

## Lessons Learned

The Constructibility Review Unit receives Construction Issues forms and Post Construction Review forms to compile and disseminate "Lessons Learned" in an effort to prevent recurrences of preventable problems on Department projects.

<u>Problem</u>	<u>Solution</u>	<u>Recommendation</u>
Concrete pavement between stages needed straight edge	Longitudinal sawcut added to quantity	Include quantity for cut in design calculations for each stage
Steel delineators found under the pavement slowing the milling operation	Item added to contract to locate and remove on cost plus basis	Design to anticipate need for ground penetrating radar item in contract
Old subbase under concrete pavement could not support paving machine	Removed and replaced with new material conforming to current specifications	Include new subbase under slab removal areas in contract plans
Endwall work near airport delayed due to airport's "Zone of Influence" and FAA rules about impacting air traffic	Contractor was compensated for Airport Downtime Delays	Review FAA rules, have Notice to Contractor in Specials to have them coordinate work with airport manager, and schedule enough time in contract
Handling Contaminated Groundwater item, based on specs, was difficult and expensive	Work done on Cost Plus basis could have been at agreed price	Ensure specification allows for item cost to be agreed to before item work begins
Contractor excavated past slope limits and failure occurred near private residence	Had to quickly design and install retaining wall	Have slope limits staked out and closely monitor during construction
Specified Superpave mix did not hold up under airport usage	(Not corrected under that contract)	Stronger type/level of Superpave should be used in airport applications

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Existing large metal plate arch began to collapse causing road failure	Pipe replaced (at high cost) and road repaired on Cost Plus basis	Conduct site visits during plan review/design phase including walk through of culverts
New abutments started overturning during back-fill	Design provided staging sequence for backfilling	Design to anticipate need for backfill sequence if section is not typical
Utility conflicts with new drainage	Test pits added to contract	Do test pits during design or have test pits as bid item
Existing RCP to be removed slightly off line from proposed RCP	Limits of trench were widened causing support concerns	Anticipate need to support trench and/or roadway in similar conditions
Water diversion system was overtopped during Spring rains	Modifications to "Portadam" system were made to avoid DEP permit violation	Do not specify this system in fast moving water diversion applications
Box culvert crosses over old 12" CI water main with only 4" cover	Invert of box culvert raised and concrete support sleeve for CI pipe added to contract	Include support for exist pipes that have less than 12" of cover in contract
Barrier wall in conflict With temporary roadway	Added temporary sheet pile to support roadway	During design check M&P staging against plan sheets
Footing dimensions were changed late in design but quantities were not updated	Several items were increased	Update all affected quantities if dimensions are changed
Large cast in place junction box should have included rebar in bid price	Rebar item increased significantly	Review Basis of Payment in major item specs to avoid cut and paste problems
Settlement of box culvert during change from Stage 1 to Stage 2	Corrective work to repair wingwall and left temp sheet pile in place	Plan to leave sheet pile in place or design a supportive wall at stage junction
Cuts and fills were not Balanced by stage; DEP permit restricted work	Staging area established and borrow item added; Permit revision obtained	Have Design develop a checklist to balance stages; schedule within permit limits