Implementation - Plan Documents

Introduction

After completing the final project with the Design Abstraction Sequence, you are ready to begin a series of studies that will translate your Systems Abstraction Design Proposal from schematic rendering into buildable elements. This **process** is known as **Design Development**, the **products** are known as **Construction Documents**.

Grading, *Layout*, and *Materials Plans* are three of the primary plan documents included within a sequence of technical drawings that define the scope, scale, organization, assembly, and finish quality of any built work. The importance of understanding these steps of the of overall design process cannot be overstated. The documents grown from become the assembly instructions for contractors and are an essential part of the legal contract between client and contractor. In addition, undertaking the design development and construction documentation process affords countles opportunities to review and refine your design idea(s), as well as make new discoveries enabled by the rigor of each step.

- **Grading Plans** fit your proposal to the existing landform and offer unique opportunities to express your ideas in three-dimensions (vertical plane). These documents also allow for the advanced study of grading and drainage strategies. The use of innovative materials (i.e., permeable unit paving systems) will have a significant effect on related runoff patterns, infrastructure needs, and long-term maintenance.

- **Layout Plans** fit your proposal into the physical boundaries of a project site and provide an opportunity to resolve scale and proportion issues through the use of established dimensioning and organizational systems that communicate the locations and extents of design elements (horizontal plane).

- **Material Plans** refine the aesthetics and tactility of your design. These plans are essential to how a final product will look and feel; they identify the specific material characteristics and qualities (i.e., color, finish, etc.) your design requires.

The design translation represented in construction documents must be legible and readable by collaborators in the design development process. Often, you'll be working with allied professionals (architects, engineers, environmental specialists, manufacturers, contractors, etc.) to complete a design project. Therefore, your documents must clearly articulate both design intent and technical accuracy to professional colleagues, associated contractors, and regulatory/permitting officials.

CAD is the industry standard most commonly used to produce design development and construction documentation. There are many ways to draft documents, and all offices have their own graphic standards. Instead of a prescribed standard, a focus on basic graphic techniques (line types/weights/values) using studio-specific or personalized CAD settings is emphasized. Each student is encouraged to research examples of documents that have a graphic style that you relate to and that meet the objectives of the assignment.

Goals and Objectives

The goals of this exercise are to investigate, design and fabricate an interlocking concrete pavement module to assist in understanding structural and aesthetic considerations of connections (edge and unit-to-unit conditions) and/or innovative environmental function(s). The exercise's learning objectives include the following:

- Gain exposure to the technical aspects needed to develop a unique and innovative interlocking concrete pavement module to achieve the desired look, feel and function of a related site design proposal.
- Achieve technical accuracy, environmental and structural function, and the desired aesthetic outcome(s) of a construction detail through real-time fabrication and troubleshooting.

Assignment

Grading Plan

At a minimum, provide the following:

- Rough grade your final Systems Abstraction schematic design proposal to a 1'-0" tolerance.
- Proposed contours must meet the existing grades within the overall site boundaries.
- Fine grade any/all hardscape surfaces, elements, and structures to a .25" tolerance.

Recommendations:

- Grade by hand on trace over a hard copy of existing topography
- Explore alternatives that test the effects of conventional (non-permeable unit paving with catch basins/ pipes) and innovative (permeable unit paving systems) grading and drainage techniques.
- Use study models, digital models, sections, and sketches to explore various grading and drainage concepts
- Scan preliminary (trace) grading plan and redraft/refine using CAD

Grading Plan should, at a minimum, include:

- Existing and proposed contours (with elevations)
- Critical spot elevations and building/structure FFEs
- Percent slopes and direction of all surfaces/elements
- Top of Wall (TW) and Bottom of Wall (BW) elevations
- Top of Stair (TS) and Bottom of Stair (BS) elevations
- Top of Ramp (TR) and Bottom of Ramp (BR) elevations
- Catch Basin (Rim) elevations
- Provide handrails and/or guardrails (or other approved fall prevention methods) where required.
- Provide a minimum of one accessible route (entry/egress). If necessary, provide access that meets all ADA requirements with landings, spot elevations, and percent slopes as required.
- Some areas may require additional section and/or section/elevation studies (determined on individual basis). These are strongly recommended; they will become the basis for advanced detail studies during later DD phases. Develop a section and elevation call-out strategy/symbol language to be used throughout all your documents.

Layout Plan

At a minimum, provide the following:

- Choose a dimensioning strategy (i.e., coordinate, baseline, etc.).
- Select a Point of Beginning (POB).
- Draft key dimensions and notes necessary to layout your proposed design.
- Some areas may require additional enlargement/detail views (determined on individual basis)

Materials Plan

At a minimum, provide the following:

- After completing the Grading and Layout documents, select and call out materials for inclusion in your plans. Examples include, but are not limited to: paving types/conditions, site furnishings, proposed planting types (i.e., planting area, lawn, etc.), and other significant elements. Develop a material call-out strategy.

Design a Title block

- Drawing Title (i.e., Grading Plan) and Sheet Number (i.e., L2.0)
- Project Name
- Your Name
- Graphic Scale + Written Scale
- North Arrow
- Notes
- Vacinity/Key Map
- Date (with any/all previous submittal dates listed in notes area)