



Design Scene Part 2 – Plan Conventions

Chapter 4 Earthwork / Soils and Construction Notes

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Chapter 4 Earthwork / Soils and Construction Notes

2105 Earthwork

2105 earthwork pay items are not included in the 2020 Standard Specifications for Construction. They are now .6XX items and will require special provisions. These pay items should not be used in conjunction with 2106 earthwork pay items.

2106 Earthwork

2106 Excavation and Embankment pay items are computed by the compacted volume method.

Topsoil quantities are not shown separate in the earthwork tabulation; they are included in Excavation – Common and Common Embankment quantities. Existing topsoil stripping and reuse is typically acceptable to establish turf along highways. Pay items for any type of topsoil borrow (2574.507) should only be included when there is a specific topsoil needed on the project, such as pond lining or in landscaped areas. Locations of topsoil borrow placement must be shown in the plan, for example on the typical sections or in a detail.

Please check earthwork calculations. Earthwork errors have resulted in large contractor claims. A common error is muck excavation. Always check some area calculations by hand to confirm that quantities are correct.

2411 & 2451 Structure Excavation Class

Whenever 2411 & 2451 STRUCTURE EXCAVATION CLASS ___ is included for structure excavation a note should be added stating something like...THIS MATERIAL MAY NOT BE SUITABLE AS EMBANKMENT AND SHALL BE DISPOSED OF BY THE CONTRACTOR OFF THE PROJECT RIGHT OF WAY...or...IS SUITABLE AS EMBANKMENT MATERIAL...which ever applies to the projects situation.

As Directed by the Engineer

This statement should be eliminated from plan notes since it may introduce ambiguity (depending on the district, engineer, etc) or direct the contractor's means and methods. "AS APPROVED BY THE ENGINEER" should be used with discretion, for example, when it is necessary to approve the details of an operation.

Bituminous Removal

The practice of removing 6" or less of bituminous pavement and paying for it with the common excavation pay item has been discontinued and is not allowed under the current specification.

Bridge Approach Treatments

The bridge approach backfill material is paid as 2451.607 Structural Backfill by Cu Yd per the Bridge Approach Treatment Standard Plans.

Construction Notes

Pertinent construction notes should be shown in the plan whenever possible, rather than included in the special provisions. This makes it clearer and easier for the contractors bidding the job, as well as for our engineers,

inspectors, etc. It is better to have as much information as possible shown in one document rather than having to refer to two of them, and the pertinent information is less likely to be overlooked while bidding the project or constructing it in the field.

Excess Material Note

The following note regarding disposal of waste materials and/or surplus excavated materials off the R/W is recommended: ALL MATERIAL NOT UTILIZED ON THIS PROJECT SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF OFF THE R/W IN ACCORDANCE WITH SPEC 2104.

NRHP-Eligible Historic Roadside Properties Note

It is recommended that designers use the following note in construction plans when their projects are located near NRHP-eligible historic roadside properties: "Historic monument (Reference point XXX +XX.XXX) is eligible for the National Register of Historic Places. Absolutely no construction staging, mobilization, material storage, construction vehicle parking, or construction-related activities of any kind to take place within 120 feet of the historic monument."

Pipe Jacking

When there is pipe jacking in the plan be sure to account for handling/storage/placement of the excavated material from the jacking pit.

Assumptions for a 12" to 96" diameter pipe:

Width = 3 times the pipe diameter

Length = 2 times the pit width

For larger pipe sizes, or box culverts, you would need larger or specially designed pits and should contact the district hydraulics office for assistance. If the soils are particularly bad in an area, your pit width, and possibly length would also be greater because you would need a larger backing area to push against.

Pit Data

Gravel pits shown in the plans as possible sources of natural materials are causing some problems and delays in the processing of plans and special provisions for bid-letting. In many instances, pits are listed in the plans with expired leases and other pits where leases are being negotiated. Gravel pits should not be shown in the plans unless there is current lease to cover the approximate contract time.

In the past, several projects had to be pulled from the letting because the contractor had obtained an exclusive right to the granular source. This results in unfair competition and/or high bid prices. If the designer has information or suspects that there will only be one source of material, they should contact the R/W office so the state can get a lease for the pit. The District Materials Engineer or the Aggregate Engineer can assist the designer in determining if there is a chance that a contractor can tie up the only source of material. To alleviate these problems, it is suggested that the designer, six to nine months prior to the letting, notify the District R/W Engineer of the gravel pits that will be listed for the project. This would allow them time to check the lease and other necessary pit information. The designer should submit this information to the Special Provisions Engineer at the time the plan is submitted.

This information should consist of the following:

- Pit Number
- Indicate if the pit is State owned or has an exclusive lease or nonexclusive lease.
- Lease expiration date.
- Current price of materials in cubic yards, cubic yards compacted volume and ton.
- Any special conditions of the lease that may affect the contract or contractor.

Pit data may be shown on one of the first three sheet of the plans. If it is shown farther back in the plan it makes it difficult to find, and the necessary pit information may not be included in the special provisions for the project and may require an addendum to correct.

Subgrade Excavation

If it is the intent of the project to pay for the subgrade excavation as part of the common excavation a note should be included in either the soils notes, estimated quantity table or earthwork tabulations stating: All excavation shall be paid for as excavation-common.