

UMD GOLF COURSE WATER RECYCLING WASHPAD + STORAGE

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PROBLEM DESCRIPTION

The UMD golf course maintenance facility is functional but **outdated and disorganized**. Current practices no longer meet modern needs, and the client sees an opportunity to improve the site through an **environmentally-focused redesign**.



Figures 1 & 2: Photos of UMD Golf Course Facility

SITE CONCERNS

- Oils, pesticides, and debris from washing flows untreated into the environment.
- Washing uses an estimated **150 gallons of water per day**, with no recycling system used.
- **15–25%+ slopes** and Hydrologic Soil Group D on-site **increase runoff potential**
- Existing sheds are damaged and overgrown and site layout is inefficient



Figure 3: Current Washing Area is a Dirt Patch with Severe Erosion

METHODS OF ANALYSIS

An **existing conditions site plan** was completed using GIS data, aerial imagery, soil information, and applicable regulations to develop a Civil 3D base map and identify key site constraints.

- **Site visits** to observe current operations, drainage patterns, and constraints of the maintenance facility firsthand.
- **Research** to guide the design approach, including **analysis of systems at facilities such as Woodmont Country Club** and drawing inspiration from their water reuse strategies.
- **Storage, landscaping, benefit-cost, tree removal and watershed analysis** reports were also created.

Alternative wash pad systems were also evaluated to compare cost, feasibility, and effectiveness.

- Location of Washpad and Shed; connections to utility lines
- Custom Water Recycler or Established Waste2Water System
- Location of Chemical Storage
- System longevity, growth and maintainence



Figures 4 & 5: Woodmont Washpad Facility

TABLE 1: COST ANALYSIS SUMMARY

Item	Area (SF)	Unit Cost (\$/SF)	Cost (\$)
Main Storage Shed	2784	35	97,500
Filter Shed	200	40	8,800
Chemical	198	40	7,920
Wash Pad and Structure	Lump sum	-	6,270
Filtration Unit	Lump sum	-	50,000
Subtotal	-	-	170,430
Contingency (10%)	-	-	17,043
Estimated New Work Total	-	-	187,500
Labor	-	-	11,520
Dumpsters	-	-	5,400
Tree Removal and Disposal	-	-	6,300
Equipment	-	-	5,724
Subtotal	-	-	28,944
Contingency (10%)	-	-	2,895
Total Estimated Demolition Cost	-	-	31,840

TOTAL ESTIMATE COST: 220K

DESIGN FEATURES

01 WASTEWATER POLLUTANT FILTRATION
A 35' x 21' concrete chemical and wash pad, designed to hold **2 machines at a time**, will replace a rundown shed planned for demolition. Below-ground drainage will connect to a GMSM700 water recycling system with **622-gallon capacity** from Waste2Water that will **collect 100% of grass clippings and treat all water used daily**. The clippings will be taken and used for composting and fertilizer.

02 WATER USE REDUCTION
Reduce overall water use though **recycling 100% of washpad wastewater on-site** and improving washpad efficiency.

03 EROSION PREVENTION
Gravel, proper drainage and vegetation will be integrated into the site design to stabilize disturbed areas and prevent sediment transport. The closed-loop recycling system reinforces these ideas.

04 EQUIPMENT STORAGE
A 29' x 48' lofted equipment storage shed will replace the existing storage hangars. This shed will store excess equipment, irrigation pipes, additional lawn components and help **extend equipment lifespan by protecting it from the weather**. A side window from the lofted space is added to provide convenience for pipe retrieval, and front garage doors added for easy traffic of frequently used equipment.

FINAL DESIGN

After receiving client input and feedback, the final design integrates the project objectives into a cohesive, site-specific solution that improves both environmental performance and operational efficiency. Developed using Civil 3D and Revit, the design reflects existing site constraints while providing a practical and sustainable solution.

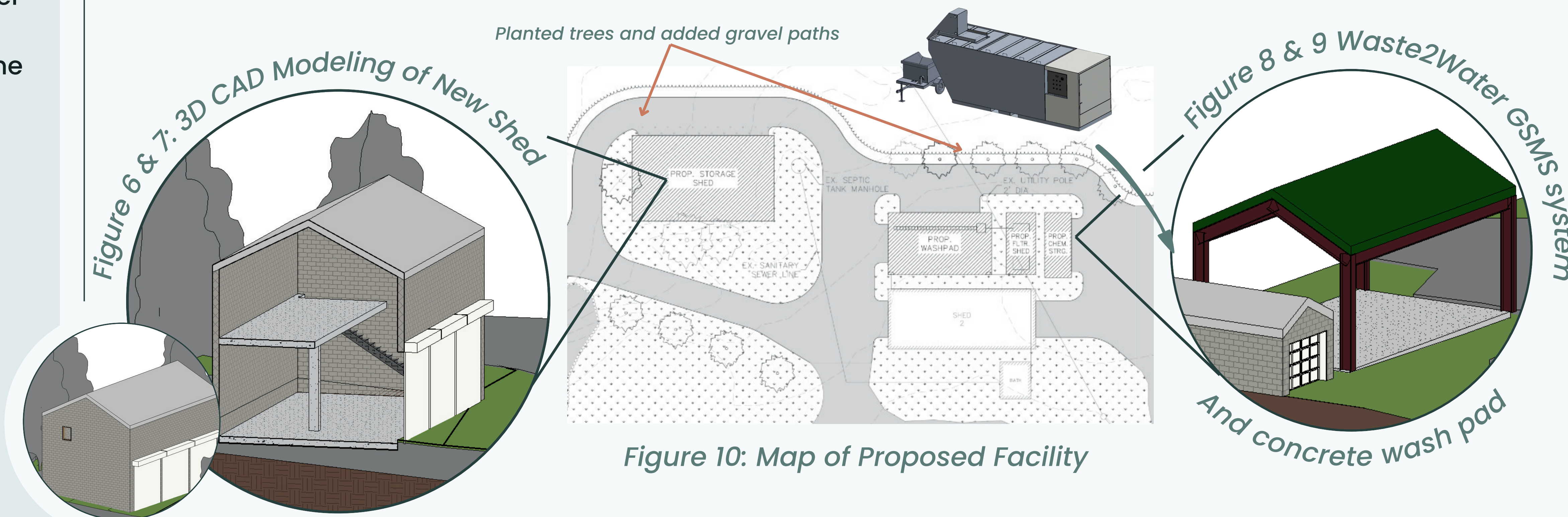


Figure 10: Map of Proposed Facility



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