

RESIDENTIAL RAINWATER HARVESTING TEAM

TEAM ADVISOR: DR. JEFFREY HEIDERSCHEIDT

DATE: 09/16/16

SUBJECT: PROJECT OVERVIEW/RECAP

Item 1: Summer Progress

- Discuss project purpose and objectives. Go over scope of services.
- Discuss research items and calculations completed, or started over the summer break.

Item 2: Catchment Area

- Define catchment area specifications using construction detail plans.
- Discuss catchment area calculations to check for any errors.
- Discuss catchment volume data from City of Flagstaff Average Precipitation results.

Item 3: Gutter Design

- Ask Dr. H about what the most optimal way to convey the water from the roof area.
- Discuss with Dr. H the standards of practice for water conveyance and pipe networking.
- Discuss with Dr. H any municipality regulations or standards that could inhibit this project with regards to treatment facilities.

Item 4: First Flush Disinfection

- Define first flush disinfection and the various ways it operates.
- Show Dr. H the research conducted on this subject.
- How/where should this system be implemented to optimize the actual amount of water being conveyed.

RESIDENTIAL RAINWATER HARVESTING TEAM

TEAM ADVISOR: DR. JEFFREY HEIDERSCHEIDT

DATE: 10/12/16

SUBJECT: PROJECT OVERVIEW/RECAP

Item 1: First Flush Disinfection REMOVAL from Scope of Services

- Discuss proposal for first flush disinfection design.
- Discuss the immense cost it would require to implement.
- Ask Dr. H of any alternative methods.
- Propose the filtration device idea to replace the first flush disinfection.
- Discuss problems with the rain barrels.

Item 2: Cistern Volume Calculations

- Check cistern volume calculations, and method of calculations.
- The calculated volumes seemed VERY high. Make sure that they are correct!!

Item 3: Cistern Material Options

- Discuss the various types, shapes, sizes, and manufacturing locations.
- Ask Dr. H if he has any recommendations.
- Discuss cistern disinfection → chlorine

Item 4: Pipe Network Distribution

- Discuss with Dr. H the various types of pipes that would be appropriate for this design.
- PEX, PVC, Copper → what are the differences? Which ones can we use? Why?
- Discuss pipe layout options.

Item 5: Pump Location and Specifications

- Discuss the options for pump locations.
- Ask Dr. H for any recommendations.
- Ask Dr. H where we can find an appropriate pump, and what would be a good starting point.

Item 6: Pressure Tank Proposal

Dr. H proposed the idea of a centralized pressure tank that would distribute the water to the two bathroom locations and the irrigation spigot. He showed the team how the pressure tank would operate and proposed that the team look into it to reduce cost, and improve overall efficiency of the design.

RESIDENTIAL RAINWATER HARVESTING TEAM

TEAM ADVISOR: DR. JEFFREY HEIDERSCHIEDT

DATE: 11/04/16

SUBJECT: CISTERN, PRESSURE TANK, PUMP

Item 1: Cistern Volume Calculations

- Go over cistern volume calculations AGAIN. The initial area was incorrect. The initial volume calculation method was incorrect.
- Propose the 3,000 gallon concrete cistern with manhole extension options.
- Discuss using the filtration device as an overflow device.
- Show the selected filtration device and discuss and questions and concerns.

Item 2: Pressure Tank

- Discuss the pressure tank fittings and dimensions, and location.
- Discuss how the pressure tank operates again.
- Show the selected pressure tank with the specified fittings from Home Depot.
- Discuss pricing options.

Item 3: Geotechnical Evaluation

- Discuss how the results were inconclusive. DO NOT NEED.

Item 4: Pump Selection and Specification

- Discuss the pump the team selected to make sure it meets system requirements.
- Discuss the location of the pump. Under the house seems like the most likely option.

RESIDENTIAL RAINWATER HARVESTING TEAM

TEAM ADVISOR: DR. JEFFREY HEIDERSCHIEDT

DATE: 11/21/16

SUBJECT: PUMP REQUIREMENTS

Item 1: Pump Specifications

- Go over selected pump and system demand requirements.
- Discuss pump curve, and variables the team has questions about.
- Compare submersible pump, jet pump, shallow well pump, and irrigation pump.
- Discuss challenges and issues from last update presentation.
- Re-calculate NPSHR vs. NPSHA

Item 2: 50% Design Report

- Go over comments from report.
- Ask questions and clarify parts of the report that were confusing for the reader.

Item 3: Project Management

- Discuss the final presentation content.