He and the crew had a number of ideas but in the end Chitwood approved a stars and stripes, alternating waving banner theme of Newpher's. "It was fun to do," Newpher said. "The five of us have a lot of experience getting ready for Speed Week and we were blessed with perfect weather, good temperatures and virtually no rain, so we could irrigate only when we wanted. The grass grew in perfectly."

"In the past we seeded the 'football field' as we call it with perennial ryegrass and mowed patterns in it," Newpher said. "We'd keep an eye out for disease and so on, but this year because the poa annua is tenderer, we did a preventative fungicide program instead of a curative program. We also have added one pound of nitrogen once a month and will until the races are over (in February)." It took 6 days to complete the overseeding.

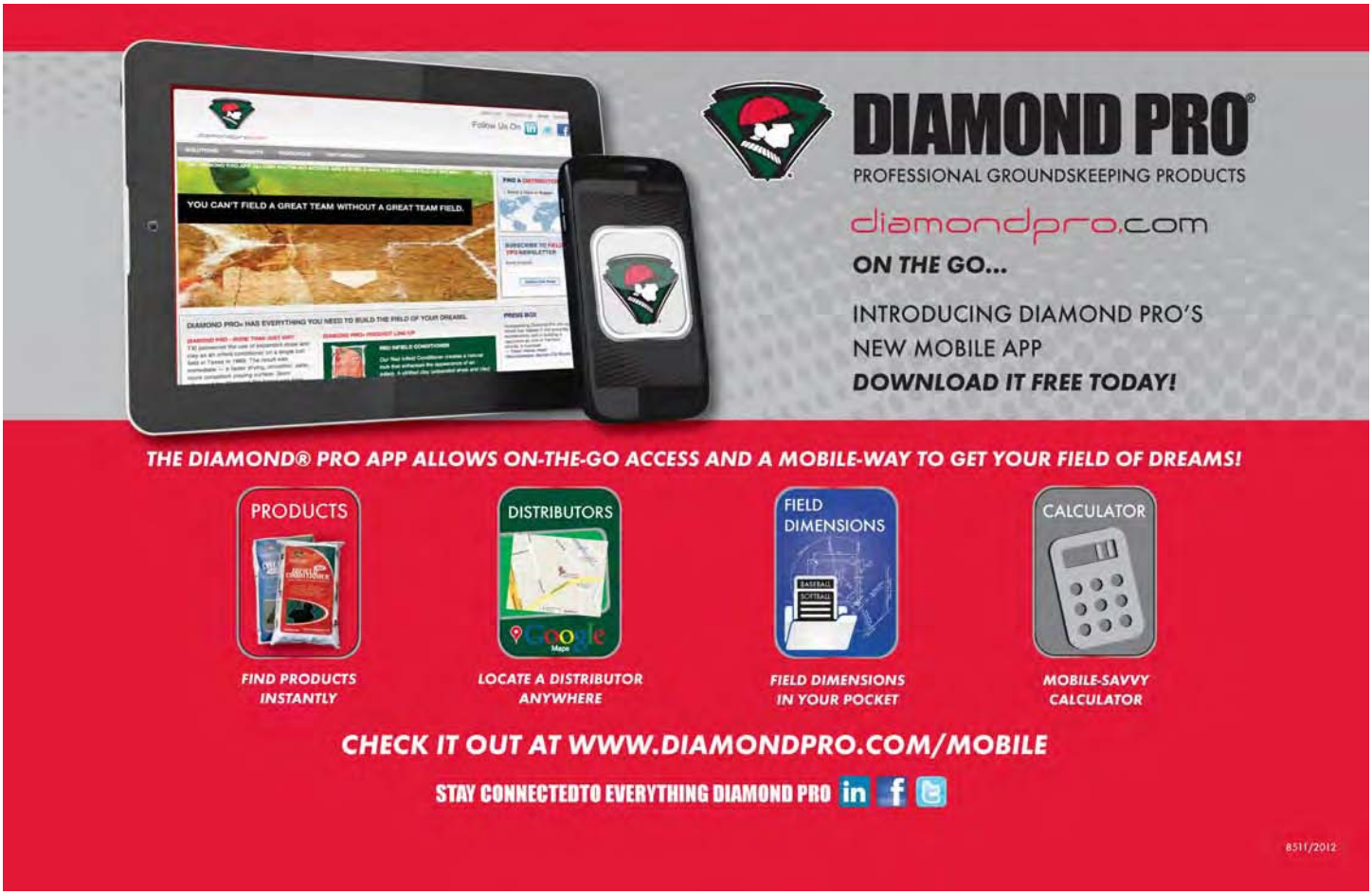
> "We also have added one pound of nitrogen once a month and will until the races are over (in February)." — Sam Newpher

But this time around, over Thanksgiving week last year, the crew planted the two grasses based on a plotting by Kenny Bogner with Missouri Turf Paint, who has painted the Speedway logo on the grass for many years. Bogner helped them design a pattern of smoothly waving stripes and six 60-foot stars. Bogner marked out the pattern and Newpher's crew went to work planting and fertilizing. Morgan reports that Signature Trilogy BT 3-way perennial rye blend was applied at 600 lbs/acre. Annual rye was applied at 600 lbs/acre, he said.

Morgan also said that pH acid and Revert are applied monthly because the Ca/Na levels are so high from the lime rock under the asphalt that drains into the turf and the poor water that is used for irrigation out of Lake Lloyd (pH 8.2). Normal base saturation levels are: Ca, 95%; H, 1.6%; Mg: 2.2%; and K, .7%.

For fertilizer, Morgan reports that primarily 10-10-10 50% XCU and Signature 18-24-12 25% XCU were used. After the turf is cut down to 1.75 inches, Feature 6-0-0 was used only on the Trilogy BT at 6 lbs/acre rate to darken it up and make the contrast even more dominating. Newpher said the day after the Daytona 500, where traditionally the winner spins doughnuts on the infield turf, he and the crew tear up the "football field" to prepare for a motocross race held in the infield area. "While you might think that we'd hate that we don't mind because it gives us a breather," he said. "The turf is just window-dressing and that's just fine with us."

After the motocross, Newpher said the crew will start sprigging once again with Tifway 419 in preparation for the next NASCAR race at Daytona, the Coca-Cola 500 in July. ■



How do you mark your lines?

How do you mark your foul lines and batters box for baseball and/or softball? Do you use limestone, aerosol paint, bucket paint or something else? What equipment do you use to put it down?

JIM WIGGINS,
Tomball (TX) School District

First we nail drag and then smooth the dirt areas. We water dirt zones if needed and proceed with stringing out the baselines and using the batters box templates (see photo). The final step is using Beacon Pro Chalker with the 2-inch or 4-inch line option. We prefer the 2-inch lines as they use far less chalk and have less build up and residue. Upon completion of markings we will sometimes give field a light watering to hold markings if windy or dry that day. The foul lines are painted using our Graco FieldLazer, from the back edge of our infield dirt to the fences on the grass areas of the field. These lines are 4 inches wide and painted usually every 2 weeks. We chalk the dirt areas every game, which translates to at least two times a week, sometimes three.

We use Diamond Pro field marking chalk, Pioneer Bright Stripe bucket paint, and sometimes Pioneer Max aerosol if field is wet from rain for quick results and set up.

Equipment: Beacon Pro Chalker, Graco FieldLazer, Pioneer Max Aerosol paint buggy, Tomark Batters box templates.

JOSHUA KOSS,
San Diego Jewish Academy

• We pull our lines tight while the bases are in.

• After our lines are lined up correctly and secured tight, we remove the bases and brush back the calcined clay along the line with a broom (at least 4 inches).

• After it is completely clean of calcined clay and debris, we water it down with a watering can. After the water percolates into the dirt, we paint the line twice.

We use aerosol on the dirt, bucket paint in certain circumstances, but very rarely. Time is of the essence. It's much quicker to paint the lines with aerosol than to mix up some paint for such minimal painting.

Equipment: We use a 2-can aerosol striper. If the lines do not get painted straight, we will use a stencil and stencil it out by hand. Time does not allow for us to stencil, so very rarely do the lines not get painted straight. Depending on turf conditions, we will use our airless sprayer with a stencil to paint the lines in the grass. But like I said, it is time consuming to mix up a bucket of paint for such minimal painting.

CRAIG SCHLENDER,
Mary Rountree Evans Field, Baraboo, WI

We use a chalk type line for our lines and batters boxes on the infield mix and the foul lines and coaches boxes are painted.

For the infield mix lines we use Sparkle # 6 this gives us a nice bright white line that stays put very well. During tournaments when we have many games in one day we will spray the lines lightly when watering the infield and this will set the line so it will last more than one game in many cases and only touchup is necessary for the next game.

We use World Class and Pioneer paints to do the lines on the grass.

We use a Stream Liner applicator to apply the chalk and normally a 2 inch line for the infield mix lines.

We will do a 4-inch line for high profile games; the Stream Liner applicator gives us that option.

Our painted lines on the grass are done weekly with a CO2 bulk mixed paint sprayer that we use on all of the fields in the system. During the heavy grass growing season we will touchup the lines as needed with aerosol cans.

During real heavy use periods during the high growth times we may take a push mower and mow the foul lines a bit shorter before spraying the lines to get a longer lasting line. We have also used a growth retardant mixed in with the paint but you have to be very careful when applying this not to overdo it. This can happen when you have to redo a line or an equipment problem happens.

ERIC BLANTON,
Reno Aces

We mark our foul lines via string line and batters boxes via stencil.

We use aerosol paint.

We use an aerosol paint striper.

RON HOSTICK,
San Diego State

Baseball lines: aerosol with a 4-wheel painter, box only; gypsum with a 2-wheel chalker.

Softball we use all aerosol with the 4-wheel painter

BART PRATHER,
Mississippi State

We chalk everything in the dirt areas and paint all grassed areas.

We use limestone chalk on dirt and concentrate paint (mixed one to one ratio) on grass.

Walk behind chalker and FieldLazer for painting.

ERIC HANSEN,
Los Angeles Dodgers

Our outfield foul lines are painted by hand with a 4-inch roller. Our baselines and boxes are painted pregame with white aerosol paint using a paint striping machine. The thin lines of our box are created by turning the aerosol can sideways.

I still like using chalk over paint because I think it stands out better than paint and I don't mind picking it up after games.

— Josh Klute

JOSH KLUTE,
Haymarket Park, Lincoln, NE

I mark my lines with plus 5 chalk while using a string line with pre-measured anchors in the ground for the string to set in. I use gravity drop boxes for my batters and catcher's boxes, but for the baselines I use a walk behind chalker. I still like using chalk over paint because I think it stands out better than paint and I don't mind picking it up after games.

PETER THIBEAULT, CSFM, Noble & Greenough School, Dedham, MA

To mark out the fair/foul lines we use a spool with cable that we can pull very tight. The best part on using this is the cable lies really flat in the turf and skin. For the batter boxes we made templates out of 1 x 3 stock and use a nail to trace then paint as well. The paint tends to hold up well even when we have to re-apply water.

We started about 4 years ago using aerosol to mark the skins. I could never get the chalk to come out real smooth and always seemed messy.

Doing this early in the morning when moisture tends to be highest is easiest for us. Painting instead of chalking requires careful moisture management in the skin to work best

We use Max aerosol field marking paint with a max aerosol striper. Both are Pioneer Athletics models and the cool thing is that they offer an aerosol chalk now so one machine can do both.

I'm not trying to promote any vendor but we have tried a few and Pioneer tends to offer great service for us.

MONTY SOWELL,
Northwest Arkansas Naturals

We paint all our lines using World Class Athletic bucket paint.

We use a Model 120 Trueline Stripper made by Turfco Manufacturing to paint with. It is undoubtedly one of the greatest pieces of equipment we own.

GRANT SPEAR,
CSFM, UNLV Athletics

We paint baseball and softball lines using a combination of aerosol and bucket paint. We run string along the lines and paint with a sprayer before the start of home stands then remark the lines in the dirt during pregame with the aerosol paint. ■

Gallery of mowed patterns

Editor's note: *Occasionally we like to highlight readers' work in offering pleasing aesthetics by mowing patterns into their grass. Here's our latest gallery:*

MURRAY COOK of The Brickman Group and former STMA president has been involved with baseball and the Olympics since the sport began being a part of the Games. He said, "We did this for the 2000 Summer Olympics but after the first few games we were asked by the technical delegates to remove the rings because they were concerned the ball would turn in a circle when hit in the outfield. True story!"

KYLE WATERS, The Home Depot Center, Carson, CA

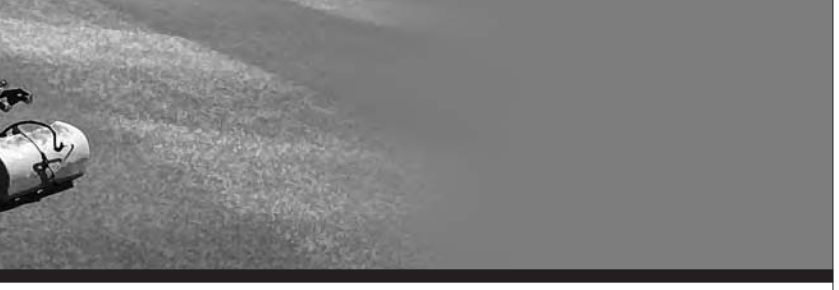
JESSE PRITCHARD, Sports Turf Manager, University of Virginia

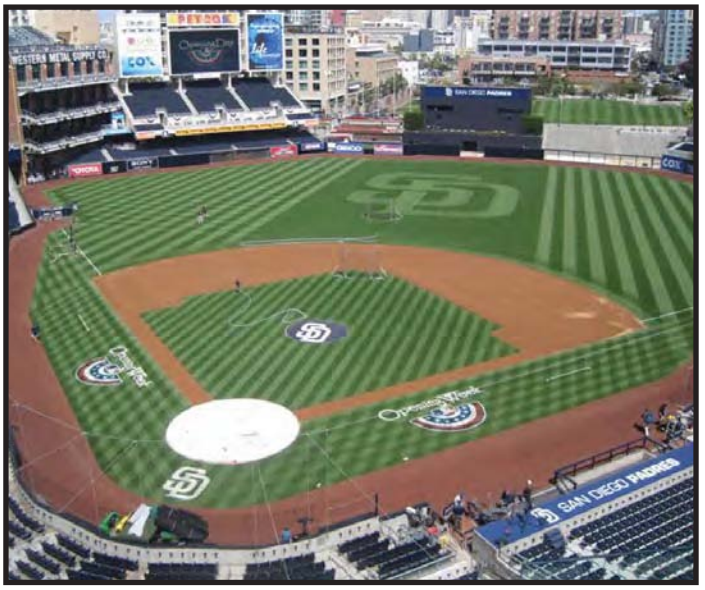
ALAN SIEBERT, CSFM, Peoria Sports Complex, Peoria, AZ

JOSH SLAYBACK, City of Clayton, MO

CHRIS MAY, Claude Smith Field, Mercer University, Macon, GA. May is now sports turf manager for The Westminster Schools in Atlanta.

SCOTT FALAHEE, Frank Joranko Field, Albion College, Albion, MI





LUKE YODER, Petco Park, San Diego

BRADLEY KIRKLAND, Plainsman Park, Auburn University

DINO PICHA, St. Mary's University's Divis Field, St. Louis MO

RIVIERA IS AS TOUGH AS THE ATHLETES WHO PLAY ON IT

THE RICHEST, MOST RESILIENT, AND COLD TOLERANT BERMUDA ON EARTH.

Save up to 600% over sodding when you seed with Riviera. It grows in at just six weeks or less making renovations, repairs and new field construction a breeze. Riviera takes a beating and recovers week after week. Owners, fans and players consistently praise the look, quality and superb playing surface. And its top-ranked hardiness and extreme resistance lower your turf maintenance costs year-round. Riviera.
It pays. You win.

RIVIERA
Bermudagrass SportsTurf

JOHNSTON SEED COMPANY
The Cold-Tolerant Bermudagrass Experts

800-375-4613

www.johnstonseed.com

Working with school boards and administrators

>> **MIKE TARANTINO,** director of maintenance and operations, Poway (CA) School District.

THIS IS A VERY BROAD SUBJECT and is highly subjective. We all know no two people are alike and this holds true for school board members and administrators. All of us involved with K-12 schools should know that boards' and administrators' number 1 goal is education; what we have to make them understand is that a safe and aesthetically pleasing school is paramount to teachers, students and the community.

There has been a lot of research on the correlation of well-maintained schools vs. student achievement that dates as far back as the 1920's. Let's face it, we have come a long way since then, however, one thing remains: schools are the hub of the community and are not just a place for education to occur but also a place for children and adults to play.

Did you know that children spend up to 24,000 hours at school (K-12)?

With that introduction, I can only relate my relationship with my school board, administrators and the community and how it came about. I have broken this out in to several key headings and subheadings.

Communication. GET OVER YOUR FEARS! The school board, administrators and community members are all human beings. After all, they hired you to do a job. Do not be hesitant to approach them with an idea that could benefit the school community. Remember that a majority of their time is spent on improving education and your sports fields may be the furthest thing from their mind but remember to relate your idea to how this will enhance the learning quality of the children, improve staff morale and provide a recreation area for the community.

Become visible. Attend school board meetings. Yes, these are usually held in the evening, but deal with it and go. Make weekly meetings or do a weekly report to your supervisor, director or superintendent, let them know what you are doing to improve the school community. Attend local youth and or adult recreation meetings, offer to present at these meetings and most importantly, listen to their needs. Make sure to follow up with requests from these groups because no one likes being ignored.

Visit your school sites and make sure not to ignore anyone. Visit with the coaches, teachers, principals and the children. Everybody's opinion is important and everybody wants their opinion heard. I have learned more from coaches about the little things in the way to prepare their field for their particular team than I have from any book. I like to call communication the art of listening, understanding and then responding; do this and people will begin to recognize you and what you do.

Documentation. School boards, administrators and community members are results driven and want documentation or proof. Document your successes to better handle the "what have you done for me lately" syndrome. Take pictures of your projects start through finish, include team work in the pictures, include equipment used owned, rented or borrowed. Finally, write a report to go with the pictures along with costs of the project. Have an end goal in mind. This could be as simple as showing what you can do to improve the school community or as ammunition if you want to purchase a piece of equipment, for example, document the rental cost vs. purchase. Provide a cost analysis if this is your goal. Show man hour savings and the number of additional projects you could complete with this particular piece of equipment. Here is an example:

A 10-acre field will take the 60-inch deck mower approximately 3 hours and 15 minutes. An 11-foot deck mower will mow the same 10 acres in approximately 1 hour and 15 minutes, a 2 man/hour savings per 10 acres. If the operator mows 100 acres the savings will be 20 man hours.

Twenty man hours x $480 (20 hrs. x $24.00/ hr.) per 100 acres x 52 weeks equals $24,960 per year. The 11-foot deck mower could pay for itself in approximately 2 years, or a gain of 1,040 man/hours per year.

DOCUMENT YOUR FAILURES

I know what you're thinking, I can't show my failures. Yes you can, but you need to show and let the school board, administrators and the community know what you learned from that mistake. Some of my biggest successes came from failures.

Use tools that are available to you, like

Visit your school sites and make sure not to ignore anyone. Visit with the coaches, teachers, principals and the children. Everybody's opinion is important and everybody wants their opinion heard.

soil sampling and the Playing Conditions Index (PCI). I cannot believe how many of us don't use these FREE resources, yes free. Wait a minute soil sampling cost money, you say, but if you talk to your suppliers many will offer this service to you for free. I perform soil sampling once a year on my high profile play fields and every other year on my multi-use recreational sports fields. These soil samplings dictate what needs to be done on my fields and in many ways provides documentation for budgeting purposes (fertilizers, soil penetrants, etc.).

The PCI is simply a great tool provided by the STMA. This is documentation at its best. If you haven't used the PCI, you should. The PCI can provide documentation on the safety, playability and aesthetic quality of your sports fields. I have begun to document other information on the PCI. I now record weather, products used (fertilizer, pesticides), seed variety if a renovation; topdress material, irrigation schedule, suppliers etc. If you can, include pictures with the PCI when submitting this documentation to the school board, administrators and the community.

Maintenance standards. If you don't have them, develop them and share them. These are simple maintenance guides, the "what we are going to do and the when we are going to do it." These standards answer our customers' questions and lessen the amount of phone calls to the school board and the administrators from our customers, the schools and the community. These standards need to be shared with your staff; they will serve no purpose if your own staff doesn't know what they are.

Get out of your box. With the state of the economy many of us are being asked to do more. Jobs are being eliminated and those survivors are taking on additional responsibilities. As budgets continue to tighten, sports turf managers are now often being asked to become facility managers, especially at K-12 facilities. I hope you view your stay at your organization as an educational adventure and a means to grow. You should have been watching your peers manage facilities so that you were ready to advance or simply help out with a problem/crisis that wasn't yours to manage.

The natural disasters that plague our country are a good example—would you sit back and watch as your facilities were being destroyed or would you be on the frontline? When rebuilding occurred did you just worry about your sports fields or did you assist in bringing normalcy to your facility? School boards and administrators are well aware of those that support this type of effort, while you may not get the "thank you" you were looking for, believe me, your actions or inactions are noticed.

Although every situation is different, you must be able to adapt to your situation. It is all communication. ■

Michael Tarantino is director of facilities for the Poway School District, Poway, CA, and sits on the STMA Board of Directors.

Understanding
field hardness test reports

SPORTS SURFACE IMPACT TESTING (field hardness) has become an integral part of the synthetic maintenance process. Test results can indicate that a field is in good condition, as well as pinpoint areas of concern.

The Synthetic Turf Council recommends a minimum testing frequency to be at the end of year 1 and the end of year 3. Other industry experts and/or field specifications often recommend annual testing. That's a lot of data! Due to the large amount of data, the test reports may be somewhat difficult to interpret. In this article, we'll break down the field hardness test report, so that the field manager can understand it better and find the information that is most important for success.

The field hardness test report is a two-page report (see Figures 1 and 2). This report includes field conditions and test results from evaluations performed at multiple locations on a single field. In Figures 1 and 2, we have divided the test report into five sections to aid in finding informa-

>> **Figure 1.**

SPORTS SURFACE IMPACT TEST REPORT

Section 1

Soccer Complex
City, State

Test Date: March 15, 2011 — Report Date: March 18, 2011

Weather Conditions:
Temperature: 43 - 45° F — Humidity: 81 - 87%
Cloudy

Testing performed for Blank High School

Section 2

Test Method:
ASTM F1936: Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field

Summary of Results:
End A is the West end and Side C is the South side of the full-size field (white boundaries).

		Vo fps	gmax	tmax ms	Surface Temp (° F)
Point 1	Penalty Kick Line, End A, Center of Field Total 5.8 cm depth; Infill 3.1 cm depth	11.58	96.0	8.0	48
Point 2	63' from center of field to corner of Penalty Box, Side C, End A Total 5.6 cm depth; Infill 2.8 cm depth	11.58	99.3	7.4	48
Point 3	75' from Half-Way Line to End A, 40' from center of field to Touch Line C Total 5.7 cm depth; Infill 3.0 cm depth	11.70	103.2	7.8	46
Point 4	Half-Way Line, Center of Field Total 5.6 cm depth; Infill 3.2 cm depth	11.37	100.2	8.1	48
Point 5	75' from Half-Way Line to End B, 63' from center of field to Touch Line D Total 5.8 cm depth; Infill 3.5 cm depth	11.30	90.7	8.6	48
Point 6	1/2 the distance from Penalty Restraining Arc to leading edge of Penalty Box at End B, Center of Field Total 5.6 cm depth; Infill 3.4 cm depth	11.64	92.9	7.6	48
Point 7	Goal Line, End B, 5' Outside Touch Line C Total 5.3 cm depth; Infill 3.2 cm depth	11.21	117.3	7.3	46
Point 8	Corner Kick Area (Yellow Field), End B, Side D Total 5.6 cm depth; Infill 2.8 cm depth	11.67	105.2	8.4	46
Point 9	3' from Goal Line to Half-Way Line, End A, Center of Field Total 5.2 cm depth; Infill 2.9 cm depth	11.39	97.7	8.0	43
Point 10	15' from Goal Line to Half-Way Line, End B, Center of Field Total 5.5 cm depth; Infill 3.2 cm depth	11.44	102.3	7.4	46

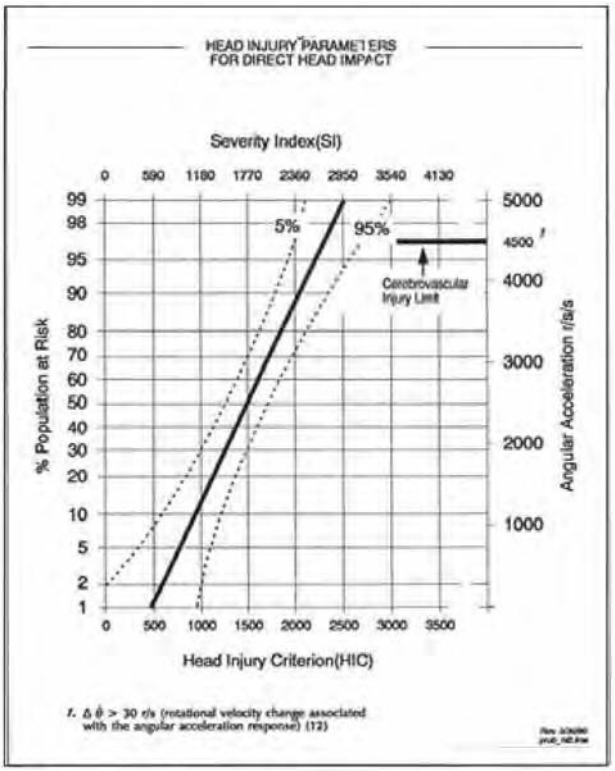
Section 3

Conclusion:
Under the test conditions reported above, all test points met the requirement of < 200 average G max when tested in accordance with specification F1936.

Test results reported herein reflect the conditions of the tested field at the time of testing and at the temperature reported.

Operator Signature
Duane K. Otto

>> **Below: Figure 3.** Graph from research published in February 1990 by Voigt R. Hodgson, Ph.D., Director Biomechanics Laboratory, Department of Neurosurgery at Wayne State University Detroit, Michigan in his paper titled Impact, Skid And Retention Tests On A Representative Group of Bicycle Helmets to Determine Their Head-Neck Protective Characteristics.



>> **Below: Figure 2.**

Section 4

Soccer Complex
City, State

Test Date: March 15, 2011 — Report Date: March 18, 2011

Section 5

Test Point	Drop #	Vo fps	h ft	gmax	HIC
1	1	11.54	2' 1"	86.4	213.1
	2	11.69	2' 1"	93.9	244.5
Penalty Kick Line, End A, Center of Field	3	11.46	2' 0"	98.1	260.8
	Av23	11.58	2' 1"	96.0	252.7
2	1	11.77	2' 2"	88.2	222.7
	2	11.75	2' 2"	97.8	259.5
63' from center of field to corner of Penalty Box, Side C, End A	3	11.41	2' 0"	100.9	273.5
	Av23	11.58	2' 1"	99.3	266.5
3	1	11.27	2' 0"	87.4	219.9
	2	11.77	2' 2"	99.7	271.8
75' from Half-Way Line to End A, 40' from center of field to Touch Line C	3	11.63	2' 1"	106.7	304.8
	Av23	11.70	2' 2"	103.2	288.3
4	1	11.46	2' 0"	84.8	205.2
	2	11.49	2' 1"	97.5	259.6
Half-Way Line, Center of Field	3	11.24	2' 0"	102.9	283.0
	Av23	11.37	2' 0"	100.2	271.3
5	1	11.42	2' 0"	78.2	182.9
	2	11.32	2' 0"	90.0	234.2
75' from Half-Way Line to End B, 63' from center of field to Touch Line D	3	11.29	2' 0"	91.4	237.3
	Av23	11.30	2' 0"	90.7	235.8
6	1	11.50	2' 1"	83.3	209.9
1/2 the distance from Penalty	2	11.45	2' 0"	92.2	245.6
Restraining Arc to leading edge of	3	11.83	2' 2"	93.6	250.7
Penalty Box at End B, Center of Field	Av23	11.64	2' 1"	92.9	248.1
7	1	11.17	1' 11"	99.8	264.7
	2	11.08	1' 11"	116.7	335.4
Goal Line, End B, 5' Outside Touch Line C	3	11.34	2' 0"	117.8	337.8
	Av23	11.21	1' 11"	117.3	336.6
8	1	11.33	2' 0"	92.4	238.6
	2	11.76	2' 2"	103.6	290.9
Corner Kick Area (Yellow Field), End B, Side D	3	11.59	2' 1"	106.7	299.7
	Av23	11.67	2' 1"	105.2	295.3
9	1	11.36	2' 0"	83.5	205.5
	2	11.26	2' 0"	95.8	257.5
3' from Goal Line to Half-Way Line, End	3	11.53	2' 1"	99.6	273.4
A, Center of Field	Av23	11.39	2' 0"	97.7	265.5
10	1	11.78	2' 2"	93.3	238.9
	2	11.44	2' 0"	99.8	268.3
15' from Goal Line to Half-Way Line, End	3	11.44	2' 0"	104.7	284.2
B, Center of Field	Av23	11.44	2' 0"	102.3	276.3