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Working toget

Subsurface Utility and Clash Detection

BENTLEY USER GROUP DENMARK

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• How many conflicts are here?





- The real power of ProjectWise Navigator / MicroStation
- The clash detection tool allows you to identify sets of 3D graphical elements and to detect clashes between these 3D object element sets.
- Ability to interactively and graphically review these clashes, annotate or markup particular clashes, and assign them for follow-up.



 Clash Detection works by examining 2 separate groups of 3D data (i.e. Set A and Set B) to be used for the detection of physical clashes and <u>clearance</u> problems between the elements.

Clash Detection - Untitled J	ob			
Job Results				
Ŭ ₩ % ×	Levels	*	Set A	*
	(none) Level 4 Level 5 Level 6 Level 7	•	Soft Clearance: 0.0	000 Feet
	Level 8		Set B	*
	Level 9 Level 10	-	Soft Clearance: 0.0	000 Feet
	References Named Groups	*	⊜ Level 12	
			Process	Close





- Each Clash analysis must be created as its own unique job.
- Each job will have a Set A group of elements and Set B group of elements

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Clash Detection – Criteria Tab

- The Criteria tab is used to select Levels, References or Named Groups to be included in the clash detection job.
- Elements in Set A and Set B can be specified by dragging and dropping Levels, References or Named Groups into the appropriate set

Clash Detection - Untitled Jo	ab			
Job Results				
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Clash Detection – Criteria Tab

- Soft Clearance specifies a "clearance window" around the 3D elements in Set A or Set B
- Example, if the elements in Set B get closer than the 200mm, soft clearance value set for Set A then a clash will be reported, this is considered a "clearance clash"
- If elements in Set B physically touch elements in Set A the clash is considered a "hard clash"



Clash Detection – Rules

- Tolerance -Sets the allowable distance used to eliminate interferences between components that only touch.
- Suppress Clashes between elements that are touching If on, ignores elements that are within the tolerance, such as when a bolt is connected to nut.

Criteria Rules Results		
Touching Elements		
Tolerance: 0.001 Fee	et	
V Suppress clashes between	elements that are touching	
Suppression Rules		
📑 New 📑 Duplicate 📓	Delete	🗈 Up 🖶 Down
Check rules to activate (applie	ed in the order shown)	
Suppress clashes within the suppress clashes within the suppress clashes within the suppress clashes within the super-super	e same level	
	Process	Close



Clash Detection – Rules

 Suppression Rules -Used when a high number of clashes are found and more sophisticated analysis is needed to reduce the number of clashes.

늘 Clash Detection - Untitled	Job	Rules Template
Job Results		Pula Sat
1 🛛 🗞 📑 🗙	Criteria Rules Results	Suppress Clashes (Generic)
Image: Second secon	Criteria Rules Results Touching Elements Tolerance: 0.0010 Feet Image: Suppress clashes between elements that are touching Suppression Rules Suppression Rules Image: Rew Image: Duplicate Image: Duplicate Image: Duplicate Image: Duplicate Image: Revel Delete Check rules to activate (applied in the order shown) Image: Suppress clashes within the same level Image: Revel Image: Revel	Rule Set Suppress Clashes (Generic) Select a rule template to use when creating the new rule Suppress clashes with elements in a specific model or file Suppress clashes with elements in specific levels Suppress clashes with elements in two specific files Suppress clashes with elements in two specific files Suppress clashes with in the same level Suppress clashes with elements that have a specific property value. Suppress clashes between elements with the same property value. Suppress clashes between elements that have points on the same Image: the suppress clashes between elements that have points on the same Image: the suppress clashes between elements that have points on the same Rule description
		Create Cancel

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Clash Detection - Results

- Any clash that is found is reported in the Results tab
- Each clash is named and classified by type, Clearance clash or Hard clash

Clash Detection - pipes (4 c	lashes)					1			• X
Job Results	Criteria R	ules F	Results						
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	<u>۲</u>	Clash 1	New	Hard	Less Than		Corey.Johnson	2010-10-1	
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Clash Detection - Results

- Detailed information for conflicting elements is shown in the bottom portion of the dialog
- Notice, in this case a 16" (400mm)storm sewer pipe is clashing with an 12" (300mm)water line

Clash Detection - pipes (4 cl	ashes)					1			×
Job Results									
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		Name	Status	Туре	Clearance	Assigned To	Found By	Found On	Accepte
		Clash1	New	Hard	Less Than		Corey.Johnson	2010-10-1	
		Clash2	New	Hard	Less Than		Corey.Johnson	2010-10-1	
		Clash3	New	Hard	Less Than		Corey.Johnson	2010-10-1	
		Clash4	New	Hard	Less Than		Corey.Johnson	2010-10-1	
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Demonstration



