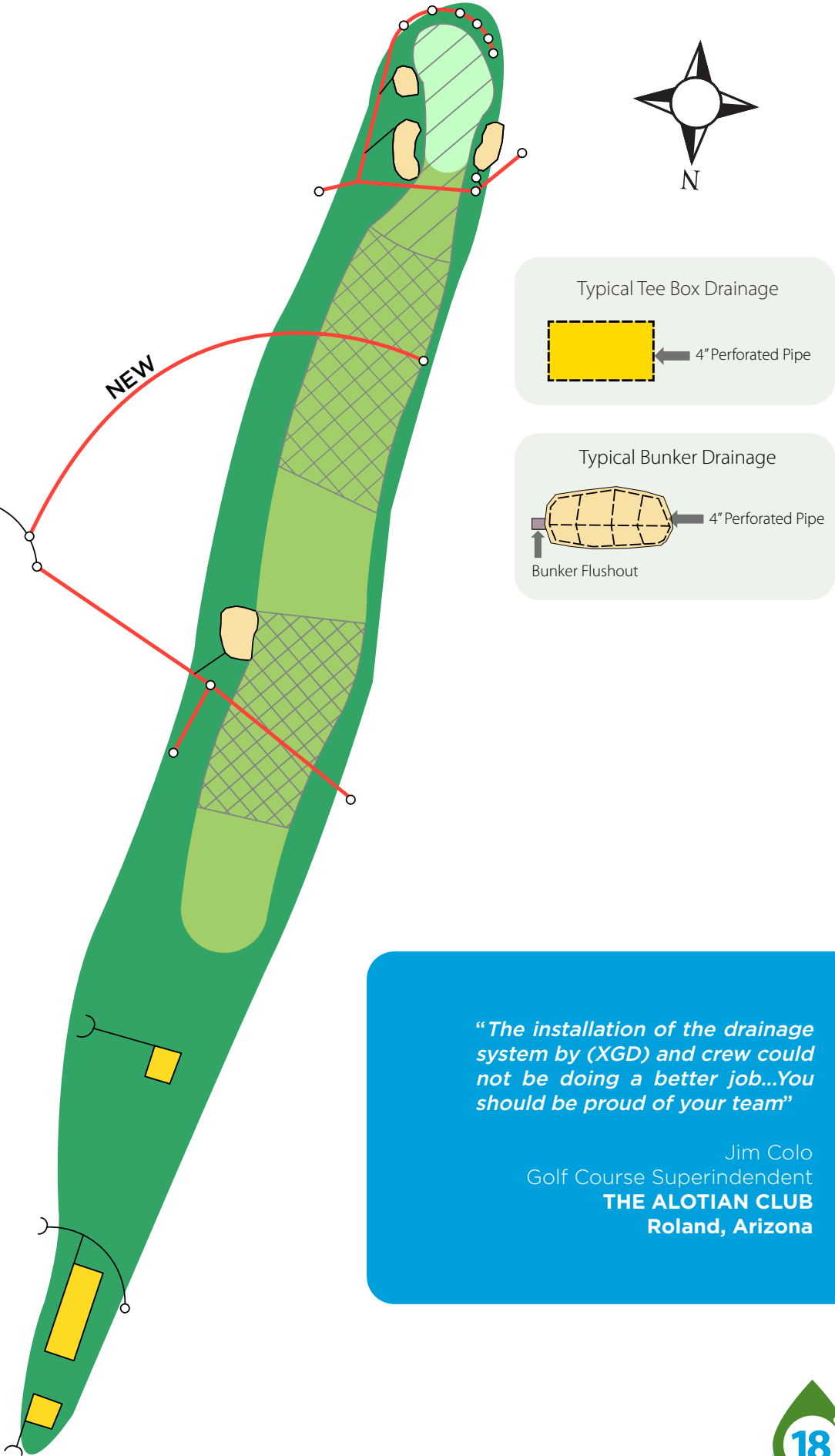
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



“The installation of the drainage system by (XGD) and crew could not be doing a better job...You should be proud of your team”

Jim Colo  
Golf Course Superindendent  
**THE ALOTIAN CLUB**  
Roland, Arizona

BUDGET PROPOSAL


















HOLE 7

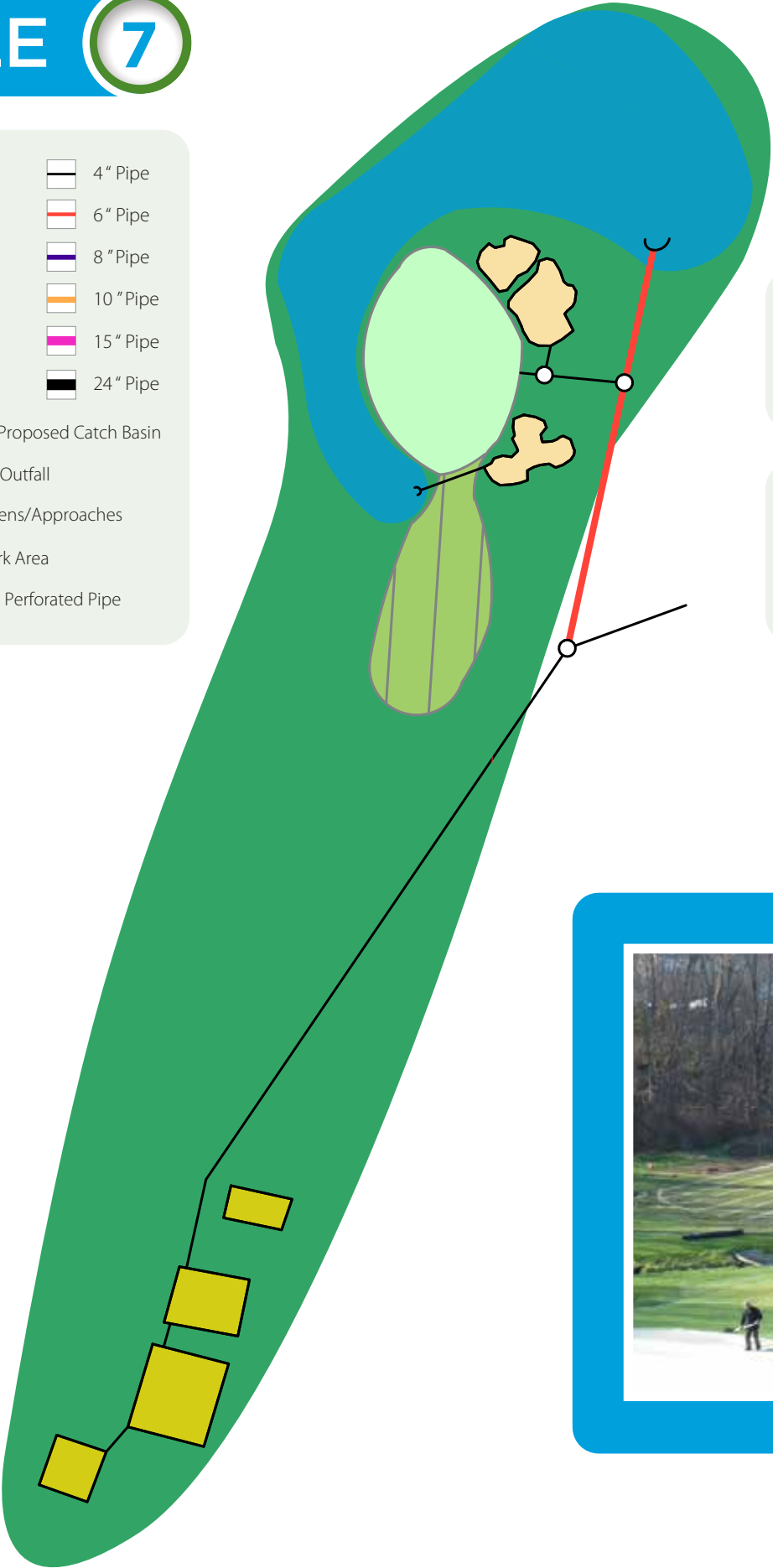
Hole Number 7  
Approach Area 12,700 SF

**XGD Classic Approach Drainage Installation Scope of Work:**


- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Approach Area 12,700 SF \$ 1.61 /SF \$ 20,447.00

- |   |                               |   |          |
|---|-------------------------------|---|----------|
|  | Tees                          |  | 4" Pipe  |
|  | Bunkers                       |  | 6" Pipe  |
|  | Water                         |  | 8" Pipe  |
|  | Green                         |  | 10" Pipe |
|  | Fairway                       |  | 15" Pipe |
|  | Rough                         |  | 24" Pipe |
|  | Existing/Proposed Catch Basin |   |          |
|  | Daylight Outfall              |   |          |
|  | XGD Greens/Approaches         |   |          |
|  | XGD Work Area                 |   |          |
|  | Indicates Perforated Pipe     |   |          |

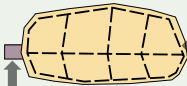


Typical Tee Box Drainage



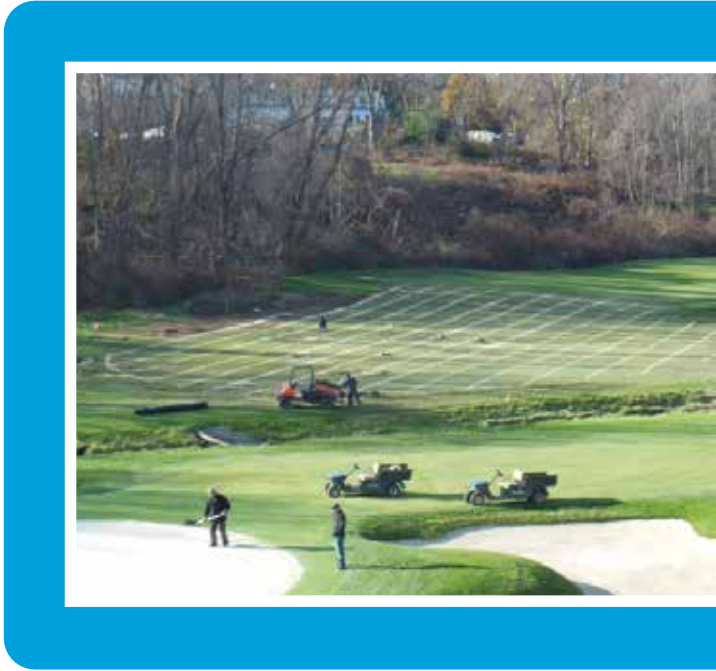
4" Perforated Pipe

Typical Bunker Drainage



4" Perforated Pipe

Bunker Flushout





BUDGET PROPOSAL

HOLE 8

Hole Number	8
Green/Collar/Approach Area	25,000 SF
Fairway Area	75,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	25,000 SF	\$	1.61 /SF	\$	40,250.00
----------------------------	-----------	----	----------	----	-----------

**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	9,375 LF	\$	6.53 /LF	\$	61,218.75
6" Interceptor Drain	1,100 LF	\$	19.61 /LF	\$	21,571.00
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
Mobilization				\$	2,640.00
<b>Total of FWY</b>				\$	85,838.75
<b>Total of Greens &amp; FWY Drainage</b>				\$	126,088.75

- Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

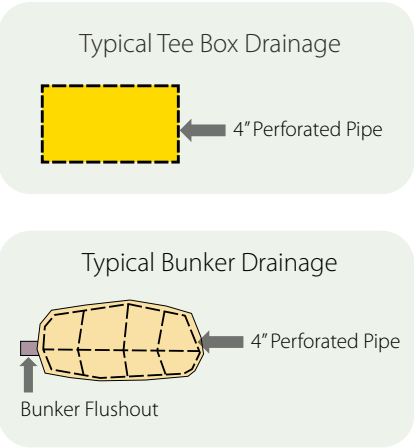
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



BUDGET PROPOSAL

HOLE 9

Hole Number	9
Green/Collar/Approach Area	25,000 SF
Fairway Area	35,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	25,000 SF	\$	1.61 /SF	\$	40,250.00
----------------------------	-----------	----	----------	----	-----------

**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	4,375 LF	\$	6.53 /LF	\$	28,568.75
6" Interceptor Drain	800 LF	\$	19.61 /LF	\$	15,688.00
10" XGD Solid Drainage with Native Backfill	350 LF	\$	19.75 /LF	\$	6,912.50
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
24" Catch Basin	1 EA	\$	650.00 /EA	\$	650.00
Side Hill Catchment Area	0.5 EA	\$	7,500.00 /EA	\$	3,750.00
Mobilization				\$	2,200.00
<b>Total of FWY</b>				\$	<b>58,178.25</b>
<b>Total of Greens &amp; FWY Drainage</b>				\$	<b>98,428.25</b>

Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

Catchment Area

4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

4" Perforated Pipe

Typical Bunker Drainage

4" Perforated Pipe

Bunker Flushout





BUDGET PROPOSAL

HOLE 10

Hole Number	10
Green/Collar/Approach Area	30,000 SF
Fairway Area	55,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	6,875 LF	\$	6.53 /LF	\$	44,893.75
4" XGD Solid Drainage with Native Backfill	200 LF	\$	11.50 /LF	\$	2,300.00
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
Mobilization				\$	1,980.00
<b>Total of FWY</b>				\$	<b>49,582.75</b>
<b>Total of Greens &amp; FWY Drainage</b>				\$	<b>97,882.75</b>

Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

Typical Bunker Drainage

“...the XGD System is effective and cost efficient.”

Adrian F. Kruse  
Chairman, Grounds and Greens Committee  
**GLENVIEW GOLF CLUB**  
Golf, Illinois

BUDGET PROPOSAL


















HOLE 11

Hole Number 11  
Green/Collar/Approach Area 30,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**


- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area 30,000 SF \$ 1.61 /SF \$ 48,300.00

- |   |  |
|---|--|
|  Tees                      |  4" Pipe  |
|  Bunkers                   |  6" Pipe  |
|  Water                     |  8" Pipe  |
|  Green                     |  10" Pipe |
|  Fairway                   |  15" Pipe |
|  Rough                     |  24" Pipe |
|  Proposed Catch Basin      |  |
|  Daylight Outfall          |  |
|  XGD Greens/Approaches     |  |
|  XGD Work Area             |  |
|  Indicates Perforated Pipe |  |

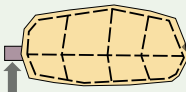


Typical Tee Box Drainage



4" Perforated Pipe

Typical Bunker Drainage



4" Perforated Pipe

Bunker Flushout





BUDGET PROPOSAL

HOLE 12

Hole Number	12
Green/Collar/Approach Area	30,000 SF
Fairway Area	30,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	3,750 LF	\$	6.53 /LF	\$	24,487.50
4" XGD Solid Drainage with Native Backfill	600 LF	\$	11.50 /LF	\$	6,900.00
Mobilization				\$	1,320.00
<b>Total of FWY</b>				\$	32,707.50
<b>Total of Greens &amp; FWY Drainage</b>				\$	81,007.50

Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



BUDGET PROPOSAL

HOLE 13

Hole Number	13
Green/Collar/Approach Area	35,000 SF
Fairway Area	30,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	35,000 SF	\$	1.61 /SF	\$	56,350.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price	Extended Total
2" XGD Fairway Drainage with Sand Backfill	3,750 LF	\$	6.53 /LF	\$ 24,487.50
12" Catch Basin	1 EA	\$	409.00 /EA	\$ 409.00
Mobilization				\$ 880.00
<b>Total of FWY</b>				<b>\$ 25,776.50</b>
<b>Total of Greens &amp; FWY Drainage</b>				<b>\$ 82,126.50</b>

- Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

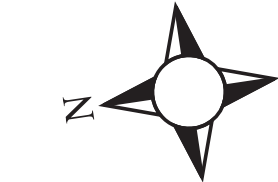
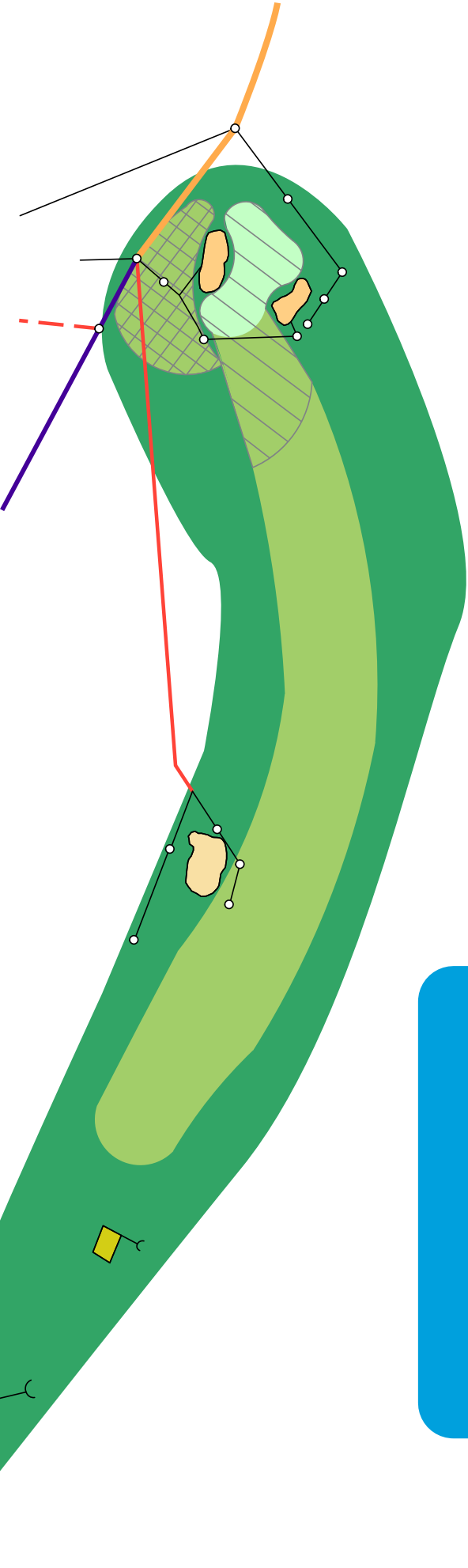
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

4" Perforated Pipe

Typical Bunker Drainage

4" Perforated Pipe

Bunker Flushout

"I would like to sincerely thank you and your team for the professional work that was provided to our club. I hope to see your team in action again in the near future."

Chris Warren  
Golf Course Superintendent  
Waterville Country Club  
OAKLAND, ME

BUDGET PROPOSAL

HOLE 14

Hole Number	14
Approach Area	15,200 SF
Fairway Area	95,000 SF

**XGD Classic Approach Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Approach Area	15,200 SF	\$	1.61 /SF	\$	24,472.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	11,875 LF	\$	6.53 /LF	\$	77,543.75
6" Interceptor Drain	1,725 LF	\$	19.61 /LF	\$	33,827.25
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
Mobilization				\$	3,080.00
<b>Total of FWY</b>				\$	114,860.00
<b>Total of Greens &amp; FWY Drainage</b>				\$	139,332.00

Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

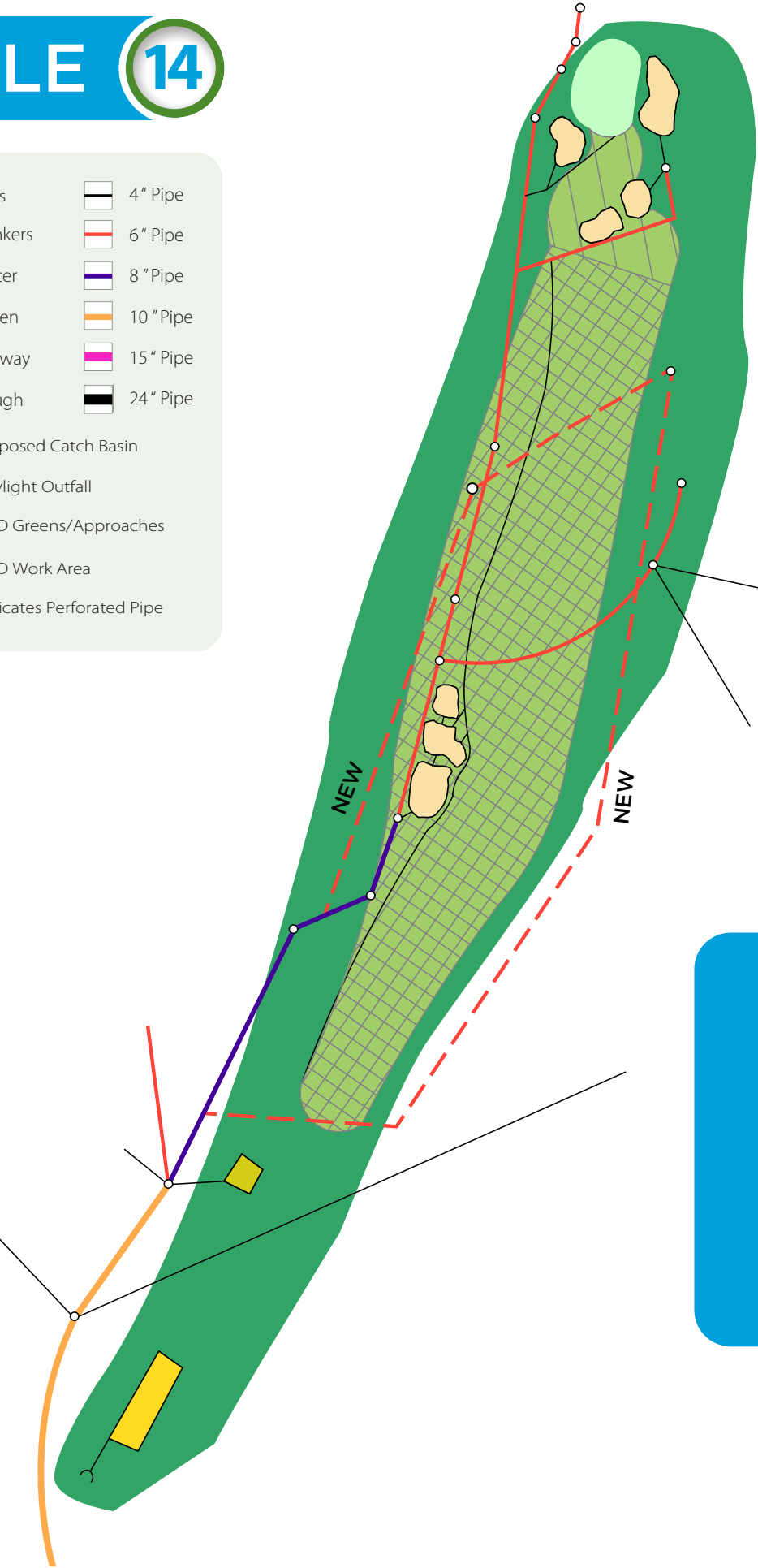
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

Typical Bunker Drainage

“...your crews are very professional and easy to work with. Thank you.”

Matt Krukiel  
Golf Course Superintendent  
**CHESTER RIVER YACHT AND COUNTRY CLUB**  
CHESTERTOWN, MD



BUDGET PROPOSAL


















HOLE 15

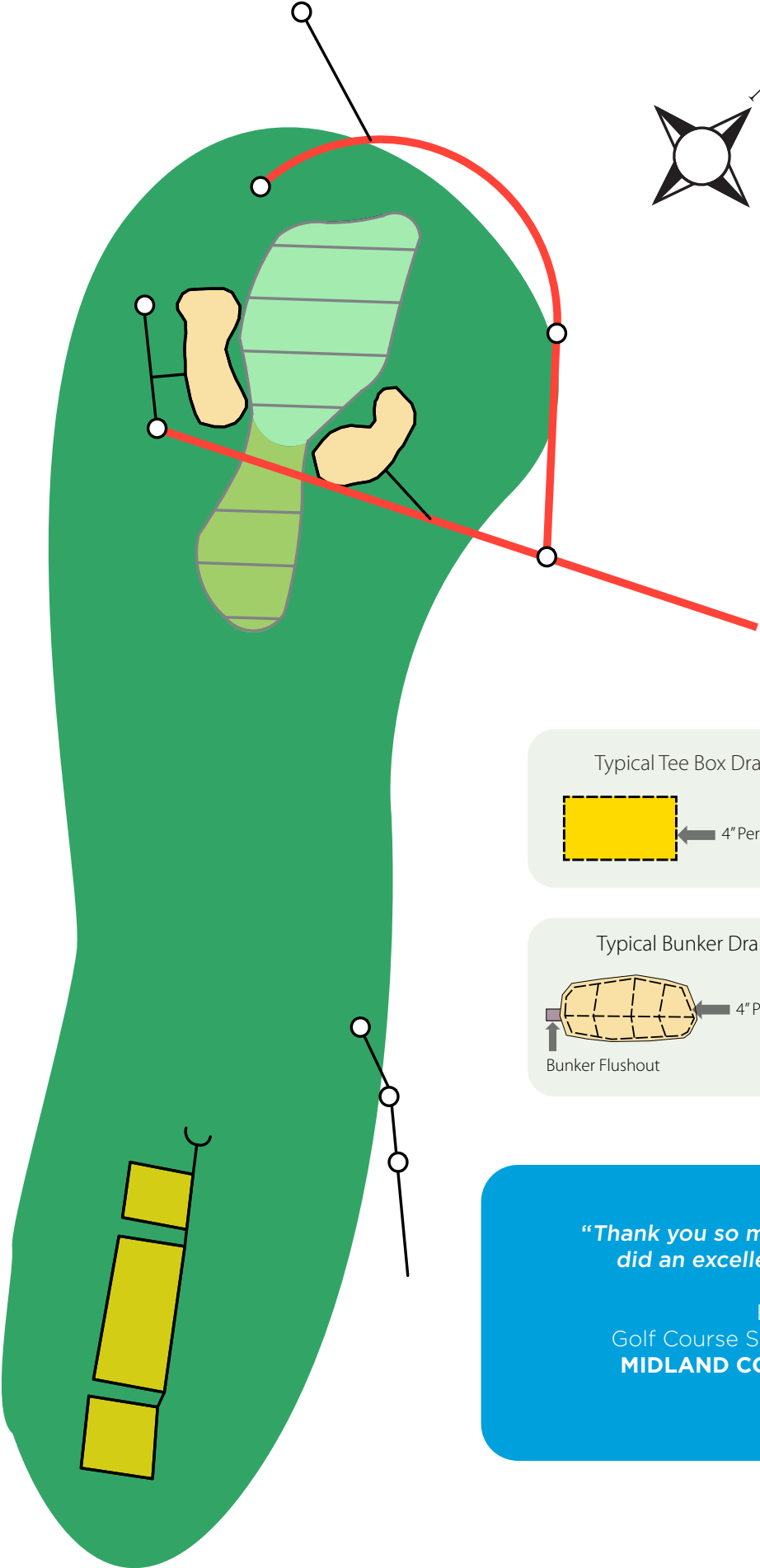
Hole Number 15  
Green/Collar/Approach Area 25,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**


- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area 25,000 SF \$ 1.61 /SF \$ 40,250.00

- |   |                           |   |          |
|---|---------------------------|---|----------|
|  | Tees                      |  | 4" Pipe  |
|  | Bunkers                   |  | 6" Pipe  |
|  | Water                     |  | 8" Pipe  |
|  | Green                     |  | 10" Pipe |
|  | Fairway                   |  | 15" Pipe |
|  | Rough                     |  | 24" Pipe |
|  | Proposed Catch Basin      |   |          |
|  | Daylight Outfall          |   |          |
|  | XGD Greens/Approaches     |   |          |
|  | XGD Work Area             |   |          |
|  | Indicates Perforated Pipe |   |          |

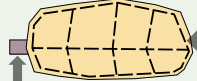


Typical Tee Box Drainage



4" Perforated Pipe

Typical Bunker Drainage



4" Perforated Pipe

Bunker Flushout

"Thank you so much...the crew did an excellent job for us."

Eric Kleinsorge  
Golf Course Superintendent  
MIDLAND COUNTRY CLUB  
MIDLAND, MI

BUDGET PROPOSAL


















HOLE 16

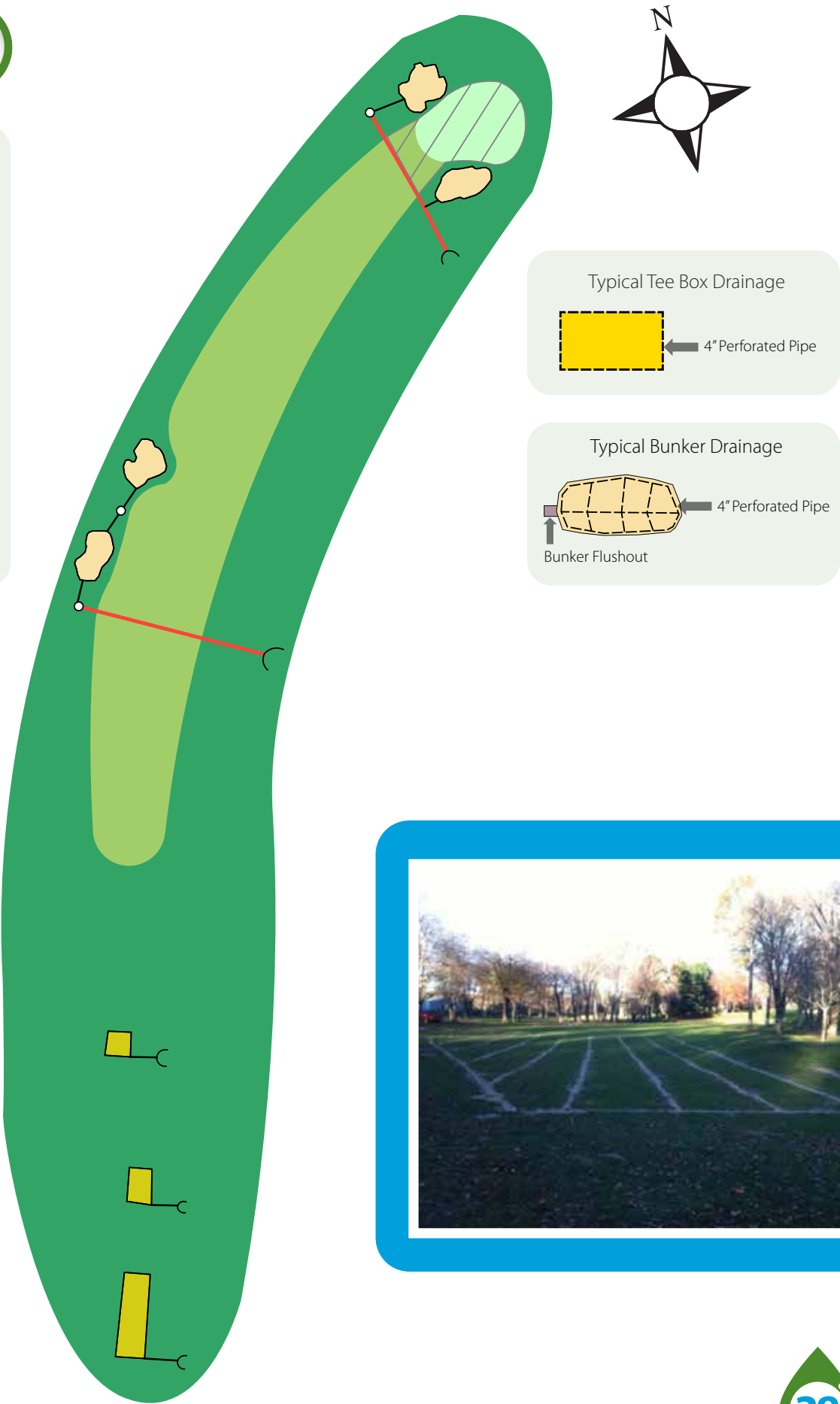
Hole Number 16  
Green/Collar/Approach Area 25,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area 25,000 SF \$ 1.61 /SF \$ 40,250.00

- |   |  |
|---|--|
|  Tees                      |  4" Pipe  |
|  Bunkers                   |  6" Pipe  |
|  Water                     |  8" Pipe  |
|  Green                     |  10" Pipe |
|  Fairway                   |  15" Pipe |
|  Rough                     |  24" Pipe |
|  Proposed Catch Basin      |  |
|  Daylight Outfall          |  |
|  XGD Greens/Approaches     |  |
|  XGD Work Area             |  |
|  Indicates Perforated Pipe |  |



BUDGET PROPOSAL

HOLE 17

Hole Number	17
Green/Collar/Approach Area	10,000 SF
Fairway Area	40,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	10,000 SF	\$	1.61 /SF	\$	16,100.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	5,000 LF	\$	6.53 /LF	\$	32,650.00
6" Interceptor Drain	450 LF	\$	19.61 /LF	\$	8,824.50
12" Catch Basin	1 EA	\$	409.00 /EA	\$	409.00
Mobilization				\$	1,540.00
<b>Total of FWY</b>				\$	43,423.50
<b>Total of Greens &amp; FWY Drainage</b>				\$	59,523.50

Tees

Bunkers

Water

Green

Fairway

Rough

Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

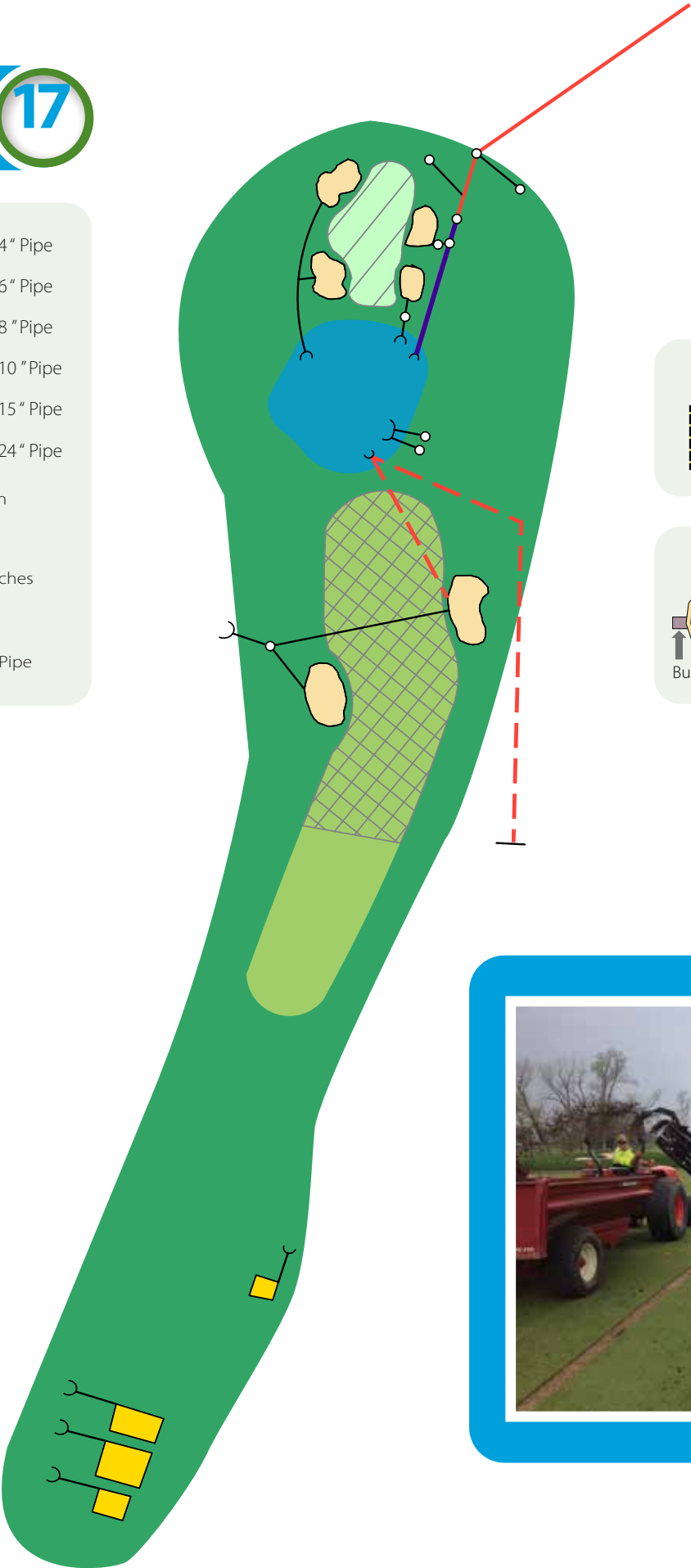
6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe



Typical Tee Box Drainage

4" Perforated Pipe

Typical Bunker Drainage

4" Perforated Pipe

Bunker Flushout





BUDGET PROPOSAL

HOLE 18

Hole Number	18
Green/Collar/Approach Area	30,000 SF
Fairway Area	90,000 SF

**XGD Classic Greens Drainage Installation Scope of Work:**

- Layout of the greens drainage system.
- Stripping of existing sod.
- Slit trenching 14-16 inches deep with laser grade control, removal of excavation.
- Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.
- Backfill and compaction of trench profile.
- Replacement of sod.
- Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.

Green/Collar/Approach Area	30,000 SF	\$	1.61 /SF	\$	48,300.00
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**XGD Fairway & Rough Drainage Installation Scope of Work:**

- Layout of the fairway drainage system.
- Strip sod and place for reinstallation.
- Slit trenching 14-16 inches deep with laser grade control. Remove soil and dispose on site.
- Installation of XGD Fairway Drainage System. Includes all connections.
- Backfill of trench profile with free draining Sand.
- Compact sand and reinstall sod on the trench lines.

	Quantity		Price		Extended Total
2" XGD Fairway Drainage with Sand Backfill	11,250 LF	\$	6.53 /LF	\$	73,462.50
6" XGD Solid Drainage with Native Backfill	425 LF	\$	12.61 /LF	\$	5,359.25
8" XGD Solid Drainage with Native Backfill	400 LF	\$	16.54 /LF	\$	6,616.00
Mobilization				\$	2,640.00
<b>Total of FWY</b>				\$	88,077.75
<b>Total of Greens &amp; FWY Drainage</b>				\$	136,377.75

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

Indicates Perforated Pipe

4" Pipe

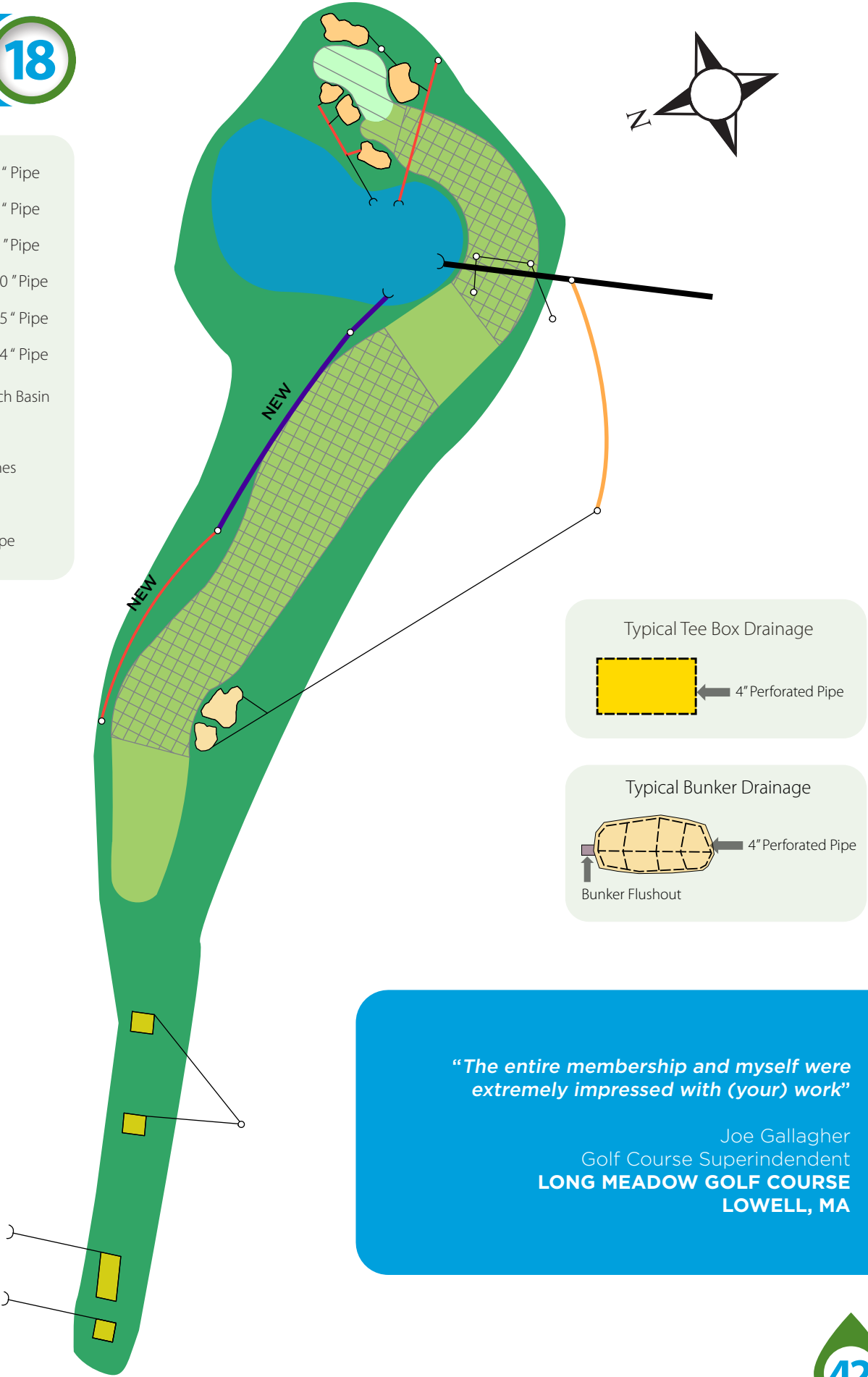
6" Pipe

8" Pipe

10" Pipe

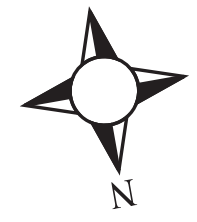
15" Pipe

24" Pipe



BUDGET PROPOSAL

PUTTING GREENS



Hole Number	PG 1	5600 SF	PG 2	2,600 SF
Green/Collar/Approach Area	8,200	SF		
<div><b>XGD Classic Greens Drainage Installation Scope of Work:</b><ul style="list-style-type: none"><li>• Layout of the greens drainage system.</li><li>• Stripping of existing sod.</li><li>• Slit trenching 14-16 inches deep with laser grade control, removal of excavation.</li><li>• Installation of 2" c.p.t. (corrugated plastic tubing). Includes all connections.</li><li>• Backfill and compaction of trench profile.</li><li>• Replacement of sod.</li><li>• Sodded trenches are left slightly mounded in preparation for club to roll and prepare for opening. Club should be prepared for topdressing applications in subsequent months.</li></ul></div>				
Green/Collar/Approach Area	8,200	SF	\$	1.61 /SF \$ 13,202.00

Tees

Bunkers

Water

Green

Fairway

Rough

Existing/Proposed Catch Basin

Daylight Outfall

XGD Greens/Approaches

XGD Work Area

4" Pipe

6" Pipe

8" Pipe

10" Pipe

15" Pipe

24" Pipe

Typical Tee Box Drainage

4" Perforated Pipe

Typical Bunker Drainage

4" Perforated Pipe

Bunker Flushout

43

44

# REFERENCES

## Cape Arundel Golf Course, ME

Project Description: XGD Systems redesigned an engineered drainage system to enhance the groundwater removal as well as surface water removal. XGD completed many large main lines on this project as well as our standard 2" XGD Fairway Drainage pipe.

**Contact: Brendan Parkhurst, Superintendent (207) 967-4087**

- Project Completed Spring 2010
- Fairway Drainage
- Greens Drainage

## Country Club at New Seabury, MA

Project Description: XGD Systems designed and installed a drainage system with minimal elevations to work at sea level. This type of sensitive design is for professionals, not every drainage contractor can satisfactorily perform the work. The club and members are now thrilled with their fairway conditions.

**Contact: Scott Nickerson, Superintendent (508) 989-1975**

- Project Completed Spring 2012
- Fairway Drainage

## Butler National Golf Club, IL

Project Description: XGD Systems designed and installed two separate fairway installations at this golf club and are scheduled to return for further drainage this fall (2013).

**Contact: Mike Sauls, Superintendent (630) 990-3340**

- Project Completed Fall 2010
- Fairway Drainage

## Mount Kisco Country Club, NY

Project Description: XGD Systems designed and installed two large fairway drainage systems at this facility. We are on schedule to drain two holes per year until all fairways are drained.

**Contact: Greg Gutter, Superintendent (914) 666-2254**

- Project Completed Fall 2011
- Fairway Drainage

## Black Hall Club, CT

Project Description: XGD Systems designed and installed several mainlines to evacuate water off the property.

**Contact: Phillip Neaton, Superintendent (860) 434-8835**

- Project Completed Fall 2012
- Fairway Drainage

## Toronto Golf Club, ON

Project Description: XGD Systems designed and installed drainage systems for all 18 putting surfaces. Four years later the club proclaims that the XGD System "was the best money they ever spent on the golf course".

**Contact: Al Schwemler, Property Manager (905) 274-1767**

- Completed November 2009
- Greens Drainage

## Merion Golf Club, PA

Project Description: XGD Systems was contracted to design and install our trademarked greens drainage system in to the existing greens at Marion leading up to the US Open in 2013. XGD Systems received accolades from the club as the adverse weather, with several inches of rain, did not prohibit players from playing the course nor did it give the players any advantage, the greens performed spectacularly and the tournament was a great success.

**Contact: Matt Shaffer, Superintendent (610) 642-5600**

- Completed all greens from 2007 to 2011

## Charles River Country Club, MA

Project Description: XGD was hired to design and install our subsurface greens drainage system into all of the greens and approaches at this facility. The Club's approaches were especially wet after heavy precipitation events and after installing XGD into the first approaches the club quickly chose to install XGD in all of their greens and approaches. The club has said XGD Systems help them provide extremely firm putting conditions during their recent hosting of the USGA Amateur Championship Qualifier.

**Contact: Paul Blanus, Superintendent (617) 332-1320**

- Greens & Approach Drainage
- Completed 2011



# REFERENCES



Briarwood County Club recently made a major investment in the XGD System. Since the decision of installing XGD I've been nothing but amazed, not only by the way the system has benefited us but also working with the crew during installation. B.C.C. has 16 pushup greens with a majority dating back to 1921 when the course was built. Since my arrival in 2008 I've seen numerous issues with standing water after rain events as well as not being able to mow following .30" of rain, greens profiles were too saturated and the surface was soft.

This spring of 2011 has been very wet, 15 out of 26 days with rain in April totaling 5.23 inches. I'm very happy to report that there has not been one day that we couldn't mow greens because they were too soft or there was standing water. In fact my Assistant whom has been at the club for 48 years said, "I'm complete amazed at this, we've never been able to mow this green after .30" of rain let alone after the rain we just received." This was on a morning where we received about .6" over night and through the morning.

I'm very excited to see what XGD does for the health of our greens. I'm very confident that we will see nothing but positive results after making this investment to save our historical greens. XGD Systems was an absolute pleasure to have on property and work with for 19 days. The crew was very considerate of our property and the surgery they performed on the greens was top notch!

Best Regards,

Justin VanLanduit  
Golf Course Superintendent

2007 UNITED STATES OPEN  
ARNOLD D. PALMER  
*Honorary Chairman*  
EXECUTIVE COMMITTEE  
PAUL M. "MICKEY" POHL  
*General Chairman*  
STANLEY F. DRUCKENMILLER  
ROBERT G. HOPMANN, II  
*Vice Chairmen*  
WILLARD M. BELLOWES  
MARK C. HOPMANN  
ROBERT F. WAGNER



PROFESSIONAL STAFF  
BOB FORD  
*PGA Professional*  
THOMAS B. WALLACE, III  
*General Manager*  
JOHN ZIMMERS  
*Grounds Superintendent*

December 1, 2005

To Whom It May Concern:

I am writing this letter of recommendation on behalf of XGD Systems. Special praise should be given to Mark Luckhardt and his entire team for their hard work and dedication throughout the entire procedure of putting greens drainage installation here at Oakmont Country Club.

XGD Systems' commitment to our project was evident as they worked with us during our aerification procedures and course renovation project. They completed several greens while withstanding the severe hot & humid weather conditions, without compromising the quality of their work. I feel compelled to praise the quality of their work during the entire project of greens drainage installation. After trenching and then replacing the putting green sod on each hole, you could not even tell that any work was performed whatsoever. They superceded my expectations as well as Oakmont Country Club memberships.

In closing, I want to thank XGD Systems for providing Oakmont Country Club with a very successful greens drainage installation on 100 year-old world famous putting greens. It amazes me how the work that was performed was much like surgery on the greens. However, after just one day of cutting and rolling, you could not tell that any work had been performed at all. I would strongly recommend XGD Systems with their entire professional staff. Please feel free to contact me at the address or telephone number listed below, as I would be honored to discuss any additional information regarding our greens drainage project at Oakmont Country Club.

Respectfully Yours,  
  
John Zimmers  
Golf Course Superintendent  
Oakmont Country Club



1233 HULTON ROAD • OAKMONT, PENNSYLVANIA 15139 • (412) 828-8000

# REFERENCES



101 Alotian Drive  
Roland, AR 72135-9558

January 20, 2012

TDI Golf, Classic Restorations  
321 SE Osceola Street  
Stuart, Florida 34994

Geoff,

The installation of the XGD drainage system by Matt Magarian and his crew could not be doing a better job. They have brought playability back to portions of our 17th fairway that have been drained. We received 2" of rain 3 weeks ago. #17 fairway typically is the last fairway to open up for cart usage. Post installation on # 17 fairway of the XGD on 8' centers, we were able to drive carts over the entire area without leaving behind the usual tire tracks. There was NO standing water and the outfall pipe was flowing with water. It is a tremendous process. The crew has been very neat while working off of plywood the entire time. It is a process that our property has needed. I strongly recommend other golf courses that have similar wet conditions, to install your system. It works! You should be proud of your team.

Thanks again,

*Jim Colo*

Jim Colo, GCS  
The Alotian Club



*"The attention to detail was as impressive as I have ever seen on any golf course project. Our members commented daily on how quickly the process went, especially considering how perfect the green looked afterward."*

Todd W. Raisch, CGCS  
The Ridgewood Country Club  
Paramus, New Jersey

## Proprietary XGD Greens Drainage

Better managed water on a golf course results in healthier, more playable greens, less need for sprays, and lower maintenance costs.

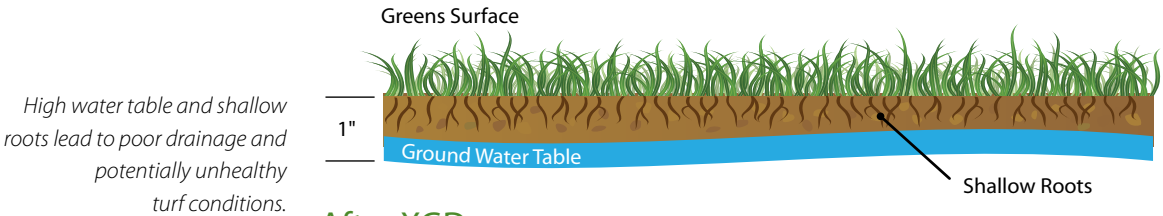
The XGD System achieves all this quickly, efficiently and with precision.

**A permanent solution that revives poorly drained greens and leaves them in tournament condition in just two to three days.**

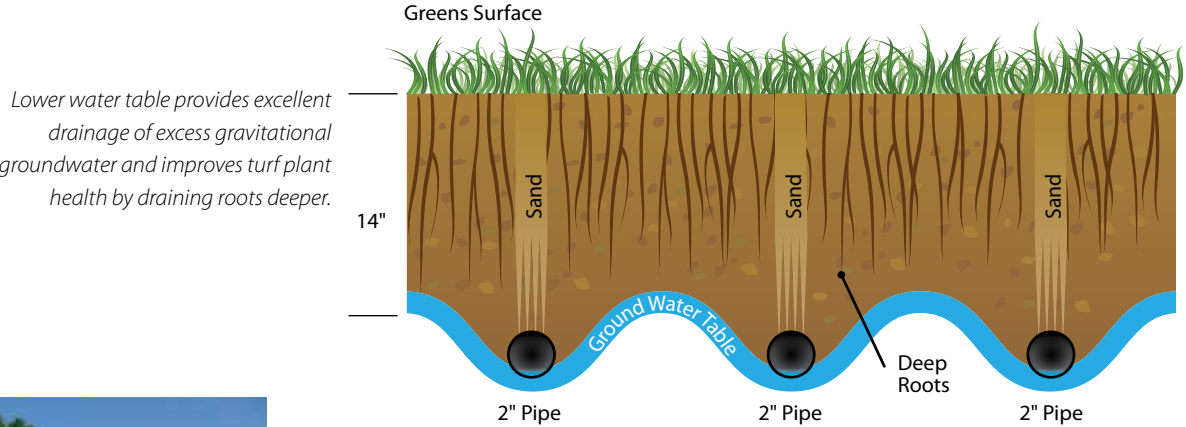
Our patented system is a permanent solution to poorly drained and compacted, push-up greens. And we also have a major focus on our client's business. Golf clubs are open for play during a greens drainage installation. In most cases, it takes two to three days to complete each green.

A subsurface drainage system removes surface water more rapidly and lowers the water table in the green, thereby improving turf growth through increased aeration and the efficient removal of excess moisture. The patented XGD System achieves all this without rebuilding the green – no need for expensive and disruptive reconstruction.

### Before XGD



### After XGD



The XGD Classic Drainage System has been adapted to improve water management in sand-based greens, approaches, fairways and bunkers with equal efficiency.

Our technical expertise is backed by professionalism and commitment to customer service. We recognize the importance of your relationship with club members and customers. We're in and out in just two to three days.





XGD’S CLIENTS FROM  
GOLFWEEEK’S TOP 100  
CLASSIC GOLF CLUBS  
(2012)

- 1 Pine Valley Golf Club
- 3 Shinnecock Hills Golf Club
- 5 Oakmont Country Club
- 7 Merion Golf Club
- 12 Chicago Golf Club
- 13 Prairie Dunes Country Club
- 17 Winged Foot Golf Club
- 20 Oakland Hills Country Club
- 27 Plainfield Country Club
- 39 Maidstone Club
- 42 Quaker Ridge Golf Club
- 45 Oak Hill Country Club
- 48 Piping Rock Club
- 52 Interlachen Country Club
- 58 Kittansett Club
- 62 Aronimink Golf Club
- 71 NCR Country Club
- 73 Fenway Golf Club
- 75 Hollywood Golf Club
- 77 Minikahda Club
- 80 Ridgewood Country Club
- 82 Foxchapel Golf Club
- 91 Whippoorwill Club
- 92 Taconic Golf Club
- 94 Rolling Green Golf Club

GOLF COURSE  
ARCHITECTURE

NEWS AND VIEWS ON GOLF DESIGN AND DEVELOPMENT

Drainage project for Cape Cod club  
20 June 2012

New Seabury Country Club in Cape Cod, Massachusetts, has completed a major drainage programme on both its courses. Florida-based XGD Systems handled the work.

Course superintendent Scott Nickerson says the low-lying nature of the New Seabury property meant that drainage was always a problem after any significant rain event. “Our whole front nine sits at sea level,” he said. “It’s pretty flat. For years, anytime we had any amount of water – from a half-inch to two inches of rain, it would just sit in the low spots for weeks. Where we used to shut down the course from two days to a week following a rain event, now, after XGD’s drainage work, we were open and mowing in that area within 24 hours.”

The two courses at New Seabury – the Dunes and the Ocean – were both designed by golf architect William Mitchell in the 1960s. New England architect Mary Armstrong remodelled the Dunes course in 2001. The Ocean course has spectacular views over Nantucket Sound and Martha’s Vineyard.

In a five year project, XGD has installed its patented drainage system into 25 greens and completed US\$250,000 work of fairway drainage work. More recently, XGD returned to install drainage in eight bunkers.

“XGD bunker drainage is an alternative to traditional four-inch bunker drainage with peastone backfill,” said company VP Mark Luckhardt. “We use our two-inch XGD pipe with bunker sand backfill on six foot spacings to eliminate wet sand issues and lower the water table in the bunker.”

Nickerson says that, thanks to XGD, New Seabury now drains quickly and well. Members are happy this major issue was addressed and the superintendent is thrilled since it’s one less thing for he and his crew to worry about each time it rains.



TurfNet

CONNECTING GOLF COURSE SUPERINTENDENTS WORLDWIDE

SPECIAL ISSUE

Top turf school

OBSERVATIONS & REVELATIONS FROM THE INSIDE SOURCE

The Grounds Crew

LINES OF DEFENSE

Faint lines that show the location of subsurface irrigation on the greens at Oakmont Country Club during the U.S. Open did not alter putting conditions for runner-up Tiger Woods (below) or the rest of the field.

SAM GREENWOOD/GETTY IMAGES



Other than Phil Mickelson’s ranting early in the week, there was nary a negative word about conditions of Oakmont Country Club during last month’s U.S. Open. Superintendent John Zimmers and his crew had the place in tip-top shape. Still, one couldn’t help but wonder about those lines visible on some of the putting surfaces.

The lines were telltale signs of subsurface drainage installed in stages in 2002 and 2005 that have helped save the club’s original 1903 pushup greens. When Zimmers arrived at Oakmont in 1999, greens drained at a rate of one-quarter inch per hour, which is problematic at a club where members expect and demand U.S. Open-like conditions all the time. Five years ago, Zimmers called upon XGD Systems of Stuart, Fla., to install its subsurface system on Nos. 6 and 8, then the worst-performing greens on the course, Zimmers told The Crew.

“They turned out to be our two best greens,” Zimmers said. He showed the results – greens that now drain at 6 inches per hour – to his membership. They were awed by the difference. Eventually, Zimmers was able to sell the idea, and by spring 2005 a total of eight greens had been outfitted with the XGD system. The rest of the course was completed that fall.

The lines were spaced every 6 feet, and the only reminders of their presence today are an absence of water after it rains and those lines that occasionally become visible when that infamous Oakmont Put becomes stressed – which has a tendency to happen during the U.S. Open. But even when the lines appear, they have no effect on putting conditions, Zimmers said.

“I’ll take that any day as long as the greens are performing,” Zimmers said. “Our membership here embraces firm, fast conditions. I think this is one of the best things they’ve ever done.”

Zimmers admitted he was nervous about allowing someone to gouge holes into Oakmont’s historic greens.

“Initially (the members) thought, ‘Are you crazy?’” he said. “It was frightening to run trenches through the greens.”

His fears were allayed when he saw the care exhibited by XGD workers, who can complete work on a 6,000-square-foot green in about three days.

“All their work is done by hand,” Zimmers said. “When they’re finished, you can cut a cup and play golf. It’s amazing.”

“This is the solution for courses that have old pushup greens that don’t drain well.”



## XGD Systems

415 Flagler Ave. #302  
Stuart, Florida 34994  
Tel. 772.286.3419  
Fax. 772.286.2855

54 Cardigan Street  
Guelph, Ontario N1H 3Z6  
Tel. 800.330.0084  
Fax: 800.330.5981

