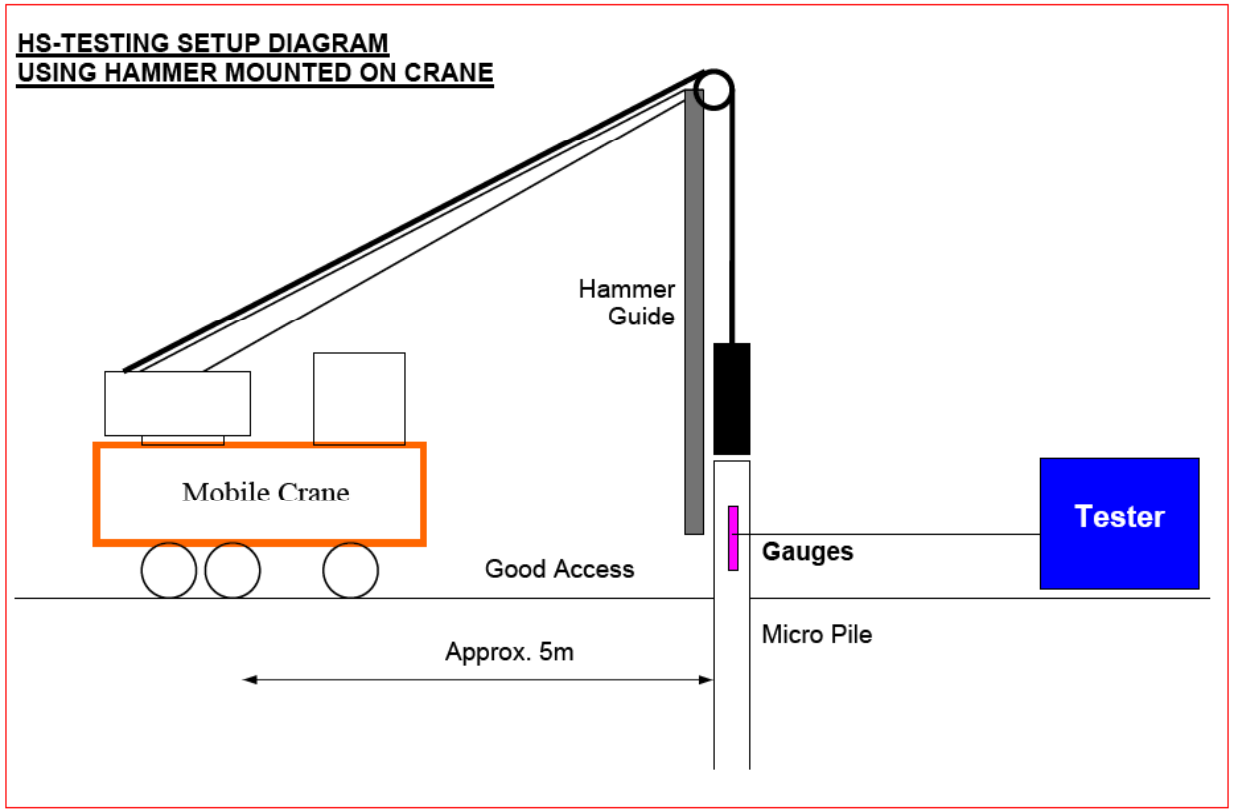
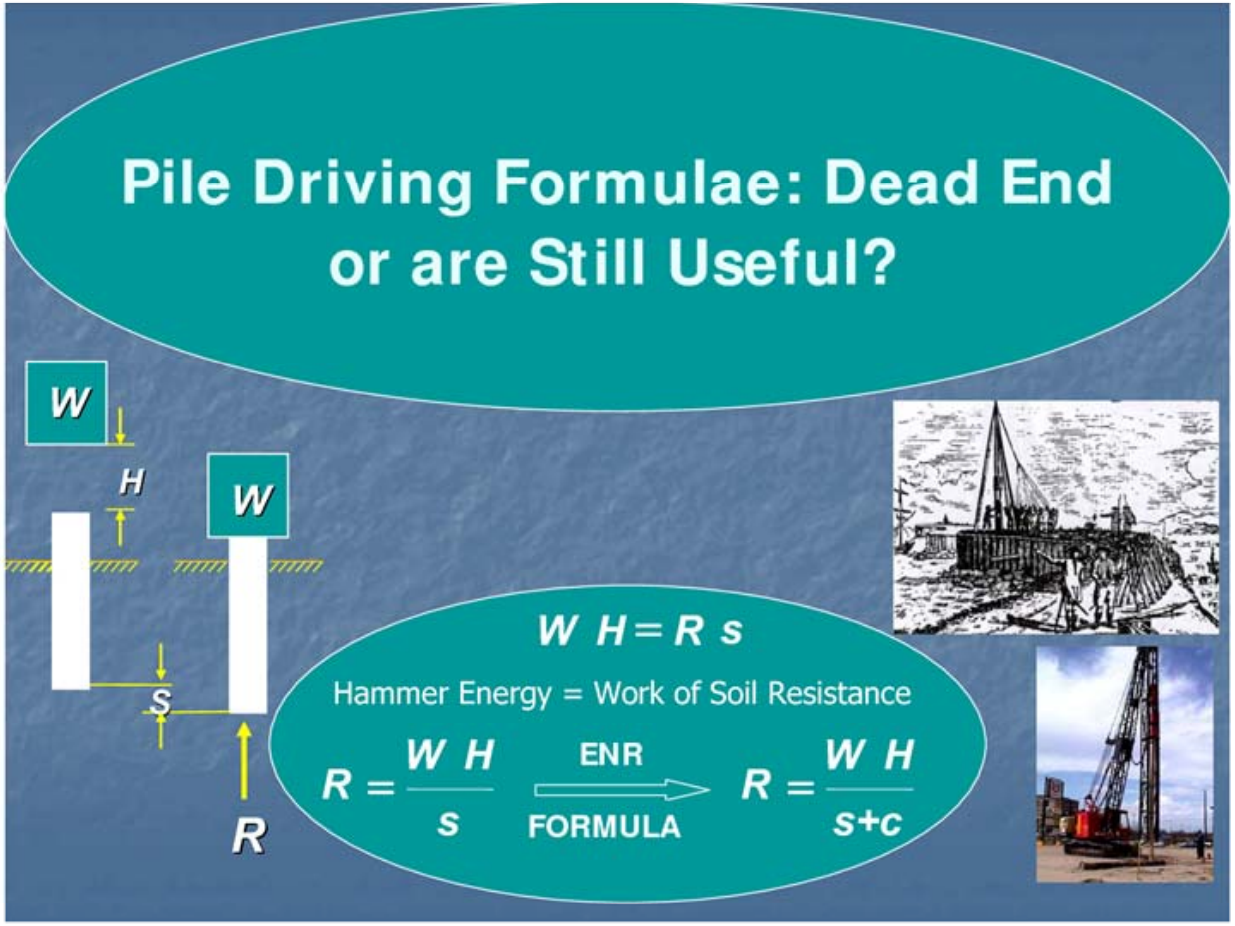
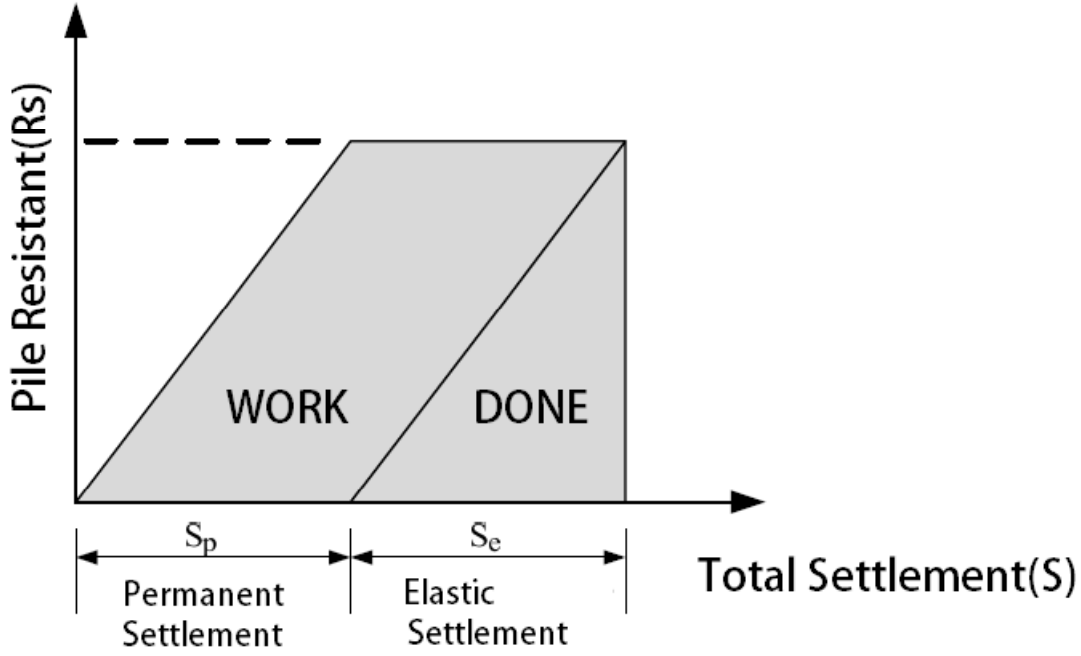
DYNAMIC LOAD TEST



DYNAMIC LOAD TEST



DYNAMIC LOAD TEST



CONCEPT OF PILE DRIVING FORMULA

DYNAMIC LOAD TEST

Common used for Pile driving formular

1 MODIFIER ENR. **Pu = eh*Eh*(Wr+n^2*Wp)/((S+C)*(Wr+Wp))**

2 JANBU **Pu = eh*Eh/(ku*S)**

3 DANISH **Pu = eh*Eh/(S+c1)**

4 GATES **Pu = 40*LOG(1/4*S)*SQRT(eh*Eh)**

Pu = ultimate pile capacity (ton)

eh = efficiency of drop hammer

drop hammer (rope&friction) , eh=0.75

Eh = Apply energy of drop hammer ,Eh=Wr*h

Wr = Ram weight(ton)

h = Free fall drop height (m.)

Wp = Weight of pile(ton)

n = coefficient of restitution between ram and pile cap

For wood cap, n=0.25

S = Average settlement per blow(m.)

C = Coeficient of energy loss = 0.00254 m.

c1 = SQRT(eh*Eh*L/(2*A*E))

L = Pile length(m.)

A = Pile cross section area(m^2)

E = modulus of elasticity of pile (ton/m^2)

cd = 0.75+0.15*Wr/Wp

y = eh*Eh*L/(A*E*S^2)

ku = cd(1+SQRT(1+y/cd)

DYNAMIC LOAD TEST

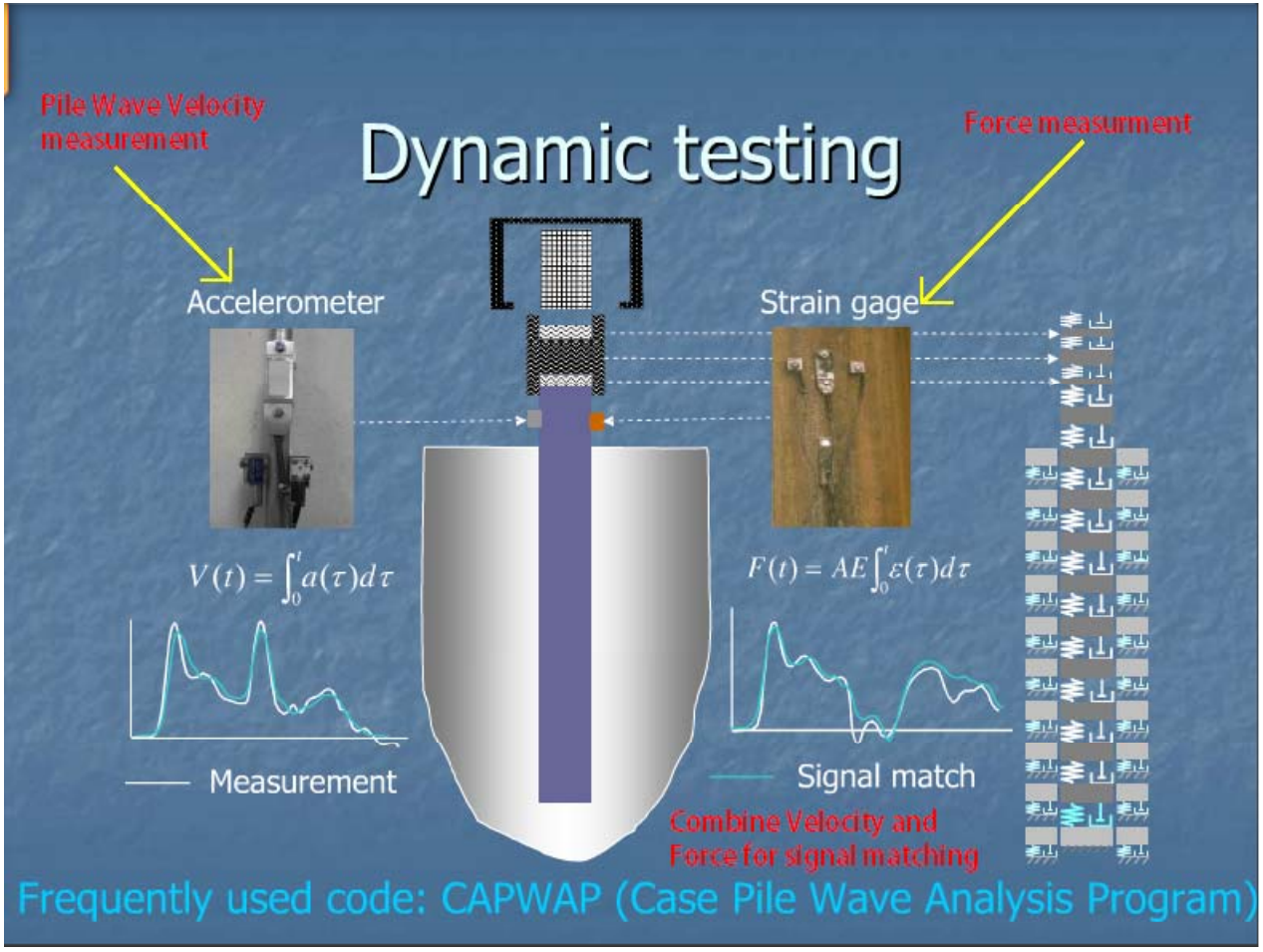
Performance of pile driving formulae

Delmag 30		Ultimate Pile Capacities according to different formulae, tons					
Ram 6,600 lb	Set 0.84 in	Empirical		Mechanistic			
Pile Type	Pile Length	ENR	Gates	WSDOT	Janbu	Hiley	Pacific Coast
12" PC/PS	80'	420	381	254	153	127	112
	40'				231	292	244
12" BP53	80'				189	253	176
	40'				231	292	244

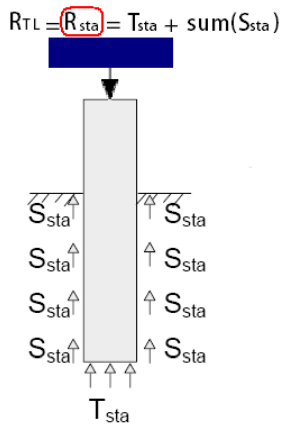
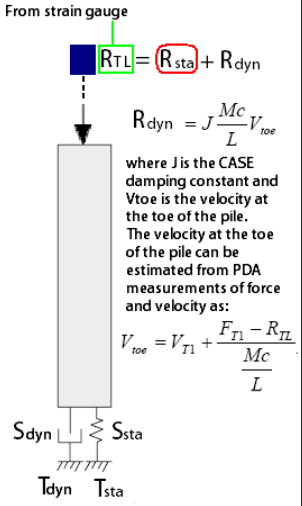
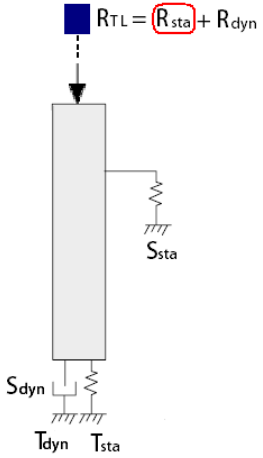
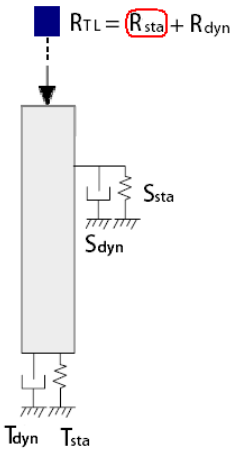
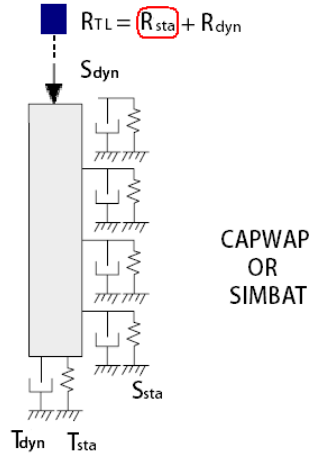
Range: 112 tons to 420 tons

Traditional FS	
ENR	6.0
Gates	3.5
WSDOT	3.0
Hiley	3.0
Janbu	2.8
Pacific Coast	4.0

DYNAMIC LOAD TEST



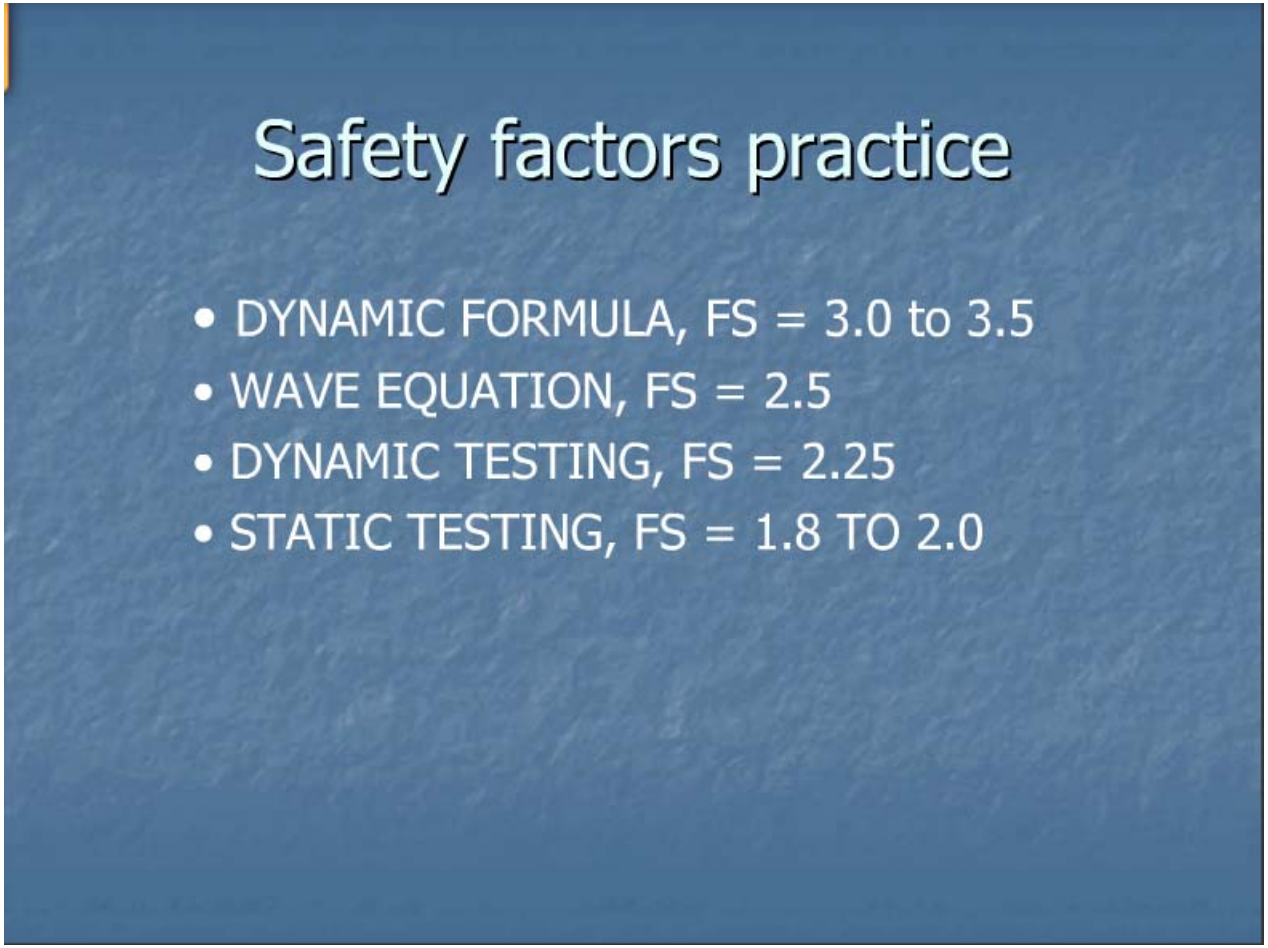
DYNAMIC LOAD TEST

REAL PILE (STATIC LOAD TEST)	ANALYTICAL METHOD (REAL TIME RESULTS ON SITE)			POST PROCESSING
	CASE METHOD	IMPEDANCE METHOD	TNO METHOD	SIGNAL MATCHING
				

REMARK: T_{sta} = Toe Resistance(Static Force), S_{sta} = Skin Resistance(Static Force), $R_{sta} = T_{sta} + S_{sta}$
T_{dyn} = Toe Resistance(Dynamic Force), S_{dyn} = Skin Resistance(Dynamic Force), $R_{dyn} = T_{dyn} + S_{dyn}$

SIMULATION OF PILE LOAD TEST BY WAVE MECHANICS THEORY

DYNAMIC LOAD TEST



DYNAMIC LOAD TEST

PDI Frequently Asked Questions

1. Time delay from initial drive to restrike

Soil Type	Time Delay Until Restrike
Cleans Sands	1 Day
Silty Sands	2 Days
Sandy Silts	3-5 Days
Silts and Clays	7-14 Days*
Shales	7 Days

* - Longer times sometimes required. Specifying too short of a restrike time for friction piles in fine grained soils may result in pile length overruns.

2. Minimum test requirement

2.1 At least 5% for initial test

2.2 At least 1% for restrike test

(Alberta Transportation, Edm, Alb, Canada)