

The plans do not show a fish ladder but I am sure we can work out something



Division of Responsibility In MSE Construction

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INDOT 731 Specification

- MSE Supplier/ Designer :
Responsible for Structural design of MSE components above leveling pad using design parameters set in bid documents.
- Consultant and Geotech:
Responsible for determining if the site is suitable for the construction intended and for setting design parameters.

Issues in Liability Discussions

- Consultants and Geotech's don't Communicate well with each other and clients except by contract.
- Scopes of work are often not compatible and the cause of disputes later on.
- Plans and specs are often not compatible.
- The costs of stopping the job are ignored.
- Many plans are not complete or constructible.
- There is enough liability to go around and there are too many lawyers available.....

About Mistakes

- All the MSE mistakes have been made, but..
- Everyone makes mistakes, but it is what you do about them that makes a difference.
- The firm or person who makes the mistake does not always have to pay for them and often someone else does.
- The golden rule:
He who has the gold rules.... initially

Bid Plan Issues

- Two things can not occupy the same space.
- The firm or person that finds an error in the bid set is not responsible for that error.
- Neither MSE wall suppliers nor Contractors are responsible economically for fixing the errors or the economic impact on the project

The truth about MSE Walls Design

- MSE walls are Structures with Geotechnical Input just like CIP retaining walls.
- All MSE wall systems are to be designed to the same standard and are not designed with Proprietary Methods schemes or ideas.
- MSE design submittals frequently uncover Bid plan errors or omissions or concepts that are non-constructible or two things in the same place.

MSE Drawing and Calc Issues

- MSE calculations are not checkable if only submitted in computer output format.
- The length of MSE steel has very little to do with the applied bearing pressure.
- The MSE company has 2 choices:
 - The size of Panel and type of Steel

Case Study #1

- I-43
- Milwaukee, Wisconsin
- Worker fell off MSE wall 2 months after built.
- \$ 16 million sought for injured worker who was at fault in accident.
- Sub and Prime Contactor settled out of court
- Sub went after wall supplier alleging unsafe wall
- MSE supplier/ designer found not guilty.

Case Study # 2

- Railroad Relocation
- Lafayette, Indiana

- Budget restraints by City limited geotech report.
- Prime Consultant would not use MSE because MSE was not mentioned in geotech report.....
- \$ 63 Dollar Geotechnical report was accepted as addendum and MSE was allowed as option in bid.

Case Study # 3

- Tywkenham Blvd.
- Lafayette, Indiana

- City bid documents were for lump sum bid....
- INDOT # 731 MSE spec only referenced by note.
- Allowable bearing pressure requested.
- Allowable bearing pressure set at less than gravity
- Under-cut added by addendum.....

Case Study # 4

- U.S. 24
- Logansport, Indiana
- MSE Engineering approved per INDOT spec #731
- All steel delivered and all panels manufactured....
- INDOT revoked MSE approval after discovering a geotech had not been hired.
- INDOT demanded borings by thr MSE supplier.....
- Major delays followed and major claim paid by....

Case Study # 5

- Main Street
- Monticello, Indiana
- Bid set mandated lump sum wall bid not unit price.
- Geotech was not advised as to need to follow INDOT standards because of origin of funding.
- Without #731 undercut provisions not present.....
- Scope of work by Geotech not understood by prime consultant as per INDOT requirements.....

Case Study # 6

- Davison Freeway
- Detroit, Michigan

- Design-build performance spec allowed MSE and
- Tie back walls to compete in fill section.
- Spec mandated approval before ordering MSE.
- Consultant did not review MSE...did not approve.
- Early finish bonus lost and late penalties applied.
- 10 years later MDOT paid major claim.....

Case Study # 7

- I-94
- Port Huron, Michigan
- 24" of settlement projected in geotechnical report.
- MDOT called that settlement failure when it began.
- MDOT demanded MSE supplier inform them as to how much the settlement was to be and when it would stop. Geotech was not ask to respond.

Case Study # 8

- Jefferson Blvd.
- Detroit, Michigan
- Geotech attempted to modify MDOT standard MSE Spec to transfer foundation liability to MSE Supplier but failed.
- Allowable bearing pressure was less than gravity.
- MSE design submittal rejected for non-compliance
- Under-cut rejected repeatedly then used.

Case Study # 9

- I-94 Borman Expressway
- Hammond, Indiana
- MSE walls set to bid without geotech parameters..
- Consultants Geotech assumed MSE designer was responsible for external stability including bearing..
- Addendum set bearing allowable less than gravity
- Addendum correcting addendum was issued directing contractor to conclude geotech report and set recommendations after contract award...
- Post bid dispute on payment followed report....

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Polly Ann Trail Bridge
(True MSE Abutments)

Oxford, Mi

Jefferson Blvd.

Detroit, Mi

Mission Road Bridge

Mt. Pleasant, Mi

I-96 and 36 th. Street

Grand Rapids, Mi

MSE True Abutment



Ashler Stone Finish And Corner Element



Welded Wire Mesh Style Reinforcement Placing



Placement Of Backfill Over Mesh Reinforcement



Mesh Reinforcement Connection



Mesh Corner Connection



Placing Slope Top Bottom Row Panel



Placing Bottom Row Half Height Panel



Erected Wall And Railroad Crashwall



Placing Precast Coping



Compaction Of Layered Backfill



Placing Filter Fabric



Density Testing



Panels Separated Vertically By Bearing Blocks

