

Iron Horse Golf Course



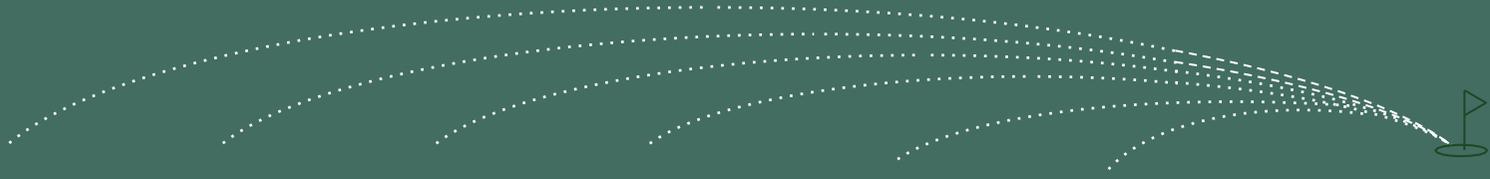
Member, American Society of
Golf Course Architects



Response to RFQ 19-008

Submitted
December 10, 2018
2PM

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1. Cover Letter

City of North Richland Hills City Hall
[4301 City Point Drive](#)
North Richland Hills, TX 76180
Phone: 817-427-6000

RE: Water – Too fast, too slow, too much, not enough - moving towards “just right.”

Dear Sirs and Madame's,

Like any golf course approaching 30 years of age, Iron Horse, needs to revitalize its infrastructure. Built on a modest budget in severe floodplain, water problems plague the course nearly every day and nearly every season.

This renovation needs to help Iron Horse control water more than water controls it. Flood control, drainage and irrigation drive this renovation for North Richland Hills, but you also expect targeted golf feature renovations that improve image, maintenance and management efficiencies. You also expect staff input and strict budget control.

Jeffrey D. Brauer / GolfScapes, Inc. will lead a qualified team to improve the course design within some difficult parameters. Our strengths include a long resume of public golf courses, courses in flood prone areas, and a national reputation for both accurate plans that work for FEMA permits, and quality design. However, we cannot complete this very complex project without expert help.

In addressing the “too much” concern, we have (again) teamed with Half Engineers to integrate flood plain analysis, 404 and FEMA permitting, and channel repair, which will be seamlessly incorporated into our proposed golf course design. We can't prevent flooding at Iron Horse, but we can:

- Raise greens like 7, 10, 5 out of the 100 year floodplain
- Increase fairway and rough surface pitch for faster drainage (of both rain, floods, and even irrigation water with increasing sodium, all to create better turf.
- For golf course flooding, our team has done it all, from creating “short cuts” to allow floods to flow where they are best controlled, to building berms so that flood waters “back into” the course slowly, to minimize erosion and damage.



Left – drainage and floods from under Browning Road through holes 12-17 want to go straight, but holes 13 and 14 are in the way. We expect to reconfigure those holes, using available land to let floods cross – and leave - the course more efficiently. Right – Greens on holes like 10 (shown need to be elevated slightly so they won't submerge in 100 year floods.



Left – Halff Engineers will identify remaining erosion control problems and mitigation. Halff will also provide wetlands mapping and permitting. We understand the City of North Richland Hills has continuously worked on this issue, and we feel we should tie in the rest of the work with this project.

Right – This photo shows two big golf problems at Iron Horse. Inadequate irrigation coverage between cart paths and fairways leaves too many bare spots. Also, about half your sand bunkers -including the one in the distance - are frequently flooded. See the appendix for ways we creatively eliminated this same problem at Mesquite Golf Club in 2014.

Why we combined with Halff Engineers. You benefit because:

- Have successfully teamed before (See Similar Projects)
- Halff has studied Fossil Creek for neighboring cities of Bedford and Hurst, giving them a head start on providing solutions for you.
- Halff has provided similar studies for dozens of other cities in DFW.
- Halff is a FEMA certified flood study provider since the 1980's.

In addressing the “too little” concern, we have teamed with nationally recognized golf course irrigation designer EC Design to design a new system for Iron Horse that will cover your roughs better in areas where cart traffic stresses turf and leaves numerous bare areas, subject to becoming swamps. Fortunately, it appears a part of that cost can be avoided because of previous work on two of your three pump stations.

Why combined with EC Design. You benefit because:

- We have successfully teamed before on almost 20 projects.
- He has designed over a dozen DFW area golf course systems.
- Understands floodplains – One example, he raised controllers out of the floodplain at similarly flood prone Sand Creek Station in Kansas.
- Certified Irrigation Designer, who value engineers his designs to balance expense and include superintendents' must have” features.

In addition to better drainage and flood control, Jeffrey D. Brauer / GolfScapes, Inc. will evaluate the golf course for much needed improvements, including re-routing to accommodate flood control. We expect to propose feature changes, including:

- **Minimum fairway/rough slopes of 3-4%**, to enhance drainage. Oversized catch basins will minimize clogging. Faster slope fosters better turf by draining both floods, every day rains, and even irrigation (with its high salinity, typical of Texas wells).
- **New forward tees**, conversion of existing forward tees to white (i.e., senior tees) at 5,083 yards, with traditional red tees closer to 4,000 yards for length equity.
- **Enlarging tees on par 3 holes** to spread wear.
- **Removal of difficult to maintain sand bunkers**, and replacement with a creative array of grass hazards to maintain challenge and reduce maintenance costs.
- **Replace two tier practice tee** with larger single tier to create more space, less wear.



Left – New forward tees will provide tee equity for women, eliminate unnecessary shots, and allow all golfers to play Iron Horse faster, a desire often mentioned in customer reviews..

Right –Your practice tee wastes about 10 days' worth of tee settings due to the long grade in the middle of the tee. We propose to convert it to one level and add practice targets to enhance practice.

Jeffrey D. Brauer is also a licensed landscape architect in Texas and will handle any landscape design required. As per the RFQ, we have not retained a building architect, seeing not need. Also, we expect Arcis to provide agronomic consulting through their superintendent and regional agronomists.

We stand ready to begin this complex project immediately, and are genuinely excited about the prospects of improving municipal golf in DFW and for North Richland Hills at Iron Horse. We look forward to the possibility of working with you at Iron Horse and answering any questions you have about our team.

For better public golf

Jeffrey D Brauer

Jeffrey D. Brauer
 President GolfScapes, Inc.
 3809 Canton Jade Way
 Arlington, TX 76005

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 Web-jeffreydbrauer.com

Member American Society of Golf Course Architects
 Architecture/Renovation Columnist, Golf Course Industry Magazine

2. Team Background

Prime Consultant- Golf Course Architects

Jeffrey D. Brauer/GolfScapes, inc.

Established: Incorporated 1984, S-Corporation
President - Jeffrey D. Brauer

Formed in 1984, GolfScapes, inc. has designed a “baker's dozen” of public courses in DFW. Ranging from the premier public facility in the area, Cowboys Golf Club, to the affordable Lake Park Golf Course in Lewisville, most are market leaders in their price category.

The firm uses the traditional design-bid method, and are a “go to” firm for municipalites. Unlike some golf course architect firms, we produce “old fashioned” and accurate plans, leaving little to chance in the bid process, and reducing change orders. Accurate plan & specifications, accurate cost estimates. *We are confident enough in our abilities that we will redraw plans at our cost if bids >10% our originally estimated budget.*

Our courses drain fast. We use engineering formulas in drainage design, rather than the “SWAG” method used by others. We accurately calculate and balance cut and fill, required in flood plain projects, making us particularly suited for the Iron Horse Project.

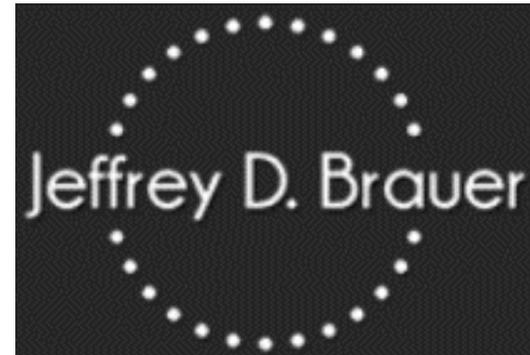
Your design will be tailor made for efficient public course operations, with a balanced design with aesthetics, good golf, reasonable maintenance needs, and intelligent investment providing long term return on investment.

Our typical project includes at least a dozen client meetings with your key staff, and additional meetings and presentations with City Council, and the public, starting at goal setting and site analysis.

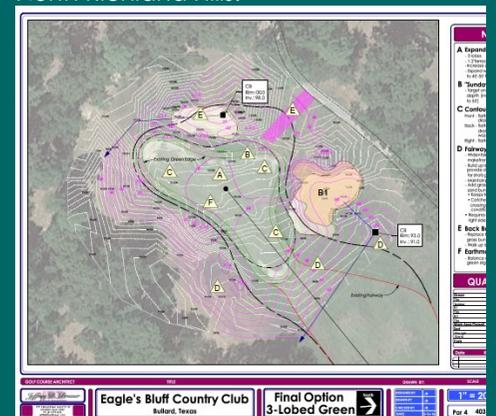
We have experience over a wide variety of budgets, climates, drainage, water quality, and soils among our Wide Portfolio of Public Courses, including:

- 60 New Courses (35 Public)
- Dozens of total renovations
- Over 20 courses designed/renovated in flood plains
- ❖ Nationally recognized golf architect
- ❖ A dozen national design awards

We also provide 2D and 3D graphics to help you, your citizens and affected golfers to understand design proposals.



As shown by this green renovation plan for Eagle Bluff in Bullard, TX, we provide both 2D Construction Plans, and 3D Presentation Plans in our services to North Richland Hills.



Our accurate grading plans makes us an excellent choice for Iron Horse because cut and fill balance and critical elevations are required.

Design Accolades

[Golf Vacation Insider](#) – “10 Great Regional Architects, 2017
[Golf, Inc.](#) - “Top Ten Value Architect.” 2010
[Golf World](#) – Ranked World's 19th Best Golf Course Architect, 2000
[Golf Digest](#) – 10 Placements in their “Best New” rankings since 1994.

Course Awards and Rankings:



Firekeeper, Mayetta, KS 2011

- ❖ No 1 Rated Public Course in KS (Golf Digest, Golf Week)
- ❖ No. 17 Best Casino Course (Golf Week)
- ❖ Best New Courses 2011 (Golf, Golf Digest, Golf Week)

Sand Creek Station, Newton, KS 2006

- ❖ Top Ten New Public 2006 (Golf Magazine)
- ❖ Finalist 2006 (Best New Under \$5Million Construction Cost, Golf, Inc)
- ❖ No 3 Rated Public Course in KS (Golf Digest, Golf Week)

Wilderness at Fortune Bay, Tower, MN 2005

- ❖ Best New Upscale Public Winner (Golf Digest)
- ❖ No. 2 Best Public Course in State (Golf Digest, Golf Week)
- ❖ Top 100 US Public Course (Golf Digest, Golf Week)
- ❖ No. 9 Best Casino Course (Golf Week)

The Wilderness, Lake Jackson, TX 2005 - 2nd Place (Under \$5Million) (Golf, Inc.)

The Quarry at Giants Ridge, Biwabik, MN 2004

- ❖ Best New Upscale Public Winner (Golf Digest)
- ❖ No. 1 Best Public Course in MN (Golf Digest. No. 2 GolfWeek)
- ❖ No. 21 Best US Public Course (Golf Digest)

Indian Creek (Creeks), City of Carrollton, TX 2004

- ❖ 7th Best New Affordable Public Course (Golf Digest)
- ❖ Best Renovation in DFW (Avid Golfer)

Legacy Golf Links, Norwalk, IA, 2005

- ❖ 10th Best New Affordable Public Course (Golf Digest)

Cowboys Golf Club, Grapevine, TX 2001

- ❖ Best New Upscale Public Winner (Zagat's)
- ❖ 2002-2016 – Best Public Course in DFW (Avid Golfer)

Canterberry Golf Club, Parker, CO 2001

- ❖ 10th Best New Public (Golf Digest)

Colbert Hills, Manhattan, KS 2000

- ❖ No. 2 Best Public Course in State (Golf Digest, Golf Week)
- Top 20 College Course (Golf Week)

The Legend at Giants Ridge, Biwabik, MN 1998

- 8th Best New Public Course (Golf Digest)
- ❖ Top Ten Public Course in MN (Golf Digest)
- ❖ 88th - Top 100 Public Courses List

Wild Wing Plantation, Myrtle Beach, SC 1994

- 10th Best New Upscale Public Course (Golf Digest)

AWARDS AND ACCOLADES

Few golf course architects have won as many national design awards as Jeffrey D. Brauer. Fewer still who work under constraints of municipal regulations and bid process, charging fees near industry normal standards.

In the DFW area, Cowboys won Best New Course from Zagat's, and is the perennial top public course in DFW as named by Avid Golfer.

Our 2004 renovation of Carrollton's Indian Creek (Creek Course) won a spot on Golf Digest's Best New Affordable Public List

We are one of two architects who has won back to back “Best New” wins from Golf Digest, and have a dozen placements overall – to date!

We have high hopes for our major projects this year, including:
-Tempest Golf Club in Gladewater, TX,
-Superior National in Lutsen, MN
-Copper Rock in St. George, UT

Golf Course Design Projects by Jeffrey D. Brauer / GolfScapes, Inc.



Bridges of Preston Crossing



Firekeeper



Wilderness at Fortune Bay



Sand Creek Station



Villages of Lone Oak



Wilderness at Lake Jackson



Quarry at Giants Ridge



Eagle's Bend



Whitestone



Copper Rock



Brookstone Country Club



Champions Golf Club



Stallion Mountain



Cowboys Golf Club



Legend at Giants Ridge



Squaw Valley



Links of Ruidoso



Gaylord Springs



Ridgeview Ranch



Tangleridge



Ratliff Ranch Golf Links



Trails of Frisco



Wild Wing (Avocet)



Woodland Hills



Holiday Hills

Renovations



Mesquite Golf Club



Indian Creek



Dornick Hills



Superior National



La Costa

Prime Sub Consultant

Albert Halff, Civil Engineers

In 1950, Dr. Albert H. Halff started his one-man consulting firm and provided pioneering flood control work in Dallas. Over 70 years, this Texas based, employee owned firm has grown into one of the largest engineering companies in the Southwest, with 15 offices.

Today's Halff is dedicated to his ideal of "developing smarter solutions" in fields like full-service engineering, architecture for site development, environmental planning, landscape architecture, right of way, surveying and information technology services.

Halff delivers multi-disciplinary projects for clients in the government, corporate, development, education, oil and gas, and transportation markets. They are uniquely qualified at Iron Horse because they can provide all services required, whether anticipated before the project, or arising during the project.

Irrigation Sub Consultant

EC Design Group, Ltd

Erik Christiansen, ASIC, TCEQ
President
EC Design Group, Ltd.
(515) 225-6365
erik@ecdesigngroup.com

EC Design group provides golf and commercial irrigation design. Erik Christiansen has been in the golf and irrigation industry for over 35 years, beginning with a position as a golf course superintendent at 36 hole course, before moving on to irrigation contracting, then distribution, and finally forming EC Design Group, Ltd. in 1993.

Advantages to North Richland Hills include:

- ❖ 25 years and 400 projects of irrigation experience
- ❖ DFW and Texas golf irrigation design experience.
- ❖ 19 years and a dozen golf projects with Jeffrey D Brauer, including recently at Superior National, Lutsen, MN and Tempest Golf Club, Gladewater, TX
- ❖ Certified Irrigation Designer.
- ❖ Knows TCEQ regulations Construction documents meet public bid requirements
- ❖ Former Superintendent – understands end user perspective.
- ❖ Provides value engineered systems with maximum lifespan.
- ❖ Provides GPS, field visits and staking and As Built.
- ❖ Expert in Water Smart Irrigation
- ❖ Current with latest technologies
- ❖ Sought out writer, presenter and educator on irrigation.



GolfScapes first collaborated with Halff Engineering in the late 1990's. He has now worked together twice with the current staff, including Jeffrey Alvarez, on projects very similar to Iron Horse, with Halff providing flood studies and permit applications, as well as 404 permitting, surveying for design and engineering of stream bank stabilization.



GolfScapes and ECD have collaborated since 1999, on the Whitestone Golf Course for City of Benbrook, TX. They have since collaborated on over a dozen projects nationwide.



The ECD team

Also, GolfScapes has designed many projects with Arcis Golf and predecessors, including Cowboys Golf Club.

3. 5 Similar Projects to Iron Horse

City of Mesquite, TX – Targeted Renovations Trims Cost

This project is similar to Iron Horse in many ways. GolfScapes minimized and targeted renovations, making use of its existing irrigation system and paths to reduce cost. While many public courses around DFW had undergone \$4-9 Million renovations in this time period, by rebuilding only *tees and greens, we kept the renovations cost under \$2 Million.*

We limited our design to just 20 carefully placed bunkers to speed play. For best maintenance, each sand bunker has gentle slopes – under 15% maximum – to limit washouts from rain and is tuned to bunker mower radius. We created many grass bunkers and hazards in flood prone areas to eliminate silty, muddy sand bunkers. (See Appendix for pictures of these)

It re-opened in 2014 to rave reviews and initial play increases of 50%, much from former customers again loyal to the course.

Ability and inclination to minimize work is also vital at Iron Horse, to minimize costs, and we will evaluate keeping cart paths where they are in good shape, re-use of some irrigation main lines, and will definitely re-use the 2 (of 3) pump stations to allow savings.

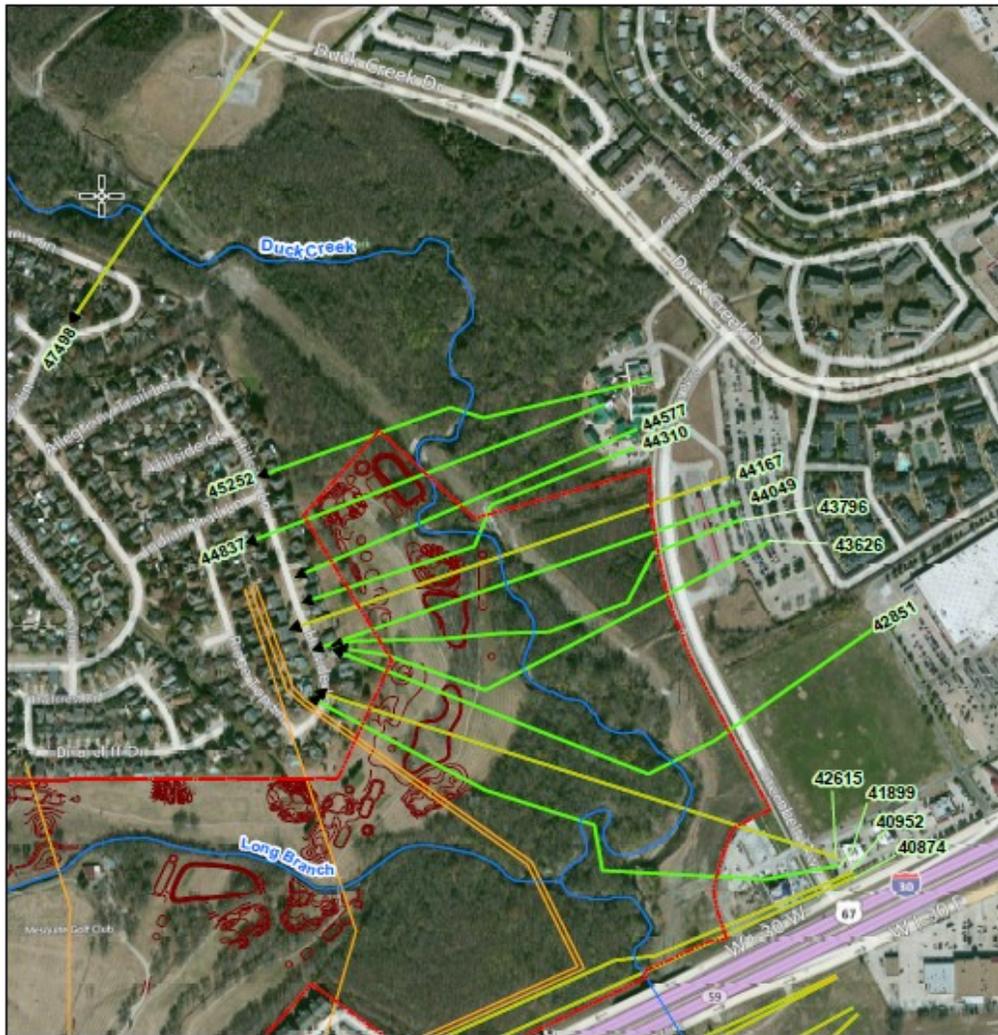
Below Left, At the 4th, we placed the sand bunker was back left to minimize impact on play. Right, On the third hole, we combined this bunker with a grass “lead in” bunker to reduce shots rolling into the sand.



A key element of the design was meeting FEMA and City of Mesquite Flood permitting requirements. **The City flood administrator trusted that the Halff flood plain analysis would meet their requirements, allowing us to start construction on a faster schedule, with Halff confirming their calculations later.**

JEFF AND JEFF COLLABORATED AT MESQUITE GOLF CLUB, STARTING WITH THE GOLF COURSE'S PROPOSED DESIGN, LATER ALTERED AS REQUIRED FOLLOWING HYDRAULIC ANALYSIS BY HALFF ENGINEERING.

MESQUITE AND NORTH RICHLAND HILLS HAVE SIMILAR FLOODPLAIN REQUIREMENTS. THE PERMITTING PROCESS WENT FASTER THAN NORMAL



An Exhibit showing the Halff deliverable for study of the change of the 100 year flood elevation.

Below, a detention basin added in an out of the way golf course area to achieve compensatory storage.

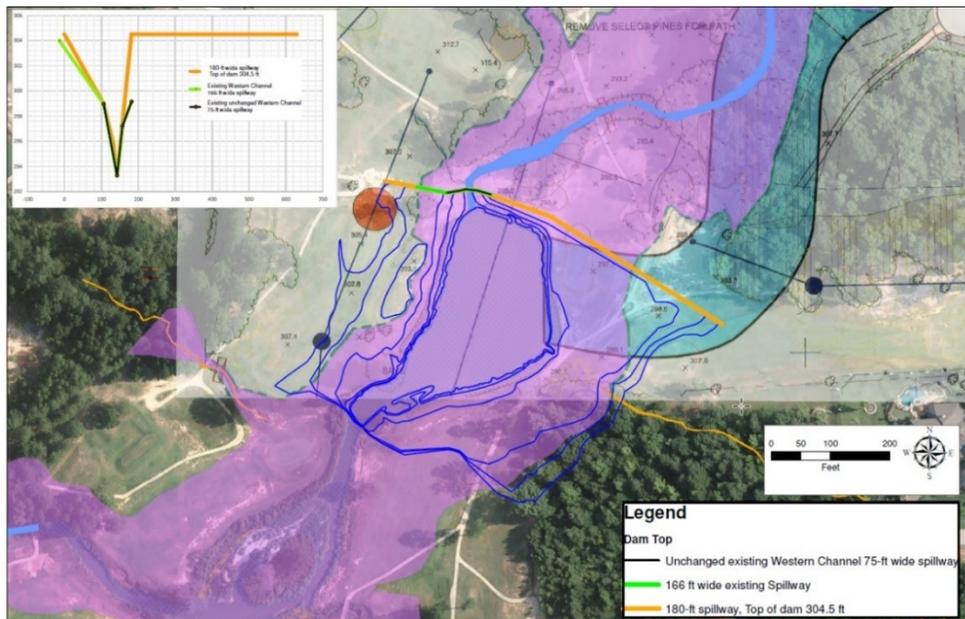


Near Creeks, we used fairway and rough height mounds, grass bunkers and swales, etc. to eliminate repeatedly washed out sand bunkers. For more examples of replacing difficult to maintain sand bunkers with grass hazards, please see Section 6.

Tempest Golf Club, Gladewater, TX – Total renovation to course with flood damage

Flood damage, a breached dam and eroded bare areas (caused by poor irrigation, similar to Iron Horse) made it necessary to totally renovate the old Southern Hills Golf Course. GolfScapes and Halff collaborated on a total renovation (including 12 brand new holes to increase real estate potential) with total cost of \$8.7M

Halff provided field surveys, the drainage study, dam design parameters, (with GolfScapes integrating those into the final golf course design), 404 permit, (with GolfScapes integrating those into the final golf course design that held below 0.25 Ac of impacts, securing a nationwide permit to allow construction to begin immediately). Halff and GolfScapes collaborated on land planning some new residential areas. EC Design designed a totally new irrigation system.



The Halff Flood plain impacts study, overlaid on GolfScapes Inc. proposal to multiple overflow routes for the 100 year storm (shown in light blue). This is a mid design plan, as the two firms collaborated back and forth to reach a final design that met requirements. The 18th and 16th holes shown below.



The 18th Hole at Tempest – the area covered by the plan at left. Despite substantial re-routing, we worked the existing pond and wetland into the design, while keeping disturbed wetlands below the mandated 0.25 Ac to allow immediate construction under national permit.

Halff created dam design parameters, mapped the wetlands, and did the floodplain analysis to assure the new lake configuration wouldn't raise flood levels to protect surrounding lots.

Cook County, MN – Total Makeover to Match Mission



Cook Co., MN opened Superior National in 1988 as a destination resort, but it slowly fell out of favor, due to poor conditions, caused by poor infrastructure and average design. Jeffrey D. Brauer designed an image changing \$4.6 Million, phased renovation, restoring the course's luster, while keeping 18 holes open at all times.

Challenges included rock, extensive sub surface drainage needs, and protection of the environmentally sensitive Poplar River, the only river in Minnesota emptying into Lake Superior in private hands. River issues included animal habitat and some previous bank slumps, which we had to avoid with careful grading.

As a small, rural county, we provided full Construction Administration services, since they had no local firm to fill the role. Being so close to Iron Horse, we can provide you with similarly extensive construction services, depending on your need, ably assisted by Halff Engineers. The results were more than most thought possible for the budget. We value engineered the design, as we do with most municipal golf courses to enhance their return on investment.



The numerous waterfalls of Poplar Creek, (2nd hole, above right) make the course was named one of the most beautiful courses in the world (recognized as such by Conde Nast Magazine)

With 27 holes, it was easy to keep 18 holes in play by renovating only nine holes per year, until it was fully reopened last summer. With only 18 holes, Iron Horse will face bigger challenges in remaining open, without reducing to 12 or 9 hole play, at least if the renovations necessitated by the flood channel are as significant as we think they will be.

At Superior National, we planned construction over two phases to keep 18 holes open for play.

At Iron Horse, we will evaluate the revenue impacts of pursuing all construction at once (which would reduce erosion along the river) vs. closing either 6 or 9 holes for golfer safety and completing the work over 2 or 1 phases.

Part of the goals and objectives phase will be a careful analysis of how the scope of work impacts keeping the course open.

City of Wichita Falls, TX – Improved Design and Drainage Improves Results, Image

We totally renovated Weeks Park Golf Course, which lay adjacent to the channelized Holiday Creek, which still floods. It had an antiquated irrigation and pervasive drainage and turf problems. We added a driving range near the clubhouse by rearranging a few holes, increased water storage, and created a new character to the course. The Dallas Morning News now ranks Weeks Park among the premier value public courses in Texas, putting it “back on the map” with golfers.

Below - Weeks Park Golf Course, (New 7th and 14th holes). Flat sand, bunker lines and simpler shapes allow better maintenance on this mid fee



course. We will work with Arcis to decide what is practical at Iron Horse.

City of Carrollton, TX – Genuine Million Dollar Turnaround!

In 2003, Indian Creek was losing play. After total renovation of one course, and partial renovation of the other, they turned annual subsidies of \$800,000 to profits of over \$300,000 within a few years.

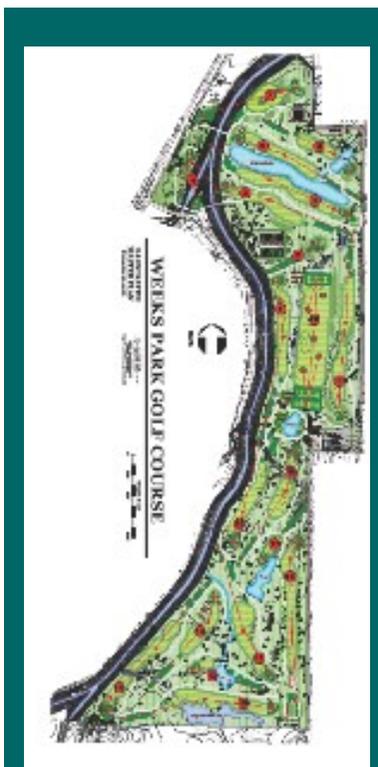
The Creek Course was adjacent to the Trinity River, which flooded substantially, especially in 2015. We can't stop flooding, but we facilitated faster post flood (and every day) drainage by grading fairways at 3-4% rather than the 2% that was common when built (coincidentally by the same architect as Iron Horse.) Working with the City of Carrollton's engineer, we met 100 year compensatory storage requirements with our grading.

Avid Golfer wrote about its “comeback story” noting that,

“It's hard to believe that a course can come back from such extensive damage”. However, we designed that comeback ability into the Creek Course.,

Despite the smaller budget than others, upon completion, the Creek Course won a spot on Golf Digest's “Best New” list for 2006.

In highlight box - The 13th. bordering the Trinity River, and 8th holes.



Cowboys Golf Club, Grapevine, TX

Opened in 2001, Cowboys Golf Club has become the premier public course in the area. Design challenges included building in the floodplain below grapevine dam. We raised greens to the 50 year flood, tees to 25 year flood and fairways to 5 year flood levels to reduce impacts of flood water. Like *Indian Creek*, we contoured fairways heavily to speed drainage after all rains, which improves turf quality and met compensatory storage requirements, which were closely scrutinized because the course sits on AOCE land, below one of the biggest flood control dams in Texas.

The 5th hole, shown sat low in an old mining area, and we raised it over ten feet to provide flood protection equal to the others, while creating wetland mitigation around the newly dug borrow ponds.

The substantial floods of 2015 caught this course, too, but it reopened much sooner than the adjacent Grapevine Municipal Golf Course, mostly due to our drainage engineering.



Cowboys Golf Club is the only NFL themed golf course in the world and the 9 time winner of Avid Golfer's "Best Public Course in DFW" Award.

Because of its lofty status, you might expect it was expensive to build.

However, its construction budget was about \$4.2M, which was about standard for the time, and exceptional when you consider most of the course was sodded, and the earthwork required to limit flood damage.

We also worked with environmental groups to preserve heron habitat, mitigate wetlands, and be environmentally friendly, with limited runoff to the major channels running through the course.



4. Team Members

Jeffrey D. Brauer

Principal Golf Course Architect and Key Contact

Work History

1984-to current – Founder, President, GolfScapes, Inc.

1977-84- Killian & Nugent, Palatine, IL

1976 – Intern, Theodore Brickman Co. (now Brightview) landscape design and construction.

1974-75 – Maintenance Intern at Glencoe Golf Course, Glencoe, IL, with landscape construction experience.

1973 – Garden Department, Forest City, Mt. Prospect, IL.

Professional Memberships

American Society of Landscape Architects (since 1977),
Member/Past President American Society of Golf Course Architects

Professional Writing and Presentations

Golf Course Industry Magazine – Renovation Editor, 2003-current,

Numerous Industry Presentations to **Texas Turf Grass Association**, **Golf Course Superintendent Association of America**, **Club Managers Association of America**, **Golf Course Builders America**, **Australian Club Owners Association** and **Asian Golf Show**

Education

Bachelor of Landscape Architecture University of Illinois, 1977

- o National ASLA Award of Merit, 1977
- o University of Illinois Outstanding Senior in Landscape Architecture
- o University of Illinois Outstanding Junior in Landscape Architecture

Portfolio

130 Total Projects, including several in floodplains with compensatory storage and 404 permitting requirements.

Other Staff – Golf course architects, both with over 20 years of experience. Dale Voloshin and Jon Schmenk will provide CAD drafting, calculations and design assistance to Jeffrey D. Brauer. Jeff will provide all on site field evaluations.

CAREER HIGHLIGHTS



First course played – world top 100 Medinah CC – It set my future at age 12.

Geared education and summer jobs towards career in golf architecture

Apprenticed with Golf Design Firm, 1977-1984.

Formed GolfScapes, 1984.

President ASGCA (1996)

Converted to CAD in 1998.

Authored many industry standard specification and contract documents.

13 courses designed in the DFW area, including Cowboys Golf Club.



Jeffrey Alvarez

JEFFREY ALVAREZ, PE, CFM

Principal Engineer for Flood Plain Permits

Water Resources Group Team Manager in Richardson office. Has dozens of PE's under his command, but will handle review and quality control.

Work History

1999 Present – Albert Halff and Associates.

1994-1999 - USACE New Orleans District

Work experience gives familiarity with:

- U.S. Army Corps of Engineers Section 404 permitting, either Nationwide Permits (NWP) or Individual Section 404 permits.
- Floodplain compensatory volume studies, solutions/permitting
- Golf Experience, (see sidebar)
- Golf Experience with Jeffrey D. Brauer, including:
- Mesquite Municipal Golf Course
- Tempest Golf Club, Gladewater, TX

In both projects, coordinated with Jeffrey D. Brauer to permit project, establish design parameters, and work back and forth to final drainage/golf design solution.

Professional Societies

Texas Floodplain Managers Association (since 2008)

American Society of Civil Engineers (since 2006)

Education

Bachelor of Science/Civil Engineering, University of New Orleans (1994)

Portfolio

Over 100 Total Projects involving flood plain analysis, wetland permitting, surveying and base mapping of natural conditions, most with local DFW municipalities with requirements similar to those we see at Iron Horse.

At right is a detention and wetland mitigation area engineered at Mesquite Golf Club, a project on which he collaborated with Jeffrey D.

Brauer/GolfScapes for the City of Mesquite, TX. Like Iron Horse, Mesquite has had a history of heavy flood problems and poor drainage.

CAREER HIGHLIGHTS



First job out of college was with Army Corp of Engineers – He learned permitting requirements from the inside out!

Began at Halff as a staff engineer, working on water and flood related projects. Worked his way up to Water Resources Team Manager in Halff's Richardson Office. Will manage all project work closely but has several trained engineers working under him to provide depth of service.

Outside of his normal duties, authored an award winning technical papers on water resources.



5. References

Cliff Keheley, City of Mesquite, TX

- Assistant City Manager, City of Mesquite, TX 75149
- 972-288-7711
- ckeheley@ci.mesquite.tx.us

Joe Bruno Owner, Tempest Golf Course

- 504-218-370-0791
- jbruno@brunobrunolaw.com

Mr. Bill Yenne, City of Lake Jackson, TX

- City Manager, City of Lake Jackson, TX
- 25 Oak Dr.
- Lake Jackson, TX 77566-5289

Braidy Powers

- Treasurer/Asst. City Manager, Cook County, MN
- 218-387-3546
- braidy.powers@co.cook.mn.us

Matt Benoit (former Wichita Falls Ass't City Manager)

- Assistant City Manager
- Farmers Branch, TX
- 972.919.2506

Al Rodgers/Eric Crump (prepared 36 hole Master Plan)

- Operations Division Director, Washoe County Community Service Dept.
- 775.328.2182 (office)
- ecrump@Shifferdeckercounty.us

Dan Cunningham (Kemper Sports Management)

- Project Manager
- 500 Skokie Blvd., Suite 444 Northbrook, IL 60062
- dcunningham@kempersports.com
- 847-612-5153

Linda Rokeeta (GM Giant's Ridge Golf Course, IRR State of Minnesota)

- Biwabik, MN
- 218-865-8000
- linda.l.johnson@state.mn.us

For references on Half Engineers, please call City of Mesquite to check on our collaborations, but you can also call about half of the cities around DFW!

Half has worked with nearby Hurst and Bedford, completing flood plain studies on Fossil Creek just downstream of Iron Horse, giving them a valuable head start on your mapping and analysis.

They have also worked with Fort Worth.

We built Wilderness Golf Course for the City of Lake Jackson, TX in 2005 in a flood zone with severe environmental challenges. We were required to drain the course to ponds, not nearby creeks, and pump drainage into the river, in order to avoid any golf course chemicals flowing directly to the Brazos River.

The 10th hole is shown below.



6. Initial Schedule

Upon negotiating the final agreement for the Iron Horse Golf Course Design Services, we will begin work immediately. Presuming an agreement in place by March 1, 2019, we propose the following timeline, which shall include City of North Richland Hills review and approvals in all phases:

March 1-30 – Obtain base information, Field surveys (contours, erosion repair areas, 404 wetlands) First City Meeting, begin Needs Assessment

April 1- 30 – Complete:

- Golf needs Assessment, set goals and objectives, set basic work scope
- Initial flood plain analysis

May 1- May 30

- Collaboratively develop schematic concept plans (golf and floodplain)
- Determine final Work Scope, including initial cost estimates

June 1- June 30 – Collaboratively develop:

- Design Development plans, (50% Construction Drawings, Specifications)
- Includes proposed grading, compensatory storage plan

July 1- July 30 – City review

August 1- Submit for Floodplain Permits

August 1 – November 30 –

- Final design, including one 3D Rendering of selected Hole Improvement
- FEMA CLOMR Letter Application
- Final Construction Documents Package. (1)

December 1 – 15 - Bid Advertising/Bidding Period

December 15 – January 15, 2020 - Bidding Period/Accept Bids

January 15 - February 1, 2020 – Negotiate and Award Construction Contract

February 15 – July 30, 2020 – Phase 1 Construction, Grassing Completed (2)

October 30, 2020 or July 30, 2021 - **Iron Horse Re-opens to great fanfare!** (3)

October 30, 2020 or July 30, 2021 - Phase 2 Construction begins after Phase 1 re-opens to maintain a functioning golf course (if required, and similar schedule for any Phase 3 Construction, if selected by North Richland Hills)

Schedule Notes

This is a conservative schedule, with allocations for typical delays in large projects. We advocate the City of North Richland Hills does everything within their power to accelerate the selection and design agreement schedules, to maintain as much time as possible for potential delays.

- (1) Assumes North Richland Hills allows bidding concurrent with CLOMR review.
- (2) Assumes one phase of construction, but we will evaluate your cost and revenue ramifications of pursuing construction in up to three construction phases (Iron Horse has three distinct sections to accommodate) which will keep at least 12 holes open (with some holes split to form an 18 hole executive course in the interim)
- (3) – Delaying the construction start often delays re-opening delay of a year.

When you finish depends heavily on when you start, and golf courses must meet the ideal grassing windows of June for Bermudagrass.

Delaying the construction start due to slippage in contract award or design schedule, may impact the revenues at Iron Horse and must be considered.

With three staff golf course architects and the hundreds of Half Engineers staff, we can keep you on schedule.



Creating Challenge While Removing Sand Bunkers

We have already shown some of the creative ways we reduced sand bunkers at Mesquite Municipal Golf Course in our designs.

Here are two more examples, this time both rough and fairway mounding to provide challenge.

We also include an example from our renovation of world famous [La Costa Resort](#).

This renovation was spurred in part from drainage and flood problems, mostly centered right below the clubhouse. We renovated both the Champions and Legend Courses.

The 18th hole on the Champions course is shown below. The original design featured tradition sand bunkers front left and right.

We replaced the flood prone front left bunker (right side in this behind the green view) with this unique "Church Pew" style grass bunker, providing similar challenge, no flooding problems, and a shadowed view from the clubhouse, whereas the original sand bunker, facing golfers, wasn't visible at all, even from the elevated vantage point.

The Champions Course, former home of the Annual Tournament of Champions, until drainage problems forced the tournament to move, has restored its place in California golf, returning to the Best in State lists, ranking no. 15 in Golf Week.

Best New Course Awards

Our portfolio includes two “Best in State” courses, and many others near the top of the list. We have also designed several courses deemed to be among the “Best New Courses” in their respective opening years. Most achieved those honors while working under municipal or government budgetary and contractual guidelines, which can sometimes be limiting:



Firekeeper

(No. 1 Public Course in Kansas by Golf, Golf Digest)
No. 9 Casino Course Golf Week



Quarry at Giant's Ridge

(No. 1 Public Course in MN No. 30 Public Course in US by Golf Digest)



Cowboys Golf Club

(No. 1 Public Course in DFW by Avid Golfer)



Colbert Hills

(No. 2 Public Course in Kansas by Golf, Golf Digest)



Wilderness at Fortune Bay

(No. 2 Public Course in MN by Golf Digest)
(No. 1 US Public Course) Golf News Network



Wilderness at Lake Jackson

(No. 14 Expensive TX Public by Dallas Morning News)
No. 10 Best New Affordable (2005) by Golf Digest)



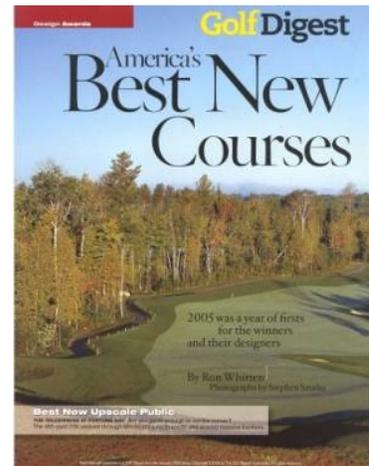
Sand Creek Station

(No. 3 Public Course in Kansas by Golf, Golf Digest)



Legend at Giant's Ridge

(No. 6 Public Course in MM Golf (No. 16 in MM by Golf Digest)



See our Best New Course Placements on the next page

1st Place Best New Upscale Public Courses



Wilderness at Fortune Bay

(No. 1 Best New Upscale Public Course in 2005 by Golf Digest)



Quarry at Giant's Ridge

(No. 1 Best New Upscale Public Course in 2004 by Golf Digest)



Cowboys Golf Club

(No. 1 Best New Course of 2001 in US by Zagat Magazine)

Other Best New Public Course Award Placements



Firekeeper

Mayetta, KS – 2th Place

[Best New Upscale Public Course Golf 2012](#)



Legacy Golf Club

Norwalk, IA – 10th Place

[Best New Affordable Public Course\) Golf Digest\) 2002](#)



Sand Creek Station

Newton, KS – 6th Place

[Best New Public Course Golf, 2007](#)



Black Bear Golf Club

Parker, CO – 10th Place

[Best New Upscale Public Course Golf Digest 2000](#)

Wild Wing Plantation

Avocet Course

Myrtle Beach, SC - 10th Place

[Best New Upscale Public\) Golf Digest 1994](#)



Indian Creek (Creek Course)

[\(No. 7 Best New Upscale Public Course\)](#)

[Golf Digest 2004\)](#)



Legend at Giant's Ridge

[\(No. 8 Best New Upscale Public Course\)](#)

[Golf Digest 1998\)](#)