

## 4.5-a CONSTRUCTION PLANNING AND SCHEDULING

Alternative Names: Construction Sequencing, Scheduling

### DESCRIPTION

Construction planning and scheduling is the development of a specific work plan and schedule that coordinates the timing of land-disturbing activities and the installation of erosion and sediment control measures.

### SITE SUITABILITY

Applicable to any construction project that disturbs soil, but particularly useful for large or complex projects, or those involving numerous sub-contractors.

### Advantages

- Limits the amount of soil disturbed at any given time, by establishing phasing (sequencing) of the project.
- Anticipates the potential for erosion and sediment control issues, so that effective control devices can be employed for all project phases. Develops contingency plans for all anticipated potential erosion and sediment problems in all phases of project implementation.

### Disadvantages

- Requires a committed willingness to communicate, educate, and coordinate within the construction team and between multiple contractors, engineers, and inspectors/agencies.

### DESIGN CONSIDERATIONS

- Grading over 3 cubic yards is prohibited between October 15 and May 1 unless regulatory agency approval is granted.
- Construction site must be winterized before October 15.
- Grading activities are prohibited when the site is covered with snow or is in a saturated, muddy, or unstable condition. A project area must be equipped with effective erosion and sediment control BMPs whether active or inactive.
- Identify the physical opportunities and constraints of the project site as follows:
  - Topography – A topographic map that shows the existing project area and site conditions. A contour interval of 2 feet for slopes less than 30 percent is preferred. For slopes 30 percent and greater, a 5-foot contour interval is generally acceptable.
  - Drainage – Flow paths of runoff across any proposed project area, including locations where water will enter and leave the legal boundaries of the project parcel (or the formally delineated project area), and SEZs and municipal drainage easements.
  - Vegetation – Distribution of vegetation types and identification of species comprising each, in accurate spatial representation.

BMP DESIGN APPROACH	
<input checked="" type="checkbox"/>	Pollutant Source Control
<input type="checkbox"/>	Hydrologic Source Control
<input type="checkbox"/>	Stormwater Treatment
SCALE OF APPLICATION	
<input checked="" type="checkbox"/>	All SFR and MFR < 1 acre
<input checked="" type="checkbox"/>	MFR 1-5 Acre and CICU < 5 acres
<input checked="" type="checkbox"/>	MFR and CICU > 5 acres and all WQIPs
TYPE OF APPLICATION	
<input checked="" type="checkbox"/>	Temporary
<input type="checkbox"/>	Permanent

- Land capability districts.
- Significant structural and site features – such as buildings, roads, rock outcrops, survey monuments, legal easements, historic sites, areas of compacted soils, and/or utilities.
- Describe the features of the proposed development and the disturbance area boundaries; including:
  - Earthwork volumes necessary for the proposed development, the most suitable areas for structures and driveways, and limits of the area where soil compaction and disturbance of vegetation is anticipated.
  - Measures for stabilizing and vegetating disturbed areas as soon as earth moving activities have been completed, including the details of permanent landscaping.
  - Measures to minimize soft impervious coverage, by legally paving planned impervious coverage areas as soon as possible (e.g. driveways and parking pads) to serve as staging and construction activity areas.
  - Measures to minimize vegetation removal and preserve as much native topsoil and vegetation as possible, to maintain site stability and reduce BMP costs, including measures to retain vegetated buffers and setbacks to the greatest extent possible, to limit construction site pollutants and sediments from entering SEZs and other critical surface water protection zones.
  - Means of confining construction activities to portions of the site that are the least steep, and means to effectively minimize erosion when construction will be conducted on steep ground.
  - Drainage analyses for all project areas (avoid relocating or installing culverts).
  - Measures to divert runoff away from areas of exposed soils.
  - Sequencing of trenching to minimize the extent of open trench at any one time.
- Describe all erosion and sediment control measures (BMPs) to be installed within the project area, both temporary and permanent BMPs, including:
  - Means to prevent or limit the contamination of stormwater by coarse and fine sediments, by employing appropriate erosion and sediment control BMPs.
  - Procedures for preventing the tracking of sediment off-site, through effective ingress/egress management and housekeeping practices such as street sweeping.
  - Measures to minimize the potential for exposed soils to be transported off-site by wind, by employing dust control and stockpile management BMPs.
- Establish a chain of command and designate roles and responsibilities for the project site. For large sites, this may include an oversight team, environmental team, construction group, BMP foreman and crew, traffic control, and equipment personnel, etc. At a minimum, an environmental site manager or Stormwater BMP point of contact should be on site at all times.

- Schedule trainings and/or team meetings to educate workers on the construction plan, including BMP installation, inspection, and maintenance. Establish regular communications between the contractor/environmental site manager, engineer, and regulator/inspector.
- Plan for a pre-grading meeting prior to project implementation during which project engineers, managers, critical personnel, and regulators discuss the details of the project permit before the project is implemented. At this time, changes or adjustments to the plan or schedule may be required.
- Maintain copies of the permits and the construction plans on the construction site at all times.
- Plan to winterize the construction site to minimize erosion before the end of the grading season (October 15). Winterization includes cleaning the project area, hauling materials off site, containing and stabilizing (covering) stockpiles, mulching bare areas, preparing and enforcing temporary BMPs, and documenting these actions. BMPs should be fully functional in inclement weather.
- Schedule time in for potential unplanned events that may cause delays such as weather, funding issues, material delivery, equipment availability, subcontractor work, maintenance, equipment repair, and other events.

## INSPECTION AND MAINTENANCE

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- Inspect BMPs on a regular basis and correct problems immediately. An inspection log is an integral part of the construction plan and must document all BMP inspections, maintenance and corrections, and educational meetings/education for workers. This log should be on site and available to show permitting agencies at any time.
- TRPA or other permitting authorities will conduct temporary BMP Inspections and may request changes or modifications if structures or practices on site are insufficient or unable to effectively manage stormwater.
- Update the construction plan and formally amend the permit and/or plans with the permitting agency if construction activities deviate from the project schedule. Take corrective actions if needed to prevent environmental damage.
- Enforce and protect temporary BMPs for impending inclement weather. Monitor weather forecasts for precipitation and/or wind events and take timely actions to prepare the site. Adjust the construction schedule if necessary to fully implement all temporary and permanent BMPs.
- Temporary BMPs and the project site in general must be inspected by the BMP Stormwater point of contact, the environmental site manager, or the project manager to ensure that BMPs are staged and properly installed before work starts.

