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|----------------------|--|------------------|--|
| Project Name | Aviation Park Soccer Field ASTM F1936 Gmax Impact Evaluation | | |
| Client Info | AFE SPORTS 2683 Lime Ave, Signal Hill, CA 90755 | Site Info | 1935 Manhattan Beach Blvd, Redondo Beach, CA 90278 |
| Report Date | 09/10/2021 | Test Date | 09/09/2021 |
| Report Status | Final | Job no. | 2021_151 |
| Prepared by | David DiGeronimo VP | | <i>David DiGeronimo</i> |

Notes:

- 1. This report has been prepared by DMA with all reasonable skill, care and diligence within the terms of the contract with the Client and within the limitations of the resources devoted to it.*
- 2. This report is confidential to the Client and DMA accepts no responsibility whatsoever to third parties to whom this report, or any part thereof, is made known. Any such party relies upon the report at their own risk.*
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Summary

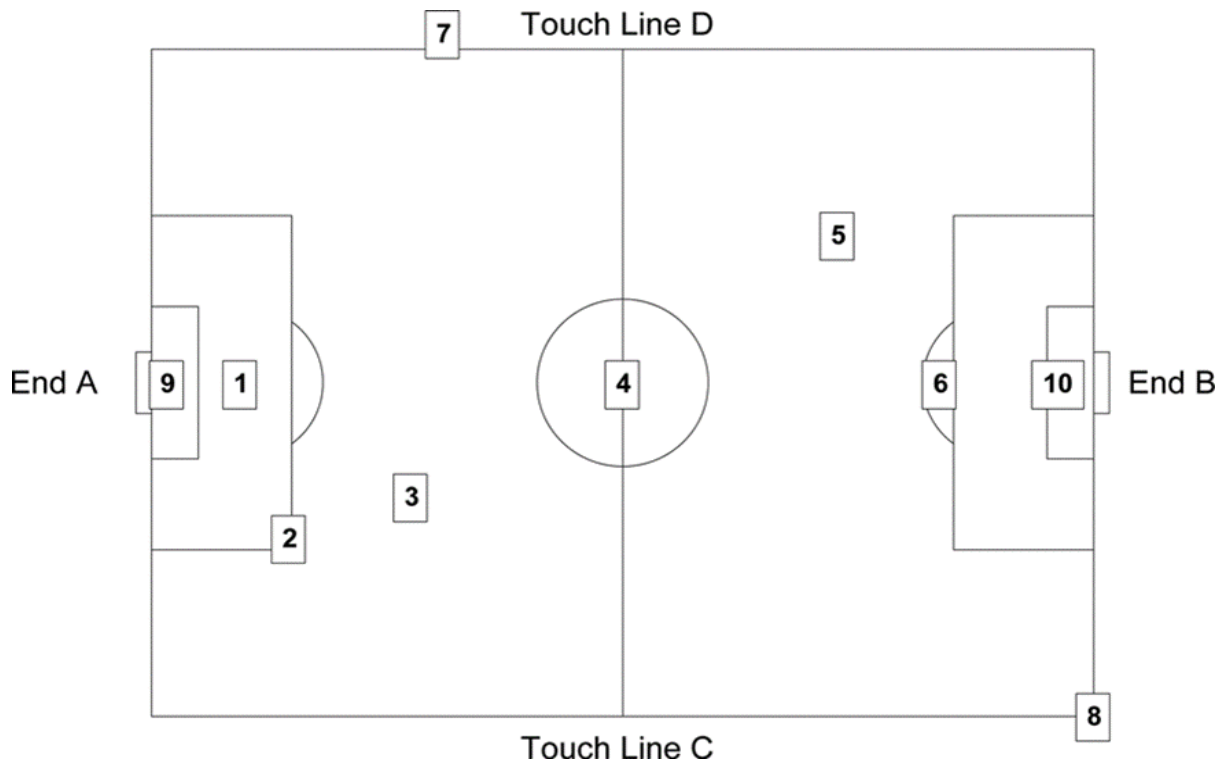
DMA Sports Design Group was commissioned to perform on-site Gmax impact testing per ASTM F1936. A complete test was performed in accordance with the ASTM F1936 Standard. The results have been summarized in reference table below. Complete results and background can be found in the subsequent sections of this report.

Quick Reference Results Summary

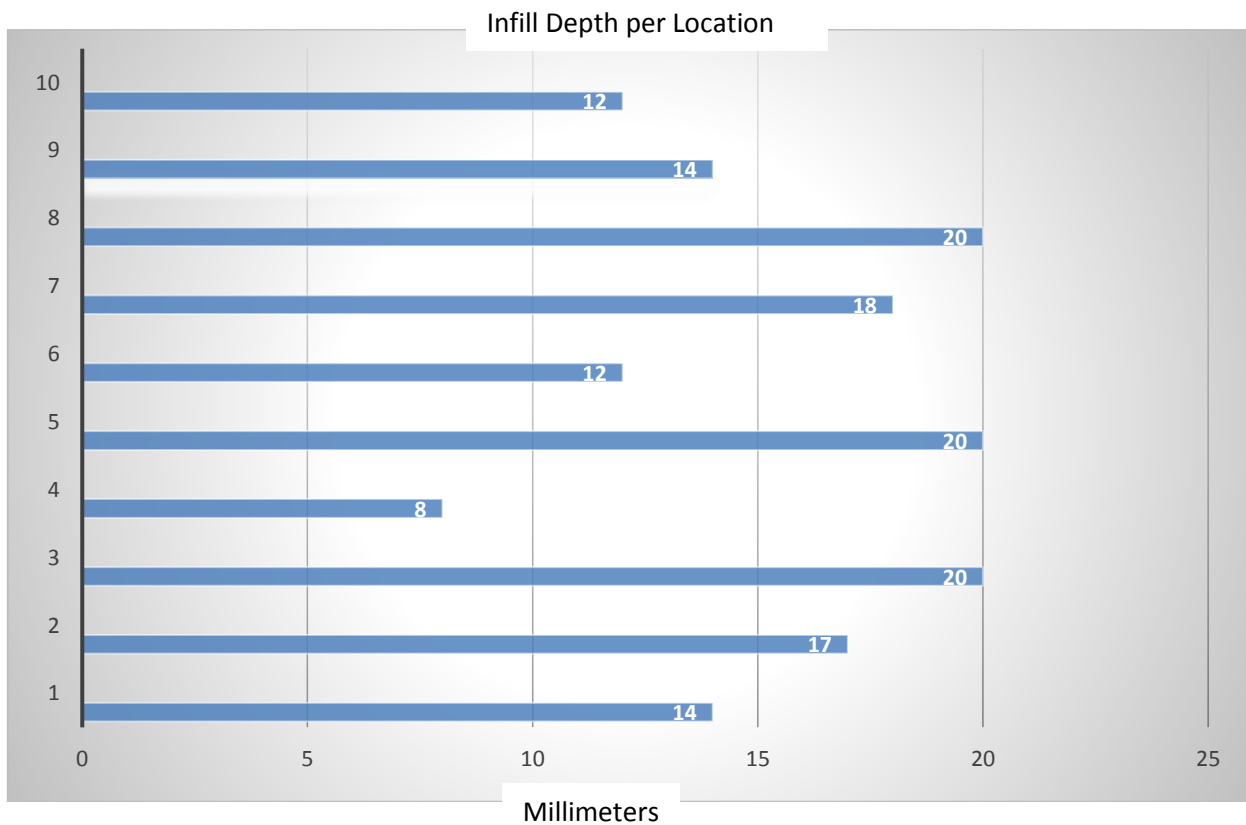
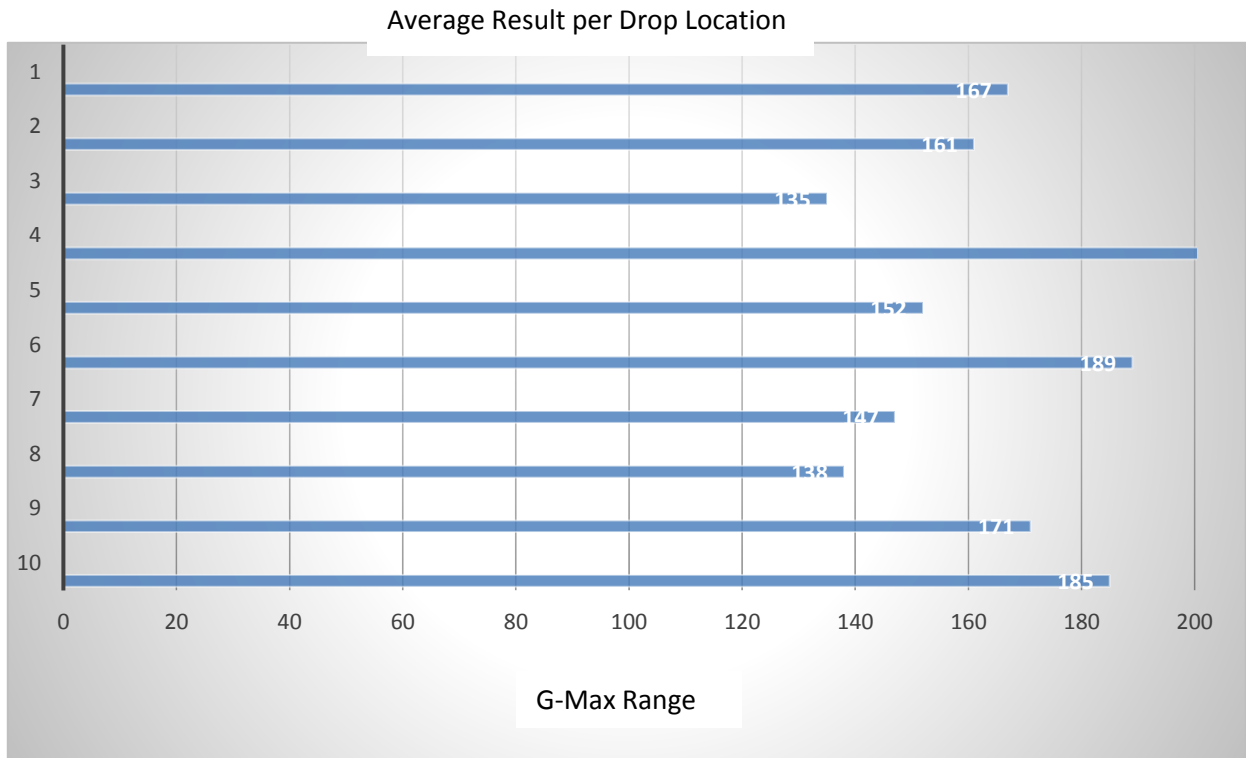
| | Average | (min) | Range | (max) | Max per ASTM | NFL Safety Limit | DMA Standard – Pad System | DMA Standard – Rock Base |
|--------------------------|---------|-------|-------|-------|--------------|------------------|---------------------------|--------------------------|
| Gmax (g's) | 173 | 128 | to | 285 | 200 | 165 | 130 | 160 |
| Infill Depth (mm) | 16 | 8 | to | 20 | n/a | n/a | n/a | 18 |

| | | | |
|--------------------------|---|---------------------------|--|
| Testing Device | ASTM F1936 Apparatus TRIAx 2010 Data Acquisition | Test Method | ASTM F1936-10 ASTM F355 Procedure A |
| Install Date | 2007 estimated | Test Date | 09/09/2021 |
| Field Orientation | End A= South, End B = North | Primary Sport | Soccer |
| Product Info | Monofilament/Slit Film | Infill System | Rubber and Sand |
| Underlayment | American Wick (AWD) | Air Temp (° F) | 77 |
| Turf Cover % | n/a | Soil Moisture % | n/a |
| Humidity % | 10% | Weather Conditions | Sunny |
| Misc Field Notes | See observation section. | Technician | DD |

Location Map



| Loc # | Drop # | Gmax (g's) | Location Description | Gmax Avg (g's) | Infill Depth (mm) | Surface Temp (°F) |
|-------|--------|------------|--|----------------|-------------------|-------------------|
| 1 | 1 | 164 | Goal Line, End A, field centerline | 167 | 14 | 129 |
| | 2 | 166 | | | | |
| | 3 | 167 | | | | |
| 2 | 1 | 154 | 10 Yard Line, End A, 63 ft from field centerline to the Side C | 161 | 17 | 133 |
| | 2 | 161 | | | | |
| | 3 | 161 | | | | |
| 3 | 1 | 128 | 25 Yard Line End A, 40 ft from field centerline to Side C | 135 | 20 | 134 |
| | 2 | 133 | | | | |
| | 3 | 136 | | | | |
| 4 | 1 | 259 | field centerline | 284 | 8 | 134 |
| | 2 | 282 | | | | |
| | 3 | 285 | | | | |
| 5 | 1 | 143 | 25 Yard Line, East end, 63 ft from field centerline to Side D | 152 | 16 | 140 |
| | 2 | 151 | | | | |
| | 3 | 152 | | | | |
| 6 | 1 | 181 | 12 Yard Line, End B, field centerline | 189 | 12 | 140 |
| | 2 | 182 | | | | |
| | 3 | 196 | | | | |
| 7 | 1 | 144 | North Team area, Side D | 147 | 18 | 149 |
| | 2 | 145 | | | | |
| | 3 | 150 | | | | |
| 8 | 1 | 130 | 37 Yard Line, End B, 40 ft from the field centerline to Side C | 138 | 20 | 135 |
| | 2 | 136 | | | | |
| | 3 | 139 | | | | |
| 9 | 1 | 164 | 6 ft from Goal Line t, End A, field centerline | 171 | 14 | 134 |
| | 2 | 169 | | | | |
| | 3 | 173 | | | | |
| 10 | 1 | 171 | 6 ft from the back of Goal Line, End B centerline | 185 | 12 | 141 |
| | 2 | 183 | | | | |
| | 3 | 187 | | | | |
| | | | Averages: | 173 | 16 | 137 |

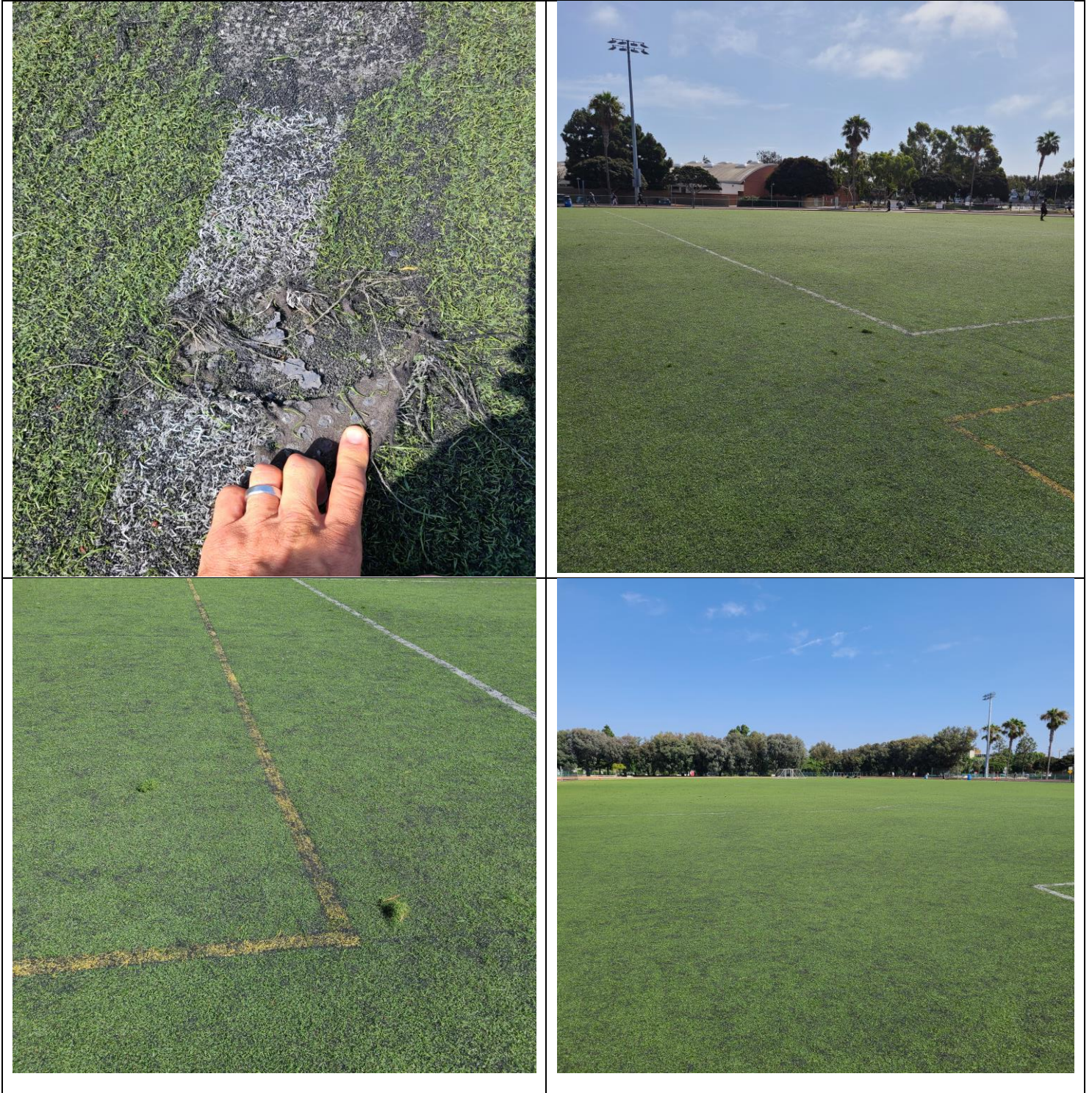


Observations:

During our site visit in performing testing we noticed many areas on the field that fall outside of the testing locations and are general observations of the field noted below.

1. There are locations in the goal mouths of the small sided soccer that are exposing the underlayment and destroying the integrity of the product below. These areas fall outside of our testing locations per ASTM requirements but would fail or come close to failing for safety. These locations need to be repaired immediately.
2. The surface has lost significant yarn and has lots of SBR rubber on the surface that players are interfacing with and playing directly upon. This can create a slicker surface for players creating more player to surface interaction than a field with uniform yarn heights.
3. The surface has a location over the ASTM 200 mark at location 4. This area needs to be closed until repair is completed.
4. The field in general has lost its ability to hold any additional infill, which would help to lower the fields overall average. I would not recommend adding infill at this time unless the Owner fully understands the impact to the players by creating a slick surface due to the yarn not having the ability to hold any additional infill at this time.
5. There is a tremendous amount of loose yarn all over the surface and around the site. With the site containment becoming a growing concern for field owners in respect to the impact it has on the storm water runoff and carrying plastic to the ocean overtime. This being an older field the lead levels of the yarn maybe exceeding the 50 – 100 PPM that most design and Municipality Owners require the yarns to comply with when purchasing new fields today. The lead and other chemicals in the yarn were not of high concern at the time this field was installed at its estimated date of 2007. The growing concern of the PFAS materials (plastic and rubber) leading to the ocean and storm water system in relation to this field, I would suggest that the field and site be cleaned of the yarn and excess rubber on the surface to ensure a better containment of the plastic fibers and rubber leaving the site. My concern would be with rubber removal to only happen around the site, as removing any surface rubber from this field will only increase the hardness at this point in time of the field's life.
6. The underlayment of the field from our experience due to the age of the field and product material makeup will need to be replaced with the turf system. The material may not survive the removal process and the uplifting to regrade the base then re-installation. The Owner should be prepared to install a new underlayment when the replacement time occurs.
7. The field estimated installation date is 2007. The age would be close to 14 years old. From our observations in testing fields and building fields in California this product has seen its time and I would suggest that replacement of the surface be completed sooner than later at this time.

Site Photos:



End of Report