FUNCTION OF A SITE PLANNER AND HIS INTER-PROFESSIONAL COORDINATION IN PRACTICE *

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WHEN I was invited to present a paper at the Annual Meeting of the Connecticut Society of Civil Engineers, I was reminded of the increasing importance of the professional relationships between members of the Engineering professions such as you, and the Architects and Site Planners. I will therefore endeavor to make clear how the need for inter-professional relationship has increased, and by this I mean the close working relationship which should exist between Engineer, Architect and Site Planner.

We are in an age of specialization. Our work, yours and mine, has become so complicated that even a genius cannot master all of the details. Let us therefore use our specialization intelligently and in a cooperative way for the good of all. The functions of a Site Planner are many, but mainly his function is to coordinate the development of a site with the various designers involved.

Now, in order to get the proper perspective as to the importance of the relationship, I will use designs of typical Gas Station-Restaurants on the New York State Thruway; school grounds and athletic fields as illustrations.

At the outset of these thruway projects, the Architect, the Site Planner, the Mechanical and Structural Engineers, Geologists, along with representatives of the New York State Thruway Authority joined on an inspection tour of the full length of the proposed Thruway. It was during this inspection trip that tentative locations were selected for the proposed sites. The selection of sites was based primarily on the relative distance between stations. It was generally agreed that a distance of 30 miles between stations on both sides of the road would be an adequate spacing. The sites on the Buffalo to New York road would be staggered from those on the New York to Buffalo road, thus making a distance of approximately 15 miles between sites.

The next factor of importance was the problem of transportation for station employees and general supply services. This necessitated consideration of access roads to the sites. The sites had to be near a county road

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or a town, in order to facilitate delivery of gasoline, oils, general automobile supplies to the Gas Station and food to the Restaurant. The disposal of garbage is also very important for the efficient operation of such an oasis on a long super highway. The accessibility for employees of the gas station and restaurant without the direct use of the Thruway had also to be considered; for in all probability, these people would be inhabitants of a nearby town. Therefore a separate access to the site was required in most cases. Criteria for the design of these access roads had to be established in order to arrive at a solution to the problem which would be within a limited budget. These basic criteria established for service roads were as follows:

1. Not to be over 1 mile in length
2. Maximum grade 8%
3. Grading to be minimized
4. Cost not to exceed $35,000

These criteria then determined a designed width of twenty feet for the service roads with eight foot shoulders. Also, a two foot minimum storm drainage ditch line running parallel to the road was required. The paving for these roads consisted of a six inch foundation course of gravel, with a three inch calcium chloride treated gravel surfacing.

Now let us ask ourselves what factor of prime importance is in the selection and development of a site or roadside improvement? The answer is an accurate topographic survey.

This topographic survey is absolutely essential to the Site Planner in designing the layout of a site, and frequently results in the development of many improvements and modifications. This survey will also show the location of existing trees which may play an important part in the site design or "partit."

Subsurface exploration is as essential to the Site Planner as it is to the Structural Engineer. The location of rock through subsurface exploration may sometimes determine the location of a site or at least its shape and size. For example, the Gas Station-Restaurant at Sloatsburg, which is located along the southern end of the New York State Thruway, had to be designed in a elongated layout, and considerably narrower than the other sites, because of the rock formation relatively close to the Thruway. In this case no access road to the site was possible. It is walled off by solid rock at the rear, and is too far from a nearby county or state road.

Test boring information indicating the depth of topsoil and subsoils; the location of rock, and the depth at which the water table lies, can have a direct bearing on the final location of a site. As a direct result of such accurate subsurface information, one of the Gas Station-Restaurant areas relocated four hundred feet. The test borings indicated a swampy condi-

tion which would have prevented construction of the building on spread footings. The original site location previously selected by visual inspection would have required the use of piles. This would have meant a much more expensive foundation. All of the afore mentioned factors indicate that a specific site location may fill the requirements of one or two specialists and yet, fail to meet the needs of others. The cooperation of everyone concerned is obviously needed in order to be able to produce the desired results.

The entire New York State Thruway program represents a joint effort of all consultants. Such combined efforts are also responsible for the final location of all deceleration and acceleration lanes; the location of all main buildings, the location of all utilities and utility buildings, the location of all pump islands, and the location of all sanitary and storm drainage systems.

In the preparations of studies for grading a site, the close cooperation of architect and site planner is essential for economy of operation and for meeting the requirements of the program. One consideration, when grading a site, is its effect on the other phases of work; such as bringing in conduits, sewage, and public utility lines. The planning work should be so scheduled and coordinated that it completely conforms with the construction program. As an illustration, let us consider the grading problems encountered at the Ardsley Gasoline Station. Here the location of the site required that the acceleration lane pass between one of the piers and one of the end abutments of an overpass. In order to grade the acceleration lane properly and at the same time retain proper alignment of the lane and still provide drainage, it became necessary for the bridge engineer to change his plans. Thus, the combined effort of the site planner and the bridge engineer made it possible to use the site which had been selected.

In another case, the drainage of the site required a twenty-four inch culvert to be installed under the Thruway in order to carry storm water to a stream on the other side. Fortunately, the thruway pavement in that section had not been poured as yet. Prompt action in this matter prevented unnecessary expense. The above example is another indication of need for close cooperation in all phases of work.

To cite another example for the need of close cooperation of a design team, let us look into the choice of paving material. The mechanical engineer concerned with fuel tanks and pumps required pump islands. The location of these islands had to be decided by this engineer and the site planner. The use of "concrete pavement" was chosen as most suitable for truck lanes and the area surrounding the pump islands. It is generally accepted that concrete resists the effects of spilled gasoline and oil, whereas asphalt deteriorates from it. All other areas were then paved with asphaltic concrete for reasons of economy.

As to the planting phase of such a program, it cannot be accomplished until most of the site work is complete. Future planting considerations also serve as an excellent example of the need for inter-professional coordination from the very inception of a project. When selecting a site, it is imperative that existing plant materials be noted and photographed with a view not only to their possible future effect, but also to serve as a ready reference during the various planning stages. It is also advisable to check conditions relating to plant growth, such as the quantity and quality of existing top-soil. The orientation and general exposure of the site is also important. The architectural composition of the planting on any project, the quality of material and the workmanship all help to determine the attractiveness and visual impact of the project upon the public. If early consideration is given to the use of plant material at the time the structures, roads, etc. and the various utilities are located, the final result will provide greater opportunity for effective overall composition when the final stage is reached.

The planting phase of the site work along the New York State Thruway involved a considerable amount of preliminary preparation. Inspection trips were made to all of the sites to make note of and photograph the existing landscapes. Lists were also compiled of plants appropriate to the various temperature zones and topographic and ecological conditions to be found along the Thruway. Subsequently a comparative analysis of all sites was made to determine the possibility for duplication of the design and the materials to be used, so as to conform to the modular type of building units used. This was not possible to do, because no two sites were alike in shape, size or similar in environment. Every individual site condition dictated its own needs.

In conclusion, I want to stress that sponsors of major developments such as the (1) Connecticut Highway Department in its planning on the Greenwich-Killingly Expressway, (2) the New York State Thruway Authority, (3) the New Jersey Highway Authority, and many other agencies too numerous to mention, along with their consulting engineers, architects and site planners, all have a feeling of responsibility for rendering the best possible service. The spirit of cooperation needs to exist and in most cases does exist. The "genius" who thinks he is proficient in all specialized fields does not exist in this age of technical skills and planning. In this scientific era in which we are living, the engineering profession and members of allied fields, occupy a collective position of increasing importance, especially in the planning field, and today have more than ever before in history, the greatest opportunity to be of service to the public.

About the author . .

A. CARL STELLING is a pioneer in the field of site development, with more than 27 years of experience.

Prior to World War II he designed new camp facilities at Camp Upton, Yaphank, L.I., in cooperation with the Corps of Engineers, U.S. Army. During World War II he made studies for advanced base layout and construction, and prepared data for field manuals as a member of War Plans Division.

As U.S. Navy Senior Civil Engineer Officer at Port Hueneme, Calif., Mr. Stelling prepared plans and specifications for the base which served as a model and training base; instructed engineer battalions in construction of overseas bases, made overseas inspections to obtain data for improvement in design and construction techniques of advanced bases. He also served as assistant design officer at the U.S. Naval Academy, Annapolis, Md.

His texts have been published in The American School and University, the Architectural Record, Architectural Forum, and other publications. He has served as consultant to Bergen County, New Jersey, Park Commission and the New York State Department of Education.