CP Futsal

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There is currently no open space suitable for the children to play and run around.
Our part is to design a futsal court that will be used by the Cumberland Pointe children.
This will provide a positive outlet for the children to express themselves and spend their time.
We have partnered with AROMA, WBCM for this project.
Successful solution:

- Stormwater Management System
- Construction Drawings
- Fundraising Renderings
- Field Design
Site Breakdown
We have worked on this project since it began
Our mission is to finish it this spring
Site Survey & Earthwork Estimation

-Multiple site plan surveys performed

-Over 80 surveying points were taken
Retaining Wall Details

Southeast Wall: 0 ft above slab

Southwest Wall: 4 ft above slab

West Wall: 4 ft below slab
Retaining Wall

- 6 inch tall blocks
- 4 foot high wall
- 1 ½ in set back between levels
- Gravel drainage system
Fencing System

Fencing Layout with 25’ polls

Poles sunk 1/3 of total length, 8.3 feet, with concrete reinforcement.

Hydraulic Earth Drill
Nylon Mesh

*Square* – no rope border
  needed, less give with
  soccer ball impact

*Diamond* – needs rope
  border, withstands impact
  better
Stormwater Management

- Adding impervious area that we need to account for in terms of stormwater management
- We need to account for 1110 ft$^3$
- 4 step design plan

<table>
<thead>
<tr>
<th>Design Aspect</th>
<th>Volume Accounted For (ft$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 PA Native Trees</td>
<td>277</td>
</tr>
<tr>
<td>94' Infiltration Trench</td>
<td>150</td>
</tr>
<tr>
<td>25'x35' Upper Infiltration Bed</td>
<td>525</td>
</tr>
<tr>
<td>8'x53' Lower Infiltration Bed</td>
<td>250</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1202</strong></td>
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</tbody>
</table>
Infiltration Trench
30 Native Trees
Upper Infiltration Bed
Lower Infiltration Bed
Stormwater Management Plan
# Construction Cost Estimation

<table>
<thead>
<tr>
<th>Item</th>
<th>Lowest Cost</th>
<th>Highest Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fencing / Nets</td>
<td>$3,700</td>
<td>$5,700</td>
</tr>
<tr>
<td>Stormwater System</td>
<td>$11,000</td>
<td>$12,000</td>
</tr>
<tr>
<td>Retaining Wall</td>
<td>$2,500</td>
<td>$3,000</td>
</tr>
<tr>
<td>Concrete Slab</td>
<td>$12,000</td>
<td>$12,700</td>
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<tr>
<td>Playing Surface</td>
<td>$12,348</td>
<td>$14,406</td>
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<tr>
<td>Permit</td>
<td>$35</td>
<td>$35</td>
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<tr>
<td>Equipment</td>
<td>$1,000</td>
<td>$1,500</td>
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<tr>
<td>Playing Boards</td>
<td>$2,000</td>
<td>$16,000</td>
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<tr>
<td>Earth Work</td>
<td>$2,500</td>
<td>$5,000</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$47,083</strong></td>
<td><strong>$70,341</strong></td>
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</tbody>
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Fundraising Rendering
Acknowledgements

- Dr. Brian Swartz - for his support of Symposium
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- Joshua Weidler - for developing our professional engineering skills
Questions?