

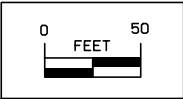
THIS SHEET IS INCLUDED TO SHOW SOIL INFORMATION. DETAILS AND NOTES SHOWN ELSEWHERE IN THESE PLANS SHALL BE USED FOR STRUCTURE CONSTRUCTION.

CONE PENETRATION TEST (CPT) DATA ARE AVAILABLE ON REQUEST

PRELIMINARY
NOT FOR CONSTRUCTION

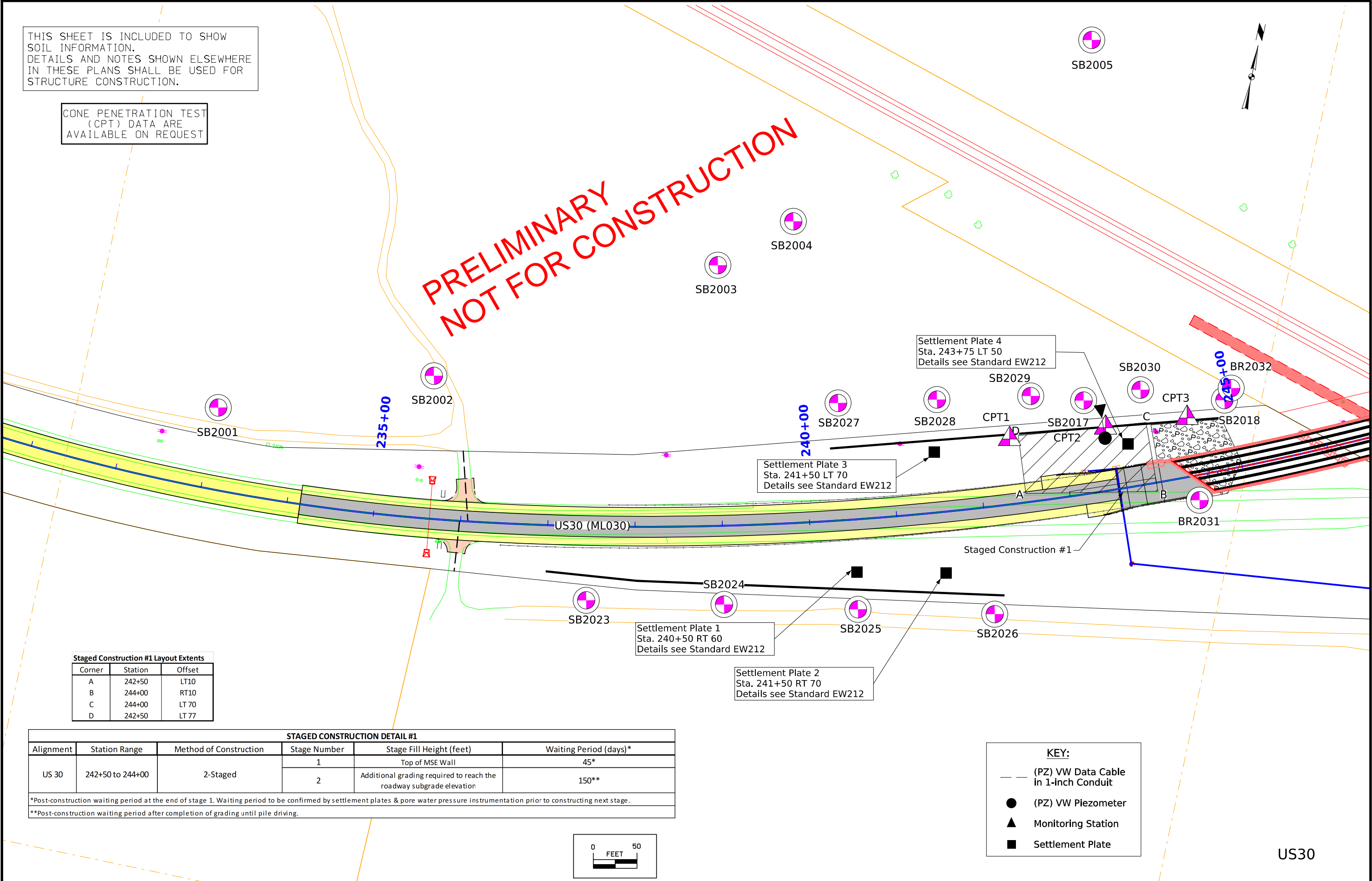
Staged Construction #1 Layout Extents		
Corner	Station	Offset
A	242+50	LT10
B	244+00	RT10
C	244+00	LT 70
D	242+50	LT 77

STAGED CONSTRUCTION DETAIL #1					
Alignment	Station Range	Method of Construction	Stage Number	Stage Fill Height (feet)	Waiting Period (days)*
US 30	242+50 to 244+00	2-Staged	1	Top of MSE Wall	45*
			2	Additional grading required to reach the roadway subgrade elevation	150**
*Post-construction waiting period at the end of stage 1. Waiting period to be confirmed by settlement plates & pore water pressure instrumentation prior to constructing next stage.					
**Post-construction waiting period after completion of grading until pile driving.					



KEY:

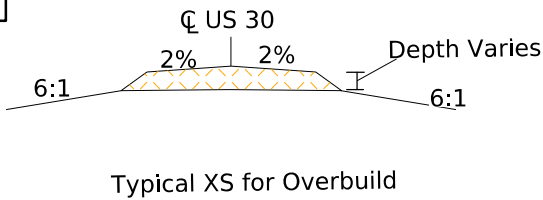
- (PZ) VW Data Cable in 1-inch Conduit
- (PZ) VW Piezometer
- Monitoring Station
- Settlement Plate



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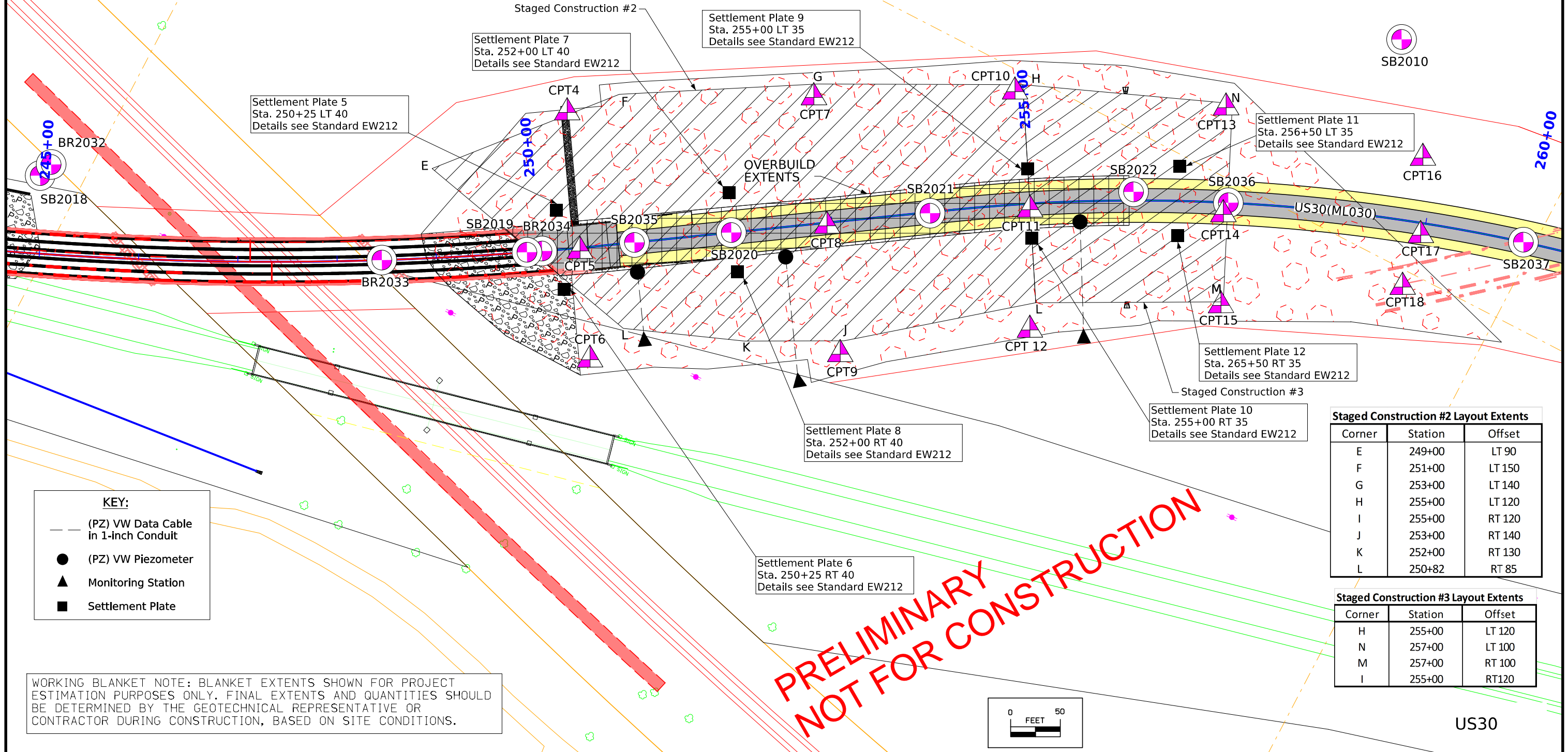
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Overbuild Extents			
Begin Station	End Station	Overbuild Height (feet)	Quantity (Cu. Yd)
249+75	252+50	2.5	1230
252+50	254+00	2	556
254+00	257+00	1	580
Overbuild Notes:			
Place Overbuild to depths, limits and typical section shown.			
Construct overbuild using Select material, placed per specifications.			



STAGED CONSTRUCTION DETAIL #2					
Alignment	Station Range	Method of Construction	Stage Number	Stage Fill Height (feet)	Waiting Period (days)
US 30	249+75 to 255+00	2-Staged	1	20	60*
			2	Final proposed grade & overbuild	210**
*Post-construction waiting period at the end stage 1. Waiting period to be confirmed by settlement plates & pore water pressure instrumentation prior to constructing next stage.					
**Post-construction waiting period until pile driving					

STAGED CONSTRUCTION DETAIL #3					
Alignment	Station Range	Method of Construction	Stage Number	Stage Fill Height (feet)*	Waiting Period (days)*
US 30	255+00 to 257+00	2-Staged	1	20	45
			2	Final proposed grade & overbuild	60
*Post-construction waiting period at the end of each stage. Waiting period to be confirmed by settlement plates & pore water pressure instrumentation prior to constructing next stage.					



- KEY:**
- (PZ) VW Data Cable in 1-inch Conduit
 - (PZ) VW Piezometer
 - Monitoring Station
 - Settlement Plate

WORKING BLANKET NOTE: BLANKET EXTENTS SHOWN FOR PROJECT ESTIMATION PURPOSES ONLY. FINAL EXTENTS AND QUANTITIES SHOULD BE DETERMINED BY THE GEOTECHNICAL REPRESENTATIVE OR CONTRACTOR DURING CONSTRUCTION, BASED ON SITE CONDITIONS.

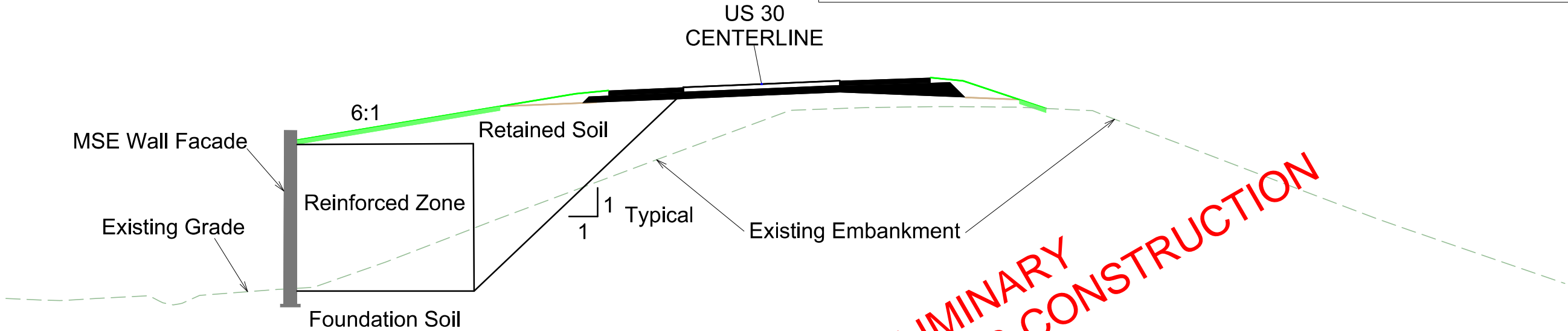
Staged Construction #2 Layout Extents		
Corner	Station	Offset
E	249+00	LT 90
F	251+00	LT 150
G	253+00	LT 140
H	255+00	LT 120
I	255+00	RT 120
J	253+00	RT 140
K	252+00	RT 130
L	250+82	RT 85

Staged Construction #3 Layout Extents		
Corner	Station	Offset
H	255+00	LT 120
N	257+00	LT 100
M	257+00	RT 100
I	255+00	RT120

MSE Wall Geotechnical Design Parameters			
Material	Description	Total Unit Weight (pcf)	Effective Friction Angle (degrees)
Foundation Soil	Sandy Lean Clay	120	$\phi' = 28$
Retained Soil	Sandy Lean Clay	125	$\phi' = 26$
Reinforced Soil	Granular Backfill, <5% fines*	120	$\phi' = 34$
*Material meeting Iowa DOT Standard Specification Section 2432 for backfill material selection			
Note: Effective Cohesion Assumed as 0 psf			

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MSE Wall Bearing Resistance Summary				
Wall Section (Stations)	Maxium Wall Design Height (feet)	L/H Ratio*	Ultimate Bearing Capacity (psf)	Factored Bearing Resistance (psf)**
South Wall 23+30 to 24+50	12	1.1	4,900	3,150
South Wall 24+50 to 26+50	15	1.1	6,100	3,950
South Wall 26+50 to 28+55	18	1.1	7,600	4,900
North Wall 4+13 to 5+00	18	1.1	7,600	4,900
North Wall 5+00 to 6+50	25	1.1	10,300	6,650
North Wall 6+50 to 7+70	29	1.1	11,000	7,150
North Wall 7+70 to 8+60	25	1.1	10,300	6,650
*Reinforcement length to wall design height ratio				
**Bearing Resistance Factor of 0.65				



MSE Wall Settlement Summary	
Approximate Wall Section (Stations)	Estimated Settlement (inches)*
South Wall 23+30 to 24+25	Less than 1 to 1-1/2
South Wall 24+25 to 26+00	1-1/2 to 3
South Wall 26+00 to 28+00	3 to 4
South Wall 28+00 to 28+55	4 to 1
North Wall 4+13 to 4+75	Less than 1 to 3-1/2
North Wall 4+75 to 5+75	3-1/2 to 4-1/2
North Wall 5+75 to 7+20	4-1/2 to 6
North Wall 7+20 to 8+60	6 to Less than 1
*Settlement estimations based on preliminary wall design details. Settlement estimates to be verified during construction using settlement plates.	

TYPICAL MSE WALL SECTION
NOT TO SCALE

NOTE: REFER TO NORTH MSE RETAINING WALL STAGED CONSTRUCTION DETAILS IN Q.12

MSE Wall Soil
Design Parameters