

GENERAL DESIGN REQUIREMENTS

DESIGN DIMENSIONS SHALL COMPLY WITH SPECIFICATIONS IN ANSI/NSPI 5 RESIDENTIAL IN-GROUND SWIMMING POOLS BASED ON THE POOL TYPE AND NSPI 3 PERMANENTLY INSTALLED RESIDENTIAL SPAS  
SLIDES SHALL MEET THE MANUFACTURER'S INSTALLATION REQUIREMENTS  
ENTRY/EXIT SHALL COMPLY WITH ANSI/NSPI 5 AND NSPI 3 LADDERS, UNDERWATER SEATS, AND SWIM OUTS (MAX 20" BELOW WATER)  
CIRCULATION SYSTEMS, COMPONENTS AND EQUIPMENT SHALL COMPLY WITH NSF 50  
THE MAXIMUM TURNOVER TIME IS 12 HOURS  
FILTERS SHALL HAVE AN AIR RELIEF AND PRESSURE GAUGE  
PUMPS 3 HP AND LESS SHALL MEET ANSI/UL1081, CORROSION RESISTANT WITH STRAINER AND MEET THE REQUIRED FLOW SURFACE SKIMMERS SHALL MEET NSF 50 AND THERE SHALL BE ONE FOR EVERY 800 SQUARE FEET OF SURFACE AREA  
RETURN INLETS SHALL BE A MINIMUM OF ONE FOR EVERY 300 SQUARE FEET  
HEATERS SHALL MEET ANSI-Z21 56 OR UL1261 OR UL559  
DISINFECTANT EQUIPMENT SHALL COMPLY WITH NSF 50  
PRESSURE TEST PIPING AT 35 PSI FOR 15 MINUTES

The following codes are to be met where required

Florida Building Code - Residential 2023, 8th Ed.  
Chapter 42 and Chapter 45 Section R4501  
Florida Building Code - Mechanical 2023, 8th Ed  
Florida Building Code - Plumbing 2023, 8th Ed  
Florida Building Code - Fuel Gas 2023, 8th Ed  
2020 National Electric Code  
ANSI/NSPI/ICC 3-14, ANSI/NSPI/ICC 4-12,  
ANSI/NSPI/ICC 5-12, ANSI/NSPI/ICC 6-13,  
ANSI/NSPI/ICC 7-20, ANSI/APSP/ICC 15-21  
ANSI/APSP/ICC 5-11, ANSI/APSP/ICC 7-13

SPECIAL SPA REQUIREMENTS

ELECTRICAL REQUIREMENTS

WIRING AND BONDING AND ALL ELECTRICAL TO NEC 2017 ART 680 OR LOCAL CODE NO OUTLET OR OVERHEAD POWER WITHIN 10' IF WITHIN 15' PROTECT BY GFI TRANSFORMER MIN 10' FROM POOL 8" ABOVE WATER J BOX 4' FROM POOL BRASS TO J BOX OR TRANSFORMER WHICH EVER IS FIRST EXCEPT WHERE PVC IS APPROVED

EQUIPOTENTIAL BONDING GRID TO BE ACCOMPLISHED PER THE NEC 2020, SECTION 680 26(B)(1)(b)

CONSTRUCTION NOTES

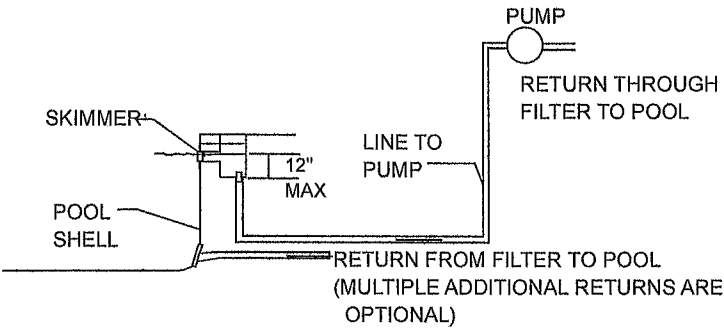
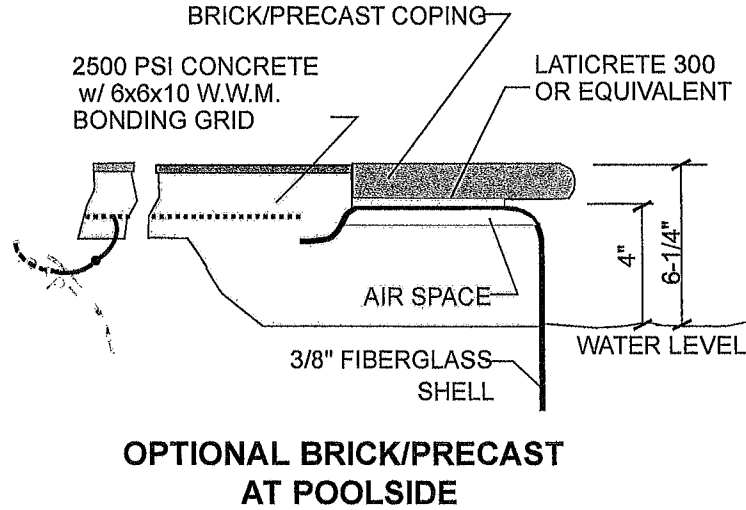
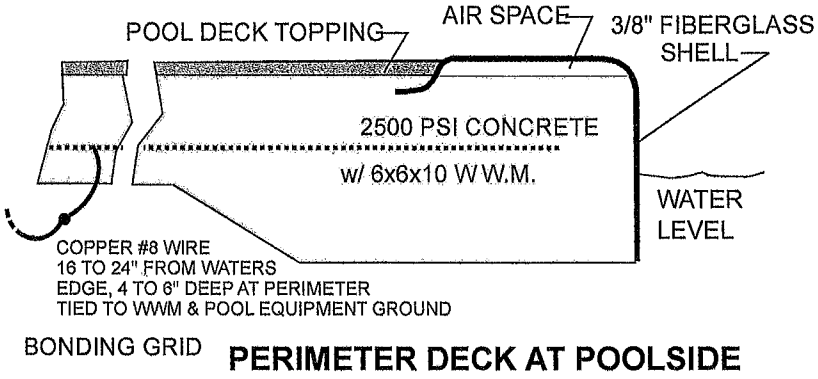
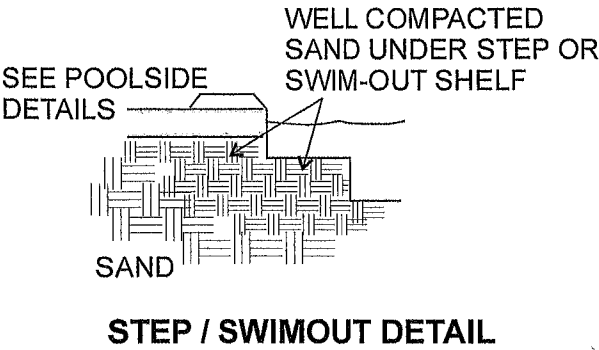
SLAB & FOOTING: 2500 PSI CONCRETE

ADDITIONAL NOTES

- 1 POOL INSTALLATION SHALL BE BY A LICENSED POOL CONTRACTOR
- 2 TYPICAL PROPERTIES OF A REINFORCED FIBERGLASS POOL  
BARCOL HARDNESS OF 30 MIL GEL COAT 30 - 40  
GLASS CONTENT BY WEIGHT 37%  
TENSILE STRENGTH, PSI AT 77°F 13,400  
TENSILE ELONGATION 1 - 2%  
FLEXURAL STRENGTH, PSI AT 77°F 900,000 - 1,000,000  
FLEXURAL MODULUS PSI X 10 AT 77°F 0.72 - 0.77  
1200 IMPACT FT-LBS/ INCH OF NOTCH 5.9  
COMPRESSIVE STRENGTH, PSI 25000 - 38000  
TYPICAL THICKNESS, INCHES 1/4" TO 3/8" AVG.
3. POOL SHELL SHALL BEAR ON UNDISTURBED SOIL FREE OF PEAT, MUCK, OR OTHER DELETERIOUS MATERIAL OF ANY SIGNIFICANT AMOUNT
- 4 BACKFILL MATERIAL MUST NOT CONTAIN ROCKS OR OTHER MATERIALS THAT COULD DAMAGE POOL WALLS
- 5 PUMP AND FILTRATION SHALL BE DESIGNED FOR WATER TURNOVER OF 12 HOURS, MAXIMUM

ADDITIONAL NOTES (CONT.)

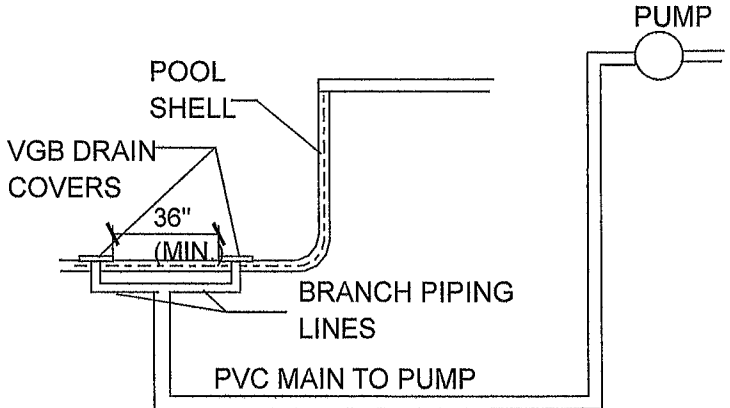
- 6 STEPS SHALL BE PROVIDED AT THE SHALLOW END OF THE POOL
- 7 LADDERS ARE TO BE PROVIDED IN POOLS WITH GREATER THAN 5' DEPTH WITHOUT SWIM OUTS
8. INSTALL LOW VOLTAGE LIGHT PER NEC 2020, SECTION 680.
- 9 DIVING PLATFORMS OR DIVING BOARDS ARE NOT TO BE INSTALLED ON POOLS
10. POOL SHALL NOT BE DRAINED WITHOUT CONSULTING POOL CONTRACTOR OR ENGINEER
- 11 ALL GLASS WITHIN 5' OF WATERS EDGE SHALL COMPLY BUILDING CODE REQUIREMENTS
- 12 TWO SPEED OR VARIABLE SPEED PUMP IS REQUIRED TO MEET ANSI/APSP 15-11



SUCTION PIPEWORK DIAGRAM FOR SKIMMER MAIN RETURN SYSTEM

BUILDER SHALL PROVIDE SCHEMATIC PLUMBING DIAGRAM AND TDH CALCULATIONS IF MAIN DRAIN ARE USED (PLUMBING AND INSTALLATION SHALL MEET REQUIREMENTS OF ANSI/APSP 7-13 AND ANSI/APSP 15-11 )

DUAL DRAINS / MAIN DRAINS ARE OPTIONAL CIRCULATION AND CLEANING BY DESIGN ARE TO BE ACCOMPLISHED WITH SKIMMER AND VACUUM LINE

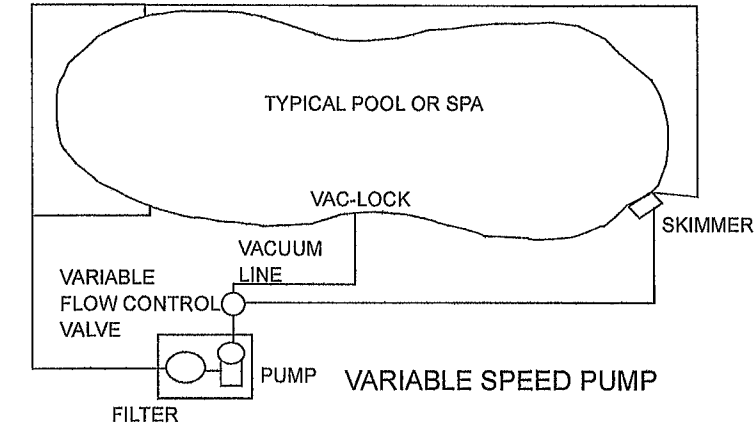
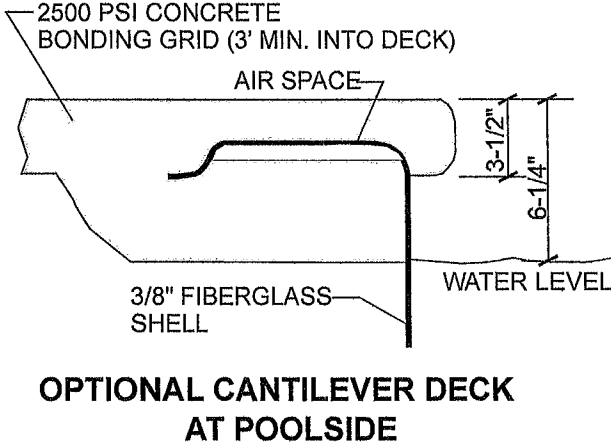
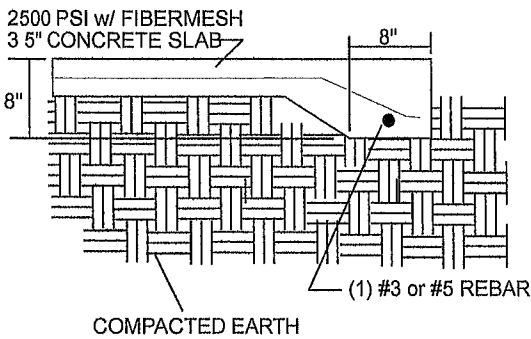
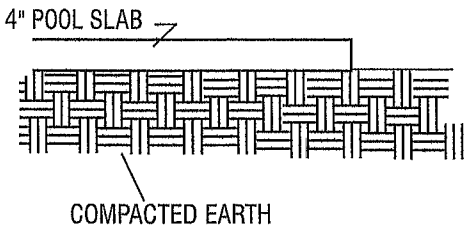


DUAL DRAINS SEE ANSI/APSP/ICC 7-20

MAXIMUM VELOCITY IN SUCTION LINES SHALL BE 8 FPS  
MAXIMUM VELOCITY IN PRESSURE LINES SHALL BE 8 FPS.

DRAIN COVER MUST MEET ASME/ANSI A112.19.8 (OR EQUIVALENT)  
MAXIMUM FLOW IN BRANCH LINES IS NORMALLY 3 FPS  
WITH ONE DRAIN STOPPED FLOW WILL NOT EXCEED 6 FPS IN OTHER BRANCH LINE  
DRAINS MAY BE ON SIDE WALLS OR BOTTOM OF POOL SHELL

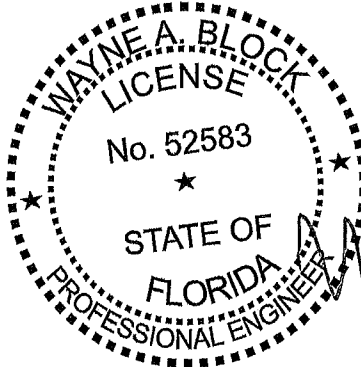
SLAB AND FOOTINGS 2500 PSI CONCRETE GRADE 40 REBAR



BUILDER SHALL PROVIDE SCHEMATIC PLUMBING DIAGRAM WHERE REQUIRED.

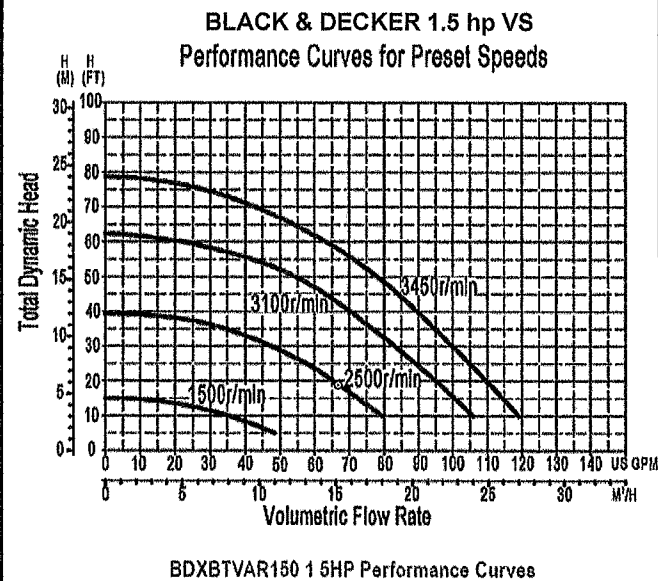
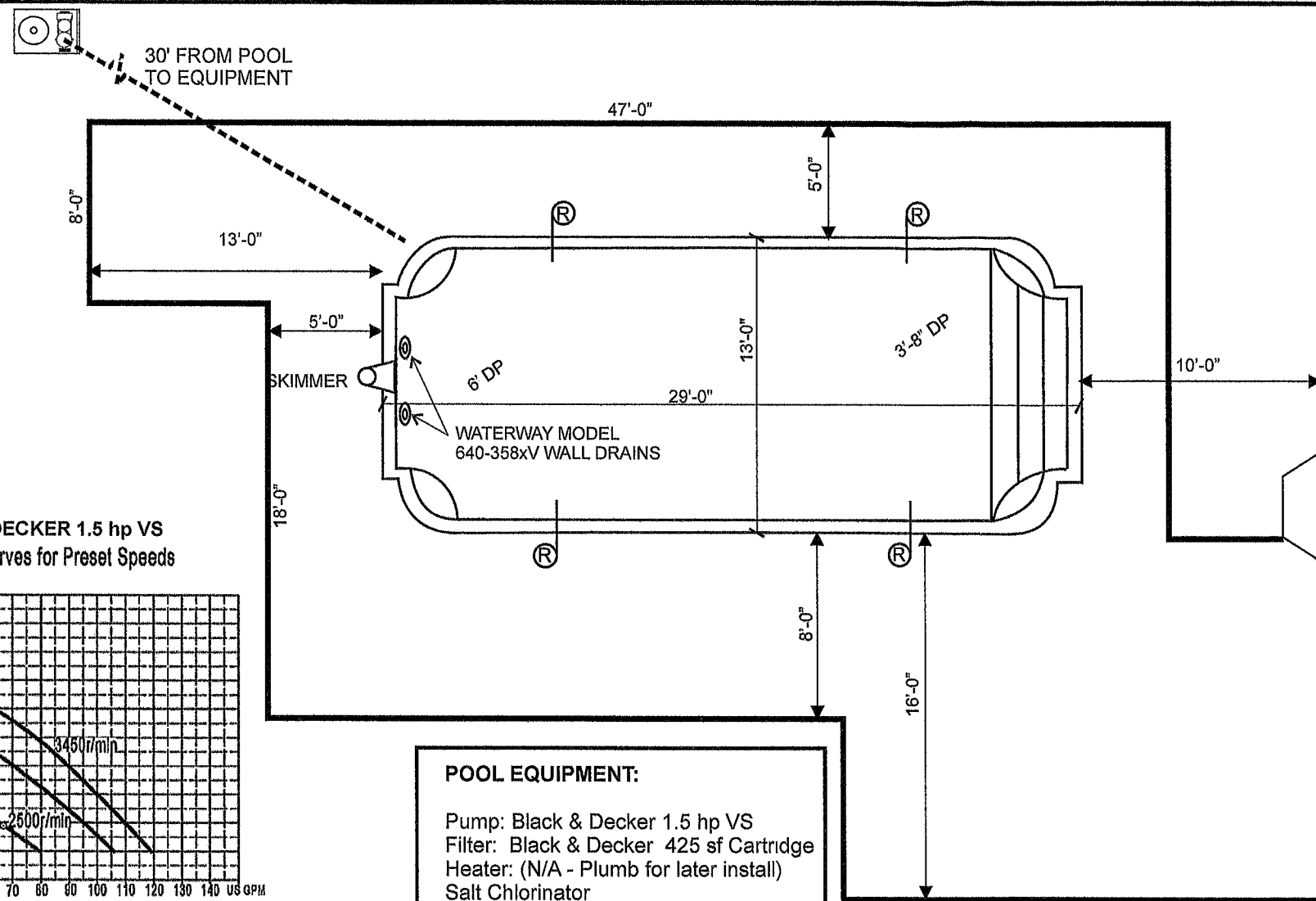
CONTRACTOR:

OWNER:  
CHRISTOPHER SCHULT  
245 SW PLANTATION TER  
LAKE CITY, FL 32025



Lildon Engineering Company, Inc.  
548 S Hwy 27, Suite B  
Minneola, Florida 34715  
(352) 394-2590  
Cert. Auth. #2898

Oct. 10, 2025  
Wayne A. Block, PE 52583



**POOL EQUIPMENT:**

Pump: Black & Decker 1.5 hp VS  
Filter: Black & Decker 425 sf Cartridge  
Heater: (N/A - Plumb for later install)  
Salt Chlorinator

2" Return lines  
2" Suction lines  
2.5" Branch lines to main drains

### TDH CALCULATIONS

## POOL VOLUME CALCULATION

|               |       |
|---------------|-------|
| AREA, SQ. FT. | 336   |
| AVG. D, FT.   | 3.75  |
| VOLUME, GAL.  | 9,425 |

DESIGN FLOW RATE

|                    |      |
|--------------------|------|
| TURNOVER TIME, HRS | 2 33 |
| FLOW RATE, gpm     | 67 4 |

### EFFECTIVE PIPE LENGTHS AND HEAD LOSSES

|                              | LENGTH, FT | HEAD LOSS AT DESIGN FLOW, ft |
|------------------------------|------------|------------------------------|
| 2" DIA RETURN LINE           | 133        | 11                           |
| 2" DIA SUCTION LINE TO DRAIN | 42         | 3                            |
| FILTER                       |            | 1                            |
| INLINE CHLORINATOR           |            | 1                            |
| VALVES                       |            | 2                            |
| <b>TOTAL TDH, ft</b>         |            | <b>18</b>                    |

NOTE. MAX FLOW IN BRANCH (DIRECT LINES TO DRAINS)  
WILL NOT EXCEED 6 fps WITH ONE SIDE BLOCKED  
MAX FLOW IN TRUNK LINE WILL NOT EXCEED 8 fps  
MAX FLOW IN RETURN LINE WILL NOT EXCEED 8 fps

## FRICTION LOSS TABLE

FRICION LOSSES TABULATED ARE FT. OF WATER / FT OF PVC PIPE

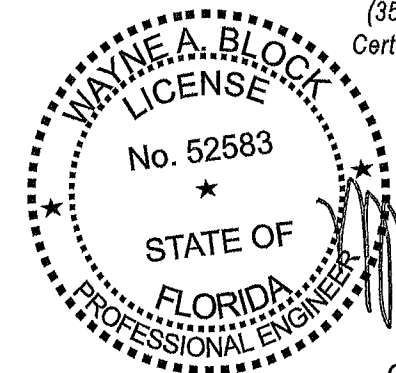
|                | 1.5" PVC      |                     |               | 2" PVC              |               |                     | 2.5" PVC      |                     |               | 3" PVC              |               |                     | 4" PVC |  |  |
|----------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|---------------------|--------|--|--|
| flow rate, gpm | Velocity, fps | friction loss ft/ft | Velocity, fps | friction loss ft/ft | Velocity, fps | friction loss ft/ft | Velocity, fps | friction loss ft/ft | Velocity, fps | friction loss ft/ft | Velocity, fps | friction loss ft/ft |        |  |  |
| 35             | 6.3           | 0.098               | 3.6           | 0.024               | 2.3           | 0.008               | 1.6           | 0.003               | 0.9           | 0.001               |               |                     |        |  |  |
| 40             | 7.3           | 0.126               | 4.1           | 0.031               | 2.6           | 0.01                | 1.8           | 0.004               | 1.0           | 0.001               |               |                     |        |  |  |
| 45             | 8.2           | 0.157               | 4.6           | 0.039               | 2.9           | 0.013               | 2.0           | 0.005               | 1.1           | 0.001               |               |                     |        |  |  |
| 50             | 9.1           | 0.19                | 5.1           | 0.047               | 3.3           | 0.016               | 2.3           | 0.007               | 1.3           | 0.002               |               |                     |        |  |  |
| 55             | 10.0          | 0.22                | 5.6           | 0.056               | 3.6           | 0.019               | 2.5           | 0.008               | 1.4           | 0.002               |               |                     |        |  |  |
| 60             | 10.9          | 0.27                | 6.1           | 0.066               | 3.9           | 0.022               | 2.7           | 0.009               | 1.5           | 0.002               |               |                     |        |  |  |
| 70             | 12.7          | 0.35                | 7.1           | 0.087               | 4.6           | 0.03                | 3.2           | 0.012               | 1.8           | 0.003               |               |                     |        |  |  |
| 80             | 14.5          | 0.45                | 8.2           | 0.11                | 5.2           | 0.038               | 3.6           | 0.016               | 2.0           | 0.004               |               |                     |        |  |  |
| 90             | 16.3          | 0.56                | 9.2           | 0.14                | 5.9           | 0.047               | 4.1           | 0.019               | 2.3           | 0.005               |               |                     |        |  |  |
| 100            | 18.1          | 0.69                | 10.2          | 0.17                | 6.5           | 0.057               | 4.5           | 0.024               | 2.6           | 0.006               |               |                     |        |  |  |
| 110            | 19.9          | 0.82                | 11.2          | 0.19                | 7.2           | 0.068               | 5.0           | 0.029               | 2.8           | 0.007               |               |                     |        |  |  |
| 120            | 21.8          | 0.96                | 12.2          | 0.22                | 7.8           | 0.081               | 5.4           | 0.035               | 3.1           | 0.008               |               |                     |        |  |  |
| 130            | 23.6          | 1.13                | 13.3          | 0.26                | 8.5           | 0.095               | 5.9           | 0.045               | 3.3           | 0.009               |               |                     |        |  |  |
| 150            | 27.2          | 1.33                | 15.3          | 0.31                | 9.8           | 0.11                | 6.8           | 0.057               | 3.8           | 0.011               |               |                     |        |  |  |
| 170            | 30.8          | 1.63                | 17.3          | 0.37                | 11.1          | 0.28                | 7.7           | 0.072               | 4.3           | 0.014               |               |                     |        |  |  |

**BUILDER:**

**OWNER:**

CHRISTOPHER SCHULTD  
245 SW PLANTATION TER  
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