



## DESIGN GUIDE



[www.helixlifesupport.com](http://www.helixlifesupport.com)



# How to Use the Helix Design Guide

The Helix Life Support Design Guide was created to help homeowners and contractors understand the different pond construction techniques and philosophies that are standard practice in the pond industry today.

When outlining the goals and expectations of your pond before building, you can determine the type of pond construction that best fits your desires. The schematics in the following pages along with the specifications and philosophies will help you understand the different pond construction styles and maintenance requirements.

The Helix Design Guide should be used as a reference to help determine which pond meets your goals and expectations. The schematics in the following pages do not encompass all of the possibilities and pond design configurations.

Consult with your Authorized Helix Retailer or an Authorized Helix Contractor who can answer questions regarding your specific design.

Life is Short, Enjoy Koi!



## COLOR INDEX



HELIX FILTRATION FLOW LINES



HELIX MAINTENANCE WASTE LINES



HELIX AIR FLOW LINES





AWARD WINNING  
**INNOVATIVE**  
**DURABLE**  
**COMPACT**  
FISH FRIENDLY



*Floating Bio Media*



**Moving Bed Waterfall Filter**

Self-Cleaning  
Manage Huge Fish Loads  
Grow Your Koi Huge

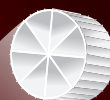


Patent Pending



**Helix Pond Skimmer**

Fish-Friendly  
Compact Footprint  
2012 Pond Product of the Year



**Bio-Mech Reactor**

Easy to Service  
Easy Installation  
Air Assist Clean Cycle

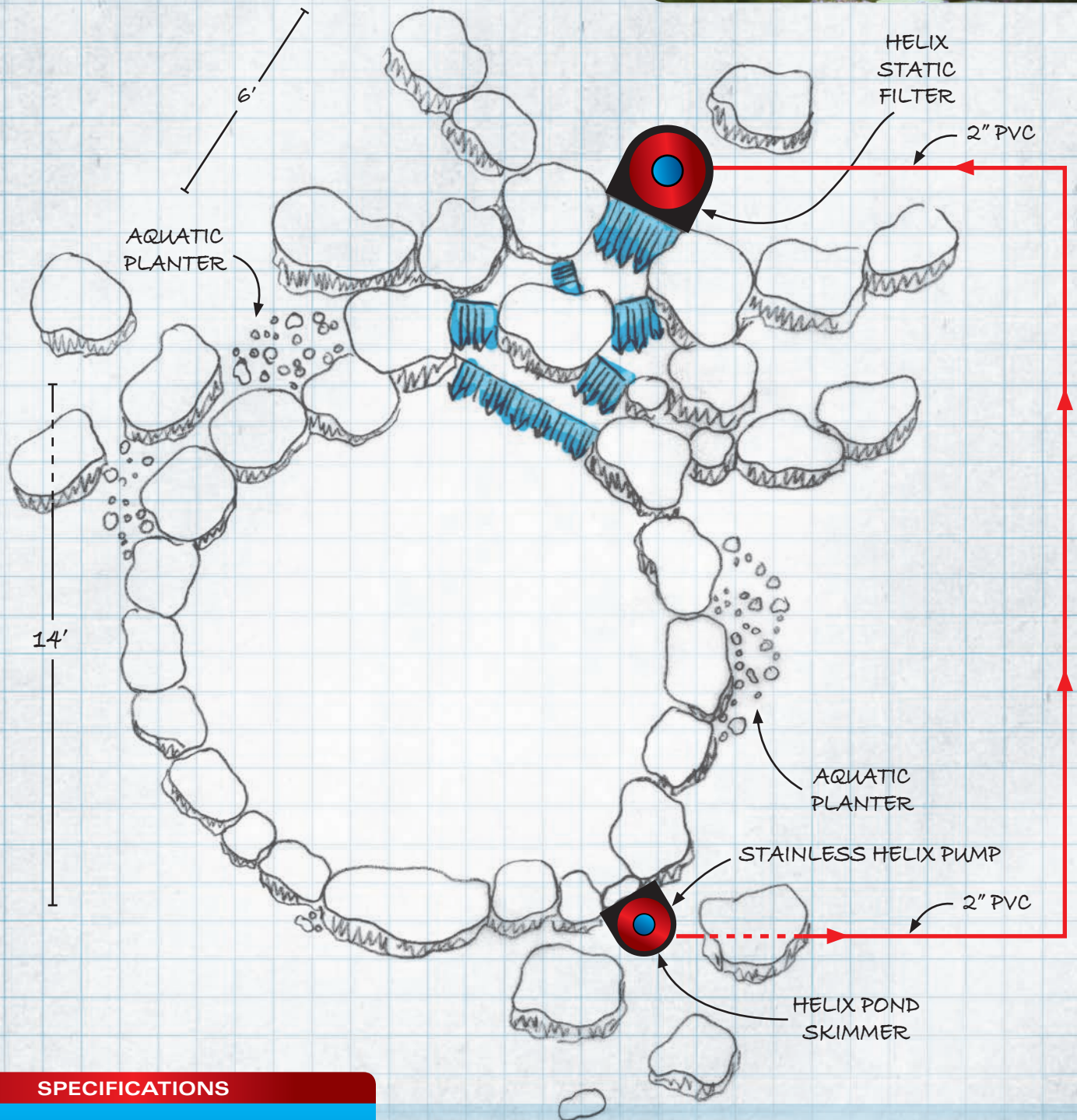
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## WATER GARDEN



### SPECIFICATIONS

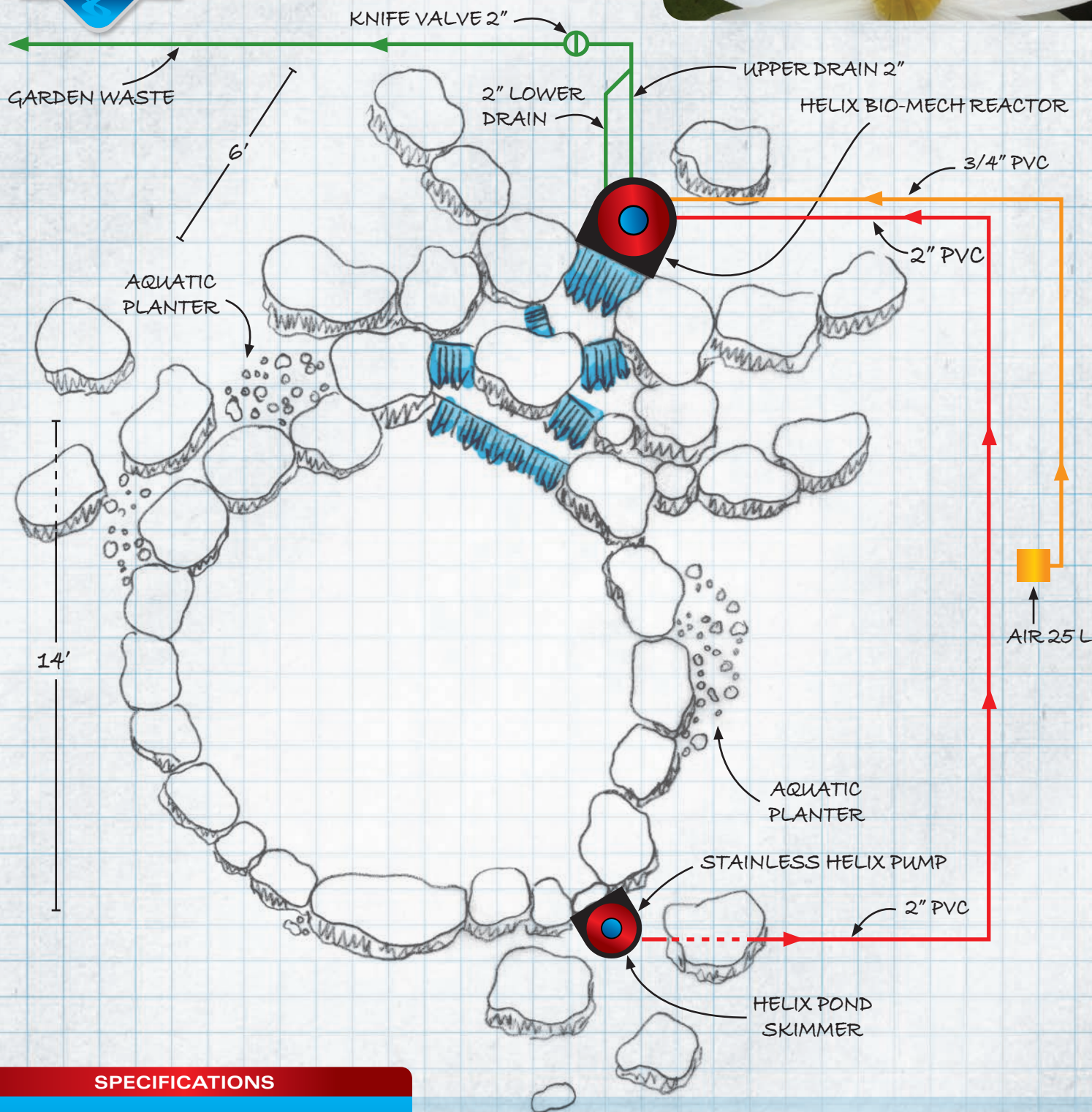
- Helix Pond Skimmer
- Helix Static Filter
- Helix Submersible Pump
- Rocks & Gravel
- Aquatic Plants
- Fish

**Water Garden Pond Philosophy** – This is a fantastic low maintenance pond that relies on Mother Nature to help manage water quality with aquatic plants and weekly additions of beneficial bacteria. This low maintenance pond requires simple weekly maintenance and minimal quarterly maintenance. An annual drain is recommended to thin aquatic plants and thoroughly clean the gravel bed on the floor of the pond. The water garden pond is typically 18" to 24" deep. We recommend stocking the pond conservatively with goldfish and/or small koi. This pond is not suitable for large adult koi as a long-term habitat.





## ADVANCED WATER GARDEN / ECOSYSTEM POND



### SPECIFICATIONS

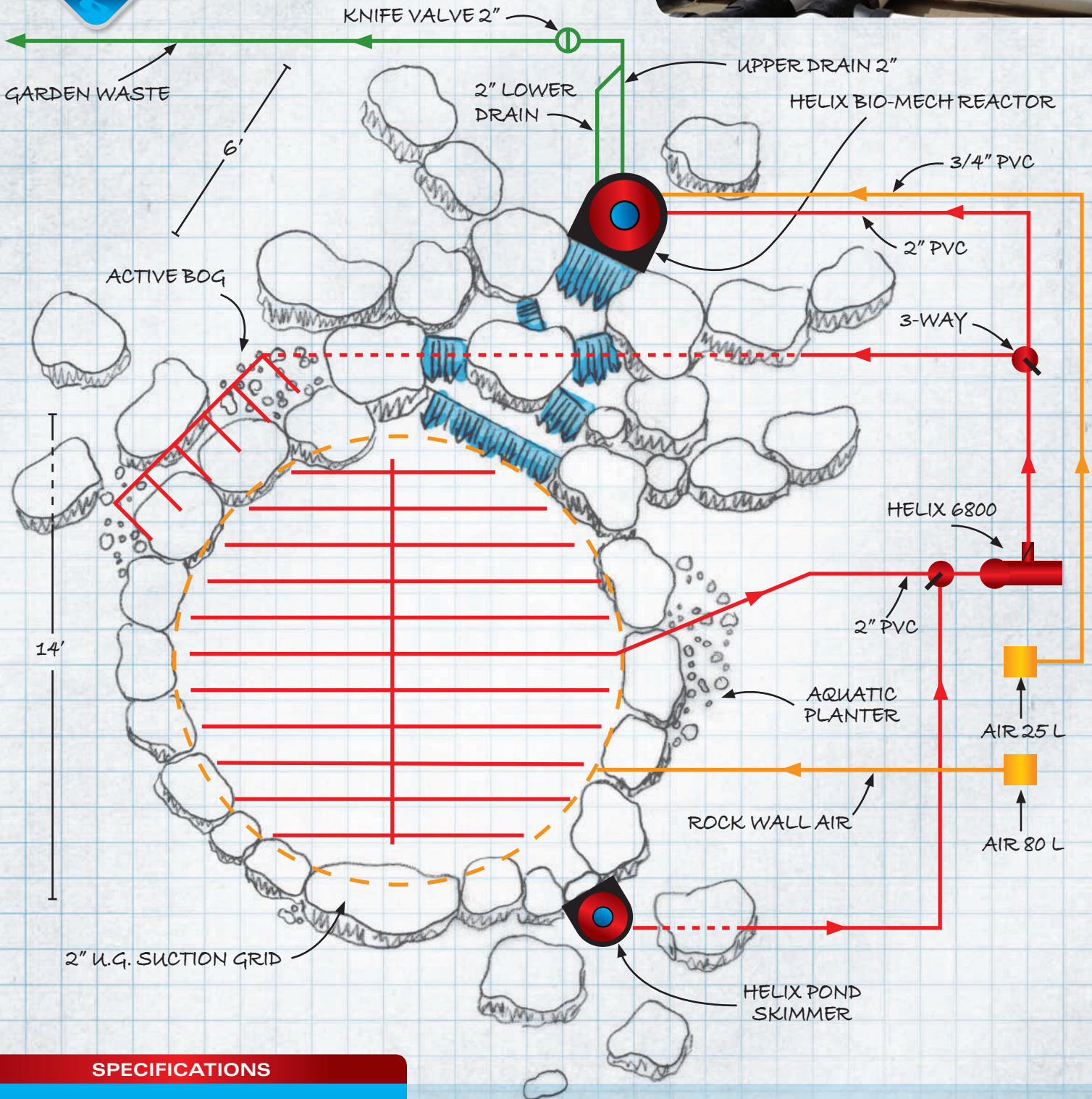
- Helix Pond Skimmer
- Helix Bio-Mech Reactor
- Helix Submersible Pump
- Rocks & Gravel
- Aquatic Plants
- Fish
- Aeration

**Advanced Water Garden / Ecosystem Pond Philosophy** – As the water garden owner becomes more infatuated with the hobby and outdoor lifestyle, the pond owner has increased goals and expectations. By simply increasing the bio filtration and adding aeration to the pond, this creates better water quality for the inhabitants such as koi, goldfish, turtles, minnows and algae eaters. The pond maintenance will remain the same with simple weekly maintenance; minimal quarterly maintenance and an annual draining is recommended to thin aquatic plants and thoroughly clean the gravel bed.





## ADVANCED UNDER GRAVEL SUCTION GRID ECOSYSTEM



### SPECIFICATIONS

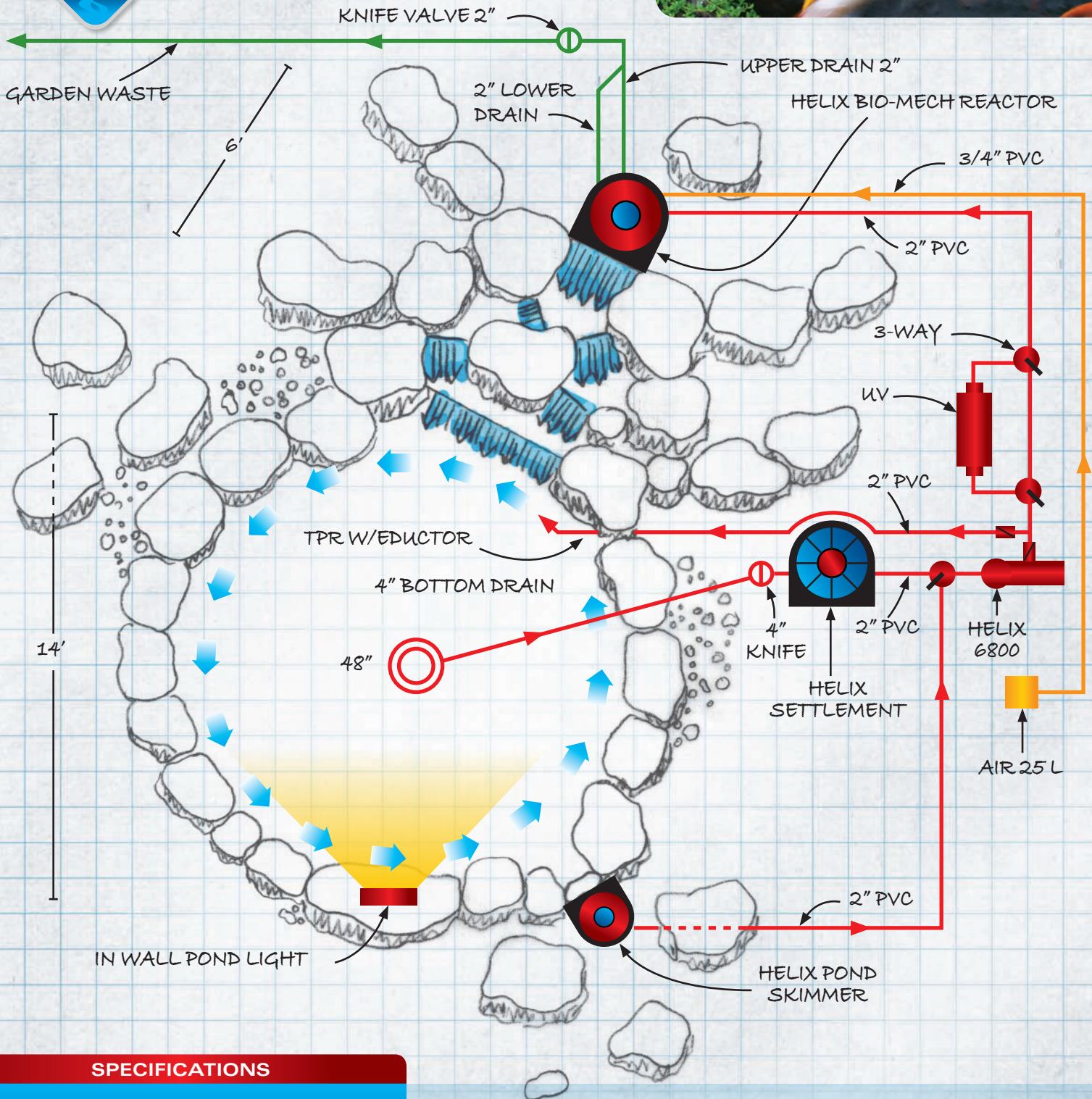
- Helix Pond Skimmer
- Helix Bio-Mech Reactor
- Helix External Pump
- Rocks & Gravel
- Aquatic Plants
- Fish
- 30" to 36" minimum Depth
- Under Gravel Suction Grid
- Aeration
- Active Aquatic Bog Filter

**Advanced Undergravel Suction Grid Ecosystem Pond Philosophy** – The Pond with an Under Gravel Suction Grid greatly improves water clarity and water quality, reduces annual maintenance and allows the homeowner to stock the pond with larger fish populations. The entire floor of this pond becomes a living bio-filter and digests debris that settles to the bottom of the pond. This is a very low maintenance pond, requiring simple weekly maintenance and minimal quarterly maintenance including thinning out aquatic plants in the active bog filter. Annual draining is NOT required for deep cleaning. This pond is suitable for large koi as a long-term habitat.





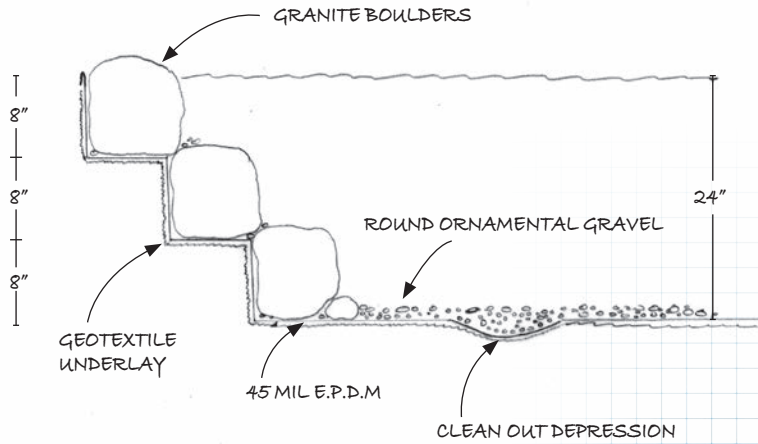
## DEDICATED KOI POND



### SPECIFICATIONS

- Minimum 4' Depth
- NO Rocks
- NO Gravel
- NO Aquatic Plants
- Remote Area for Filtration
- Bottom Drain
- Helix Pond Skimmer
- Helix Settlement Tank
- Helix Bio-Mech Reactor
- Helix External Pump
- Ultra-Violet Clarifier
- Aeration

**Dedicated Koi Pond Philosophy** – This pond is designed with the sole purpose of showcasing koi fish without distraction and creating an environment that does not require annual draining of the pond. The Dedicated Koi pond relies on the use of technology to manage water quality. The main objective is to remove all organic waste and solids from the pond via skimmers & bottom drains. Once the solid waste is removed and separated from the water column, clear water is processed in the bio-filter, run through a UV clarifier and returned to the pond. The Dedicated Koi Pond requires 15 to 30 minutes of maintenance each week and does not require an annual draining for deep cleaning.



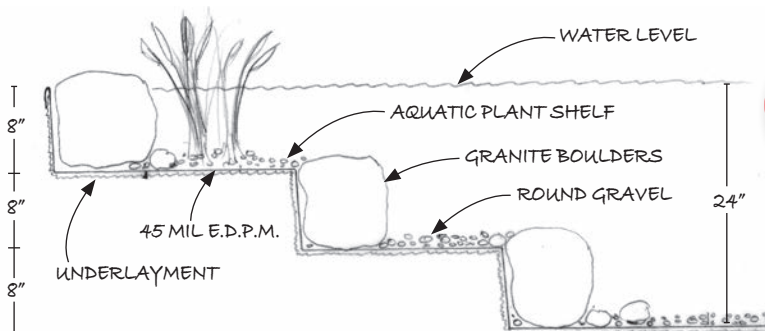
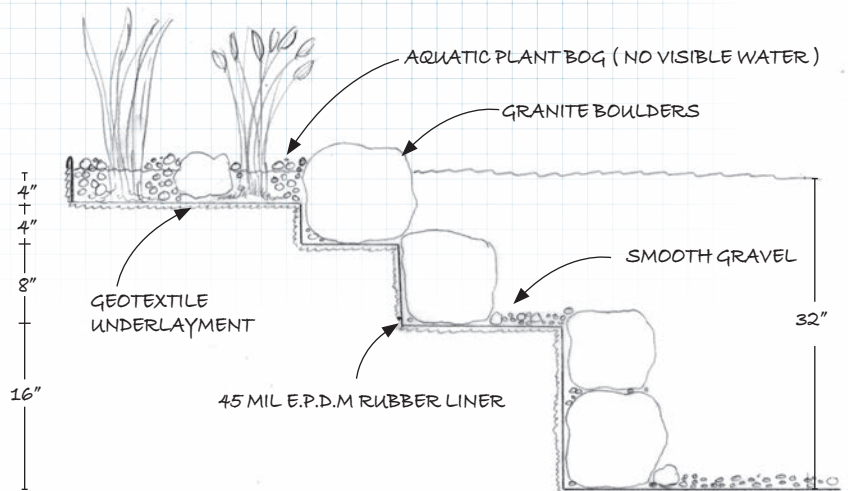
## Detail A

**Clean Out Depression** – Notice in this cross section detail the Clean Out depression in the bottom of the pond's floor. If you take the time to create this clean out depression during your excavation, it will make your annual pond clean out more efficient. Once the pond is nearly empty, during your clean out, you would simply move the gravel out of the pocket and place your clean out pump in this depression. By placing your clean out pump in this depression you will have an easier time removing all the dirty water from the pond.



## Detail B

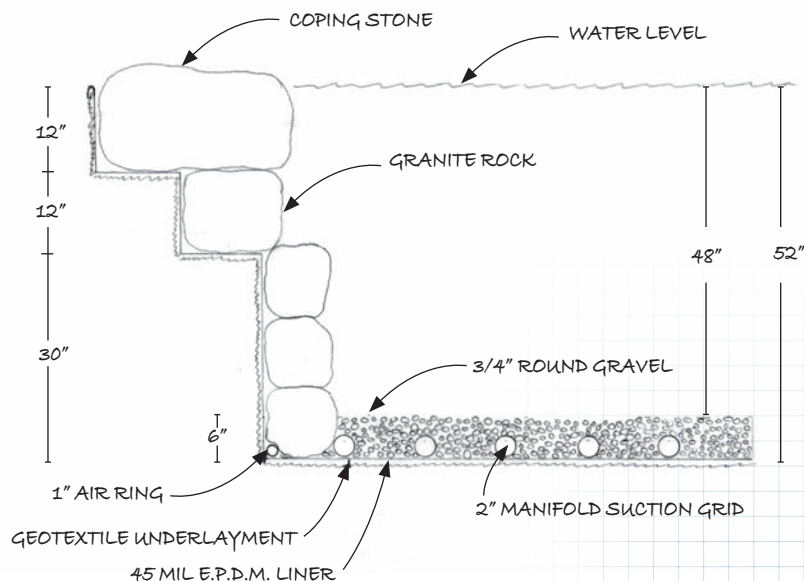
**Static Bog Plant Shelf** – This is a great method for naturalizing the edge treatment of your pond. By extending the excavation beyond some of the coping stones you can create Aquatic Planters. Once the aquatic plants are installed you simply add gravel to one inch above level of water. This will give the appearance that the aquatic plants are growing on the outside of the pond but will actually be contained inside the lining of the pond. You never need to water these marginal plants and it makes the pond look extremely natural.



## Detail C

**Aquatic Plant Shelf** – When you plan on installing aquatic plants on the inside of the pond, it's important to provide an adequate sized shelf to support a nice grouping of specimen plants. Notice in Detail A there is not room to support a nice sized specimen plant. When excavating a water garden ecosystem pond we will typically mix these excavation details up in the design.





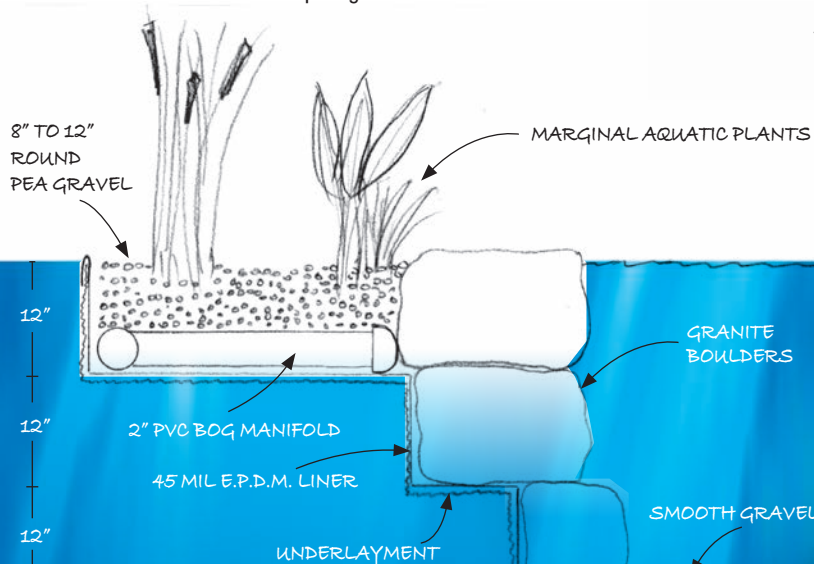
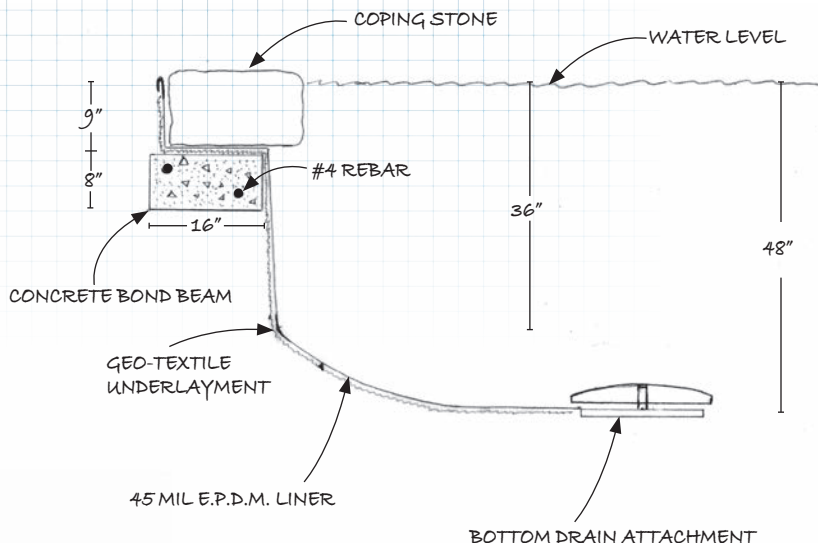
## Detail D

**Under Gravel Suction Grid** – When installing an under gravel suction grid we are typically using a 2" manifold assembly for the suction grid with a series of three 3/8" holes every 6" across the bottom of the suction grid. We recommend using a 6" layer of 3/4" ROUND gravel covering the top of the suction grid by approximately 2". All ends of the manifold will be capped and each cap will have one 3/8" hole drilled at the bottom side of the cap.



## Detail E

**Dedicated Koi Pond** – Since the Dedicated Koi Pond will not have any rocks to support the walls of excavation we suggest taking proper measures to create support for your coping stones so the edges of your pond do not collapse. In this case we have described a concrete bond beam around the perimeter of the pond to support large coping stones that will frame the water's edge. Notice the excavation is different than all the other excavation details with a curved bottom wall transition that tapers towards a bottom drain. This detail may not be necessary in all soil conditions and may not be adequate in sandy conditions or depths greater than 48".



## Detail F

**Active Bog Plant Shelf** – When installing an Active Bog Filter we want to have the same excavation detail as the Static Bog Plant Shelf in Detail B only a little deeper because we are making room for a manifold assembly of PVC pipe we will be installing at the bottom of the shelf. We will be pumping water into the bottom of the plant shelf and upflow water through the gravel bed and aquatic plant roots to greatly improve your pond's filtration capacity. The manifold assembly we build out similar to the Under Gravel Suction Grid Detail D. We recommend using ROUND ornamental gravel no smaller than 3/8" and no larger than 3/4". The depth of the gravel bed should be a minimum of 8" and maximum of 12".





## WATER GARDEN



### HELIX | *Equipment Punch List*

The Helix Life Support Equipment listed below is what you need to build a basic ecosystem water garden up to a couple thousand gallons.



Helix Pond Skimmer



Helix Static Waterfall Filter



Helix Submersible Pump

## ADVANCED UNDER GRAVEL SUCTION GRID



Helix Pond Skimmer

### HELIX | *Equipment Punch List*

The Helix Life Support Equipment listed below is the backbone of your filtration system for this pond. The suction grid will typically be built on location so it can be customized to the shape of your pond's floor.



Helix Bio-Mech Reactor



Helix External Pump



## ADVANCED WATER GARDEN / ECOSYSTEM POND



### HELIX | *Equipment Punch List*

The Helix Life Support Equipment below is what you will need to build an Advanced Water Garden / Ecosystem Pond. When installing this pond we would advise you to consider making the pond deeper than 2'.



Helix Pond Skimmer



Helix Bio-Mech Reactor



Helix Submersible Pump

## DEDICATED KOI POND



### HELIX | *Equipment Punch List*

The Helix Life Support Equipment listed below will be the main components you'll need for your pond dedicated to koi. The schematics are there for a guide but understand the equipment can be moved around to fit the layout of your property.



Helix Pond Skimmer



Helix Settlement Tank



Helix Bio-Mech Reactor



Helix External Pump



# TURN THIS



# INTO THIS!

For People Who Love Koi



Call 800-522-5043  
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