

Background

To meet growing hospitality demand in San Marcos, SABA Engineering has been contracted to complete the land development for a 120-room hotel off I-35.

System Design

Stormwater Management

Storm-Sewer Network

Peak Flow Calculations

Drainage Area Map

Utility Design

Wastewater Capacity Study

Pipe Network Configuration

Water Fixture Table

Constraints and Standards

San Marcos Land Development Code

International Building Code

International Fire Code

TxDOT Guidelines

LEED Gold Certified

Site Plan

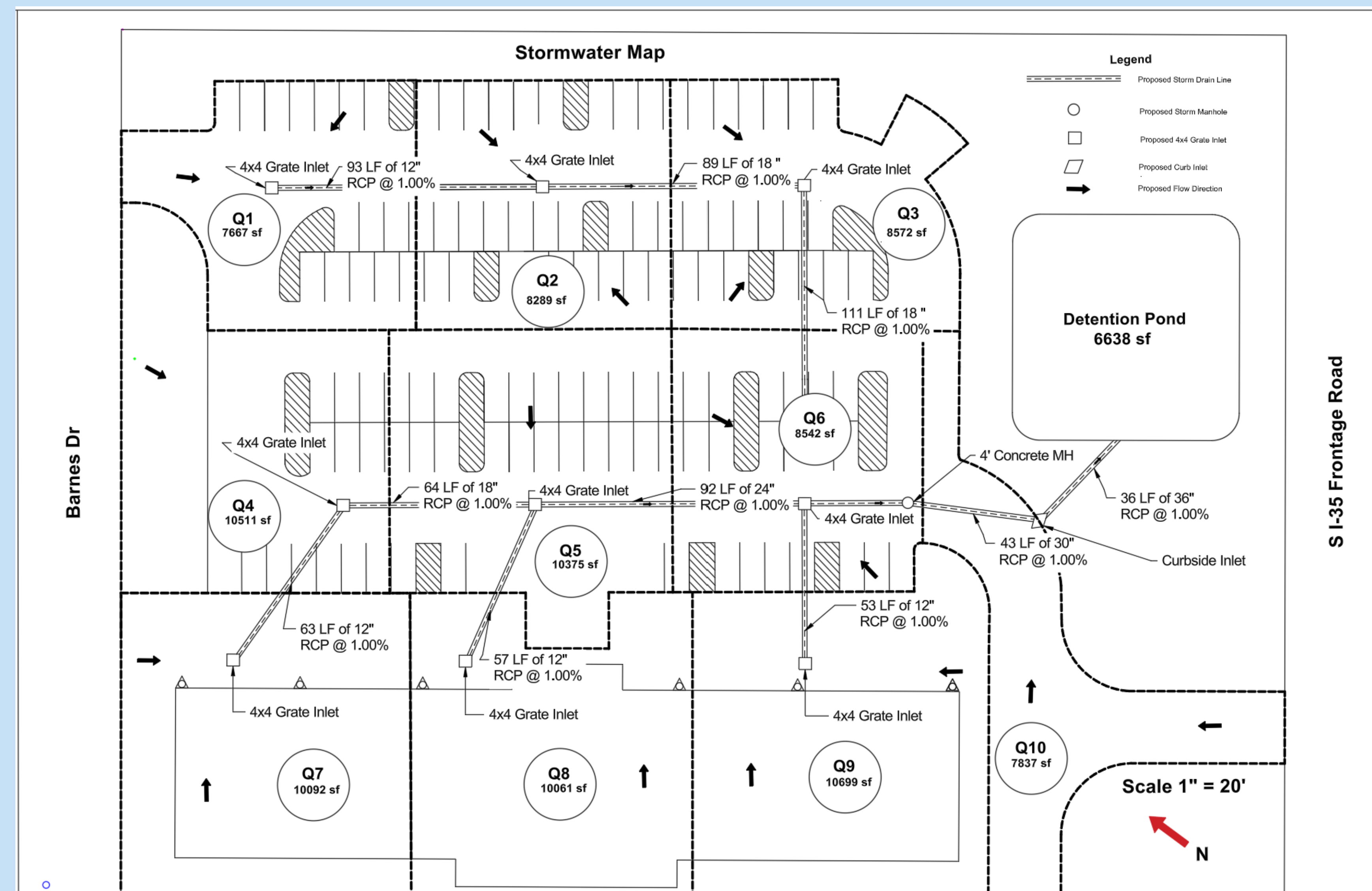


Exhibit 1: Stormwater Management

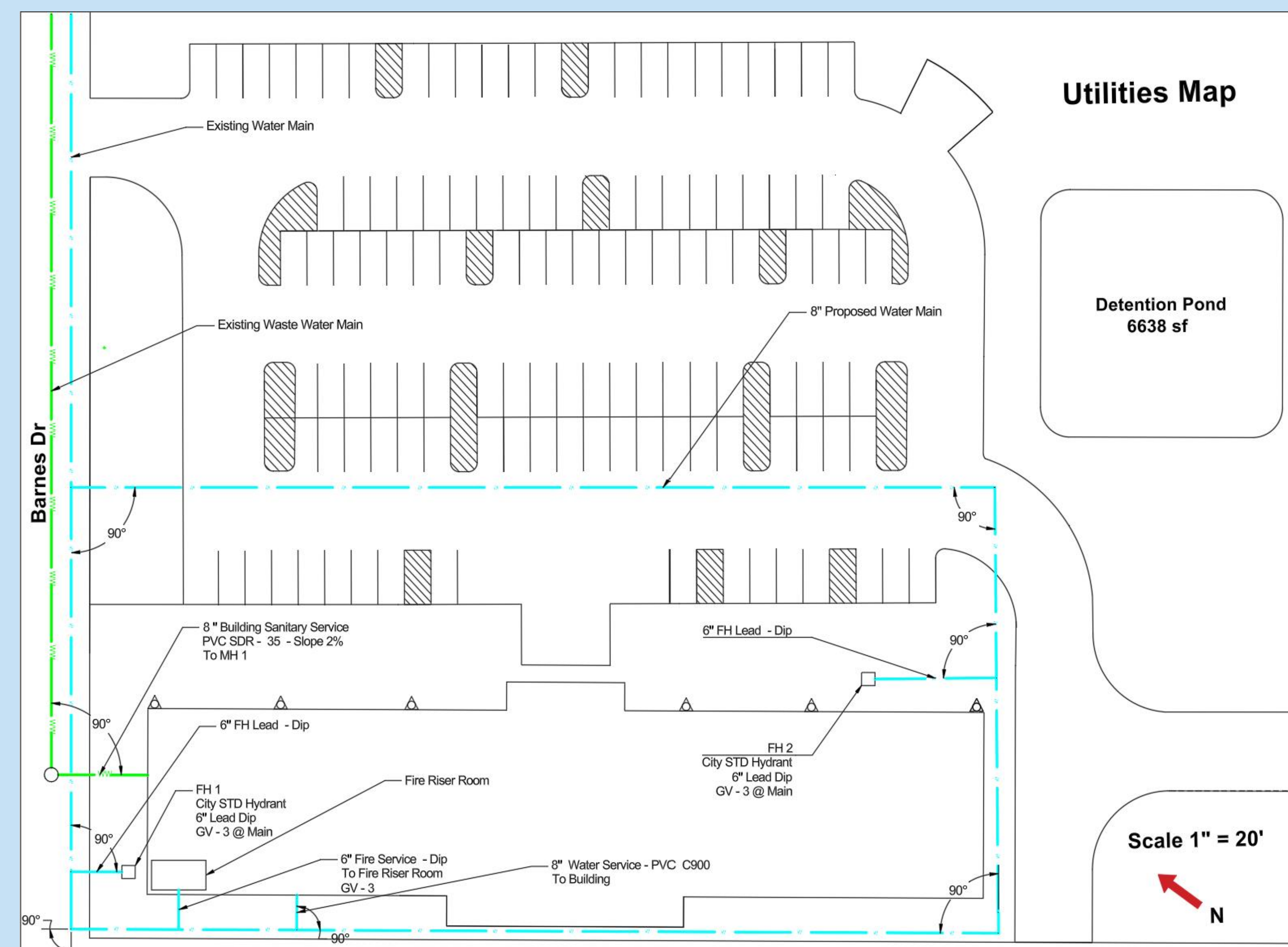


Exhibit 2: Utility Design

Team



Cost Summary

Life Cycle Cost		
Capital Cost		
Capital Cost		\$32,500,000
Maintenance and Rehabilitation Cost		
Roof Replacement	20 yrs	\$400,000
HVAC System Replacement	15 yrs	\$800,000
Parking Lot Resurfacing	10 yrs	\$150,000
Landscape Overhaul	20 yrs	\$25,000
EV Charging Station	5yrs	\$10,000
Solar Panel Maintenance	10 yrs	\$15,000
Wastewater Utilities		\$108,000
Water Utilities		\$23,000
Stormwater		\$101,000
Fire Safety		\$95,000
Total		\$1,727,000
Total With 4% discount rate		\$1,657,920
Operating Cost		
Total		\$780,000
Total after 4% discount rate	40 yrs	\$29,952,000
Total Net Present Value (NPV)		\$64,109,920

Rational Method Table

Texas State Senior Design					
Proposed Runoff "Q" Calculations					
D.A. Number	Drainage Area (Ac)	Comp. C ₁₀₀	Total T _c (min)	i ₁₀₀ (in/hr)	Q ₁₀₀ (cfs)
Q1	0.18	0.92	5.0	14.70	2.38
Q2	0.19	0.92	5.0	14.70	2.59
Q3	0.20	0.93	5.0	14.70	2.68
Q4	0.24	0.94	5.0	14.70	3.35
Q5	0.24	0.94	5.0	14.70	3.28
Q6	0.20	0.92	5.0	14.70	2.64
Q7	0.23	0.74	5.0	14.70	2.52
Q8	0.23	0.84	5.0	14.70	2.84
Q9	0.25	0.75	5.0	14.70	2.72
Q10	0.18	0.95	5.0	14.70	2.51