C2.06 – Dynamic Industrial Warehousing Complex

Michael Harrell (PM), Chris Coronilla, Stephen Gipson, Kyle Grevsmuehl
Faculty Advisor: Dr. Felipe Gutierrez

Special Thanks: Ian Roberts, Brad Slott, Jordan Schaefer, and Kimley Horn

Project Summary

In response to the continuous population growth in Hays County and the advantageous real estate market relative to the City of Austin, our project aims to develop a 25-acre site in San Marcos into a dynamic industrial warehousing complex. Strategically positioned along the IH-35 corridor, our complex will offer over 300,000 square feet of gross floor area and cater to the rising demand for workforce employment projects. Our goal is to design a complex that helps meet this demand, and to contribute to the economic vitality of the region.

Constraints

Building setbacks
Driveway width & spacing
Parking requirements
Fire code requirements
Truck docking depths
Detention pond requirements
ADA accessibility requirements
Water & wastewater utility locations

Design Considerations

- San Marcos Development Code
- International Fire Code (IFC)
- TxDOT Roadway Design Manual
- Texas Commission on Environmental Quality

Sustainability

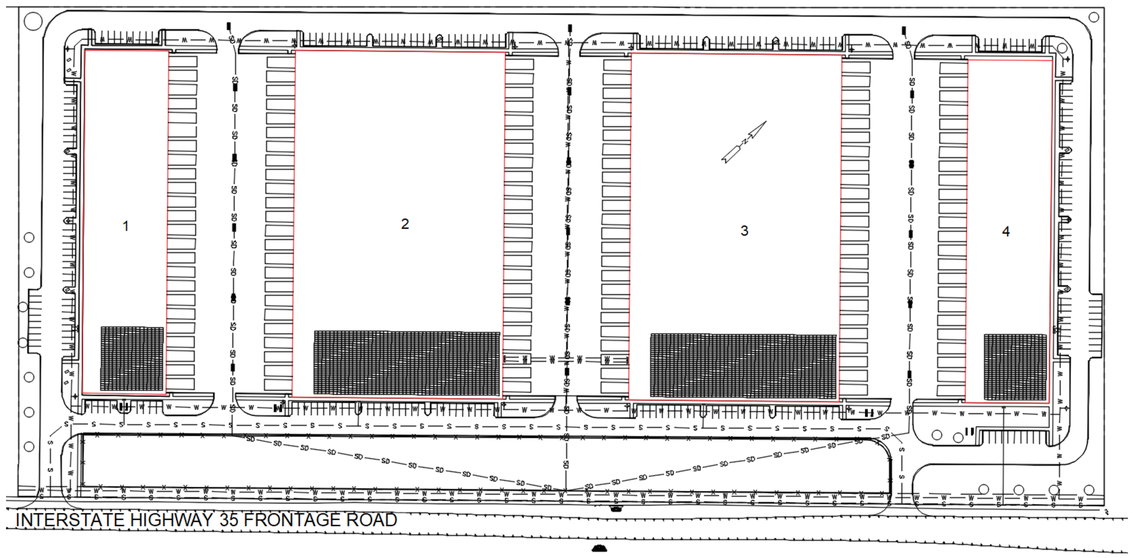
LEED Framework – Gold Status

Category	Gained Points	Total
Location & Transportation	11	/16
Sustainable Sites	7	/10
Water Efficiency	9	/11
Energy & Atmosphere	15	/33
Materials & Resources	5	/13
Indoor Environmental Quality	12	/16
Innovation	1	/6
Regional Priority	0	/3
Totals	**60**	**/110**

System Design

Our group decided on the following aspects for our system design:

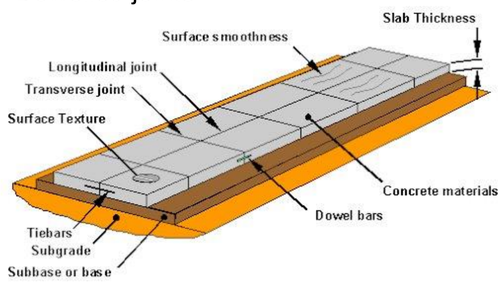
- Flood Zone
- Building Setbacks
- Roadway Design
- Allocated Parking
- Impervious Cover
- Site Drainage
- Utility Design
- Water
- Sewer
- Earthworks
- Geotechnical Report
- Tree & Habitat Protection



Element Design

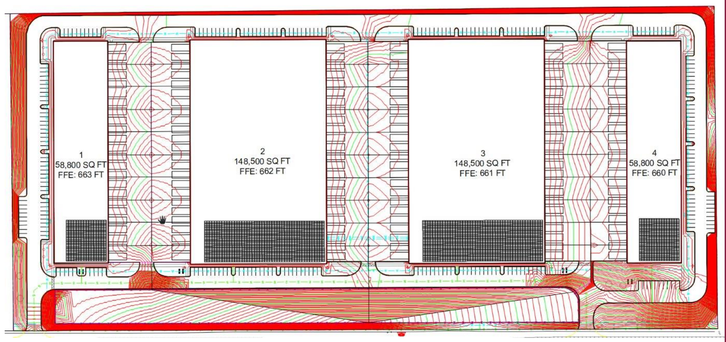
Pavement Design

Recommendations
- 6.5-inch RC pavement minimum (#3 bar)
- 4-inch flexible base
- 6-inch subgrade
- 1.5% minimum slope
- Square panels
- Dowelled joints



Traffic Type	ACI 330 Traffic Spectrum	Portland Cement Concrete	Flexible Base
Passenger Vehicles Only	A	5.0 in.	4 in.
Up to 50 Heavy Trucks/Day	D	6.0 in.	4 in.
Up to 100 Heavy Trucks/Day	D	6.5 in.	4 in.

Site Grading



Major considerations for Site grading
- Leveled Site
- Drain away from buildings and structures towards pond or grates
- Establish FFEs for buildings that make sense with the natural elevation of the site
- Minimize retaining wall elevation on back end of site

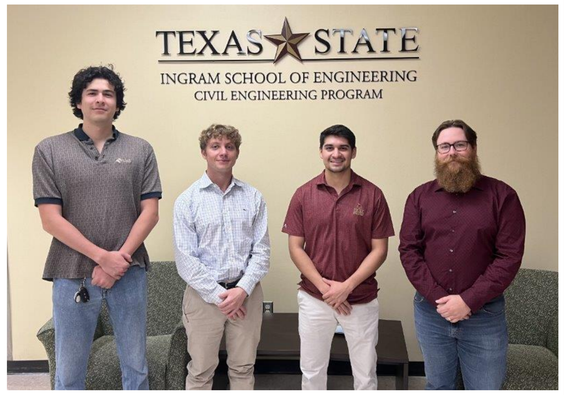
Capital/Life Cycle Costs

Capital Costs	
A. Pavement and Misc. Row	$13,600,000
B. Building Construction	$31,100,000
C. Onsite Water Utility	$1,050,000
D. Wastewater Utility	$400,000
E. Stormwater Management	$1,050,000
F. Franchise Utilities	$200,000
Subtotal	$47,400,000
Contingency (20%)	$9,500,000
Total	**$56,900,000**

Life Cycle Costs	
Initial Cost	$56,850,000
Annual Maintenance Cost	$200,000
Rehab Cost (every 10 years)	$4,250,000
Salvage Value	$20,650,000
Analysis Period	40 years

Net Present Value (NPV)	
With Sustainable Features	Without Sustainable Features
$70,950,000	$62,700,000

Team Photo



Team members from left to right:
Kyle Grevsmuehl, Michael Harrell, Chris Coronilla, Stephen Gipson