

West Side Fine Screens Building

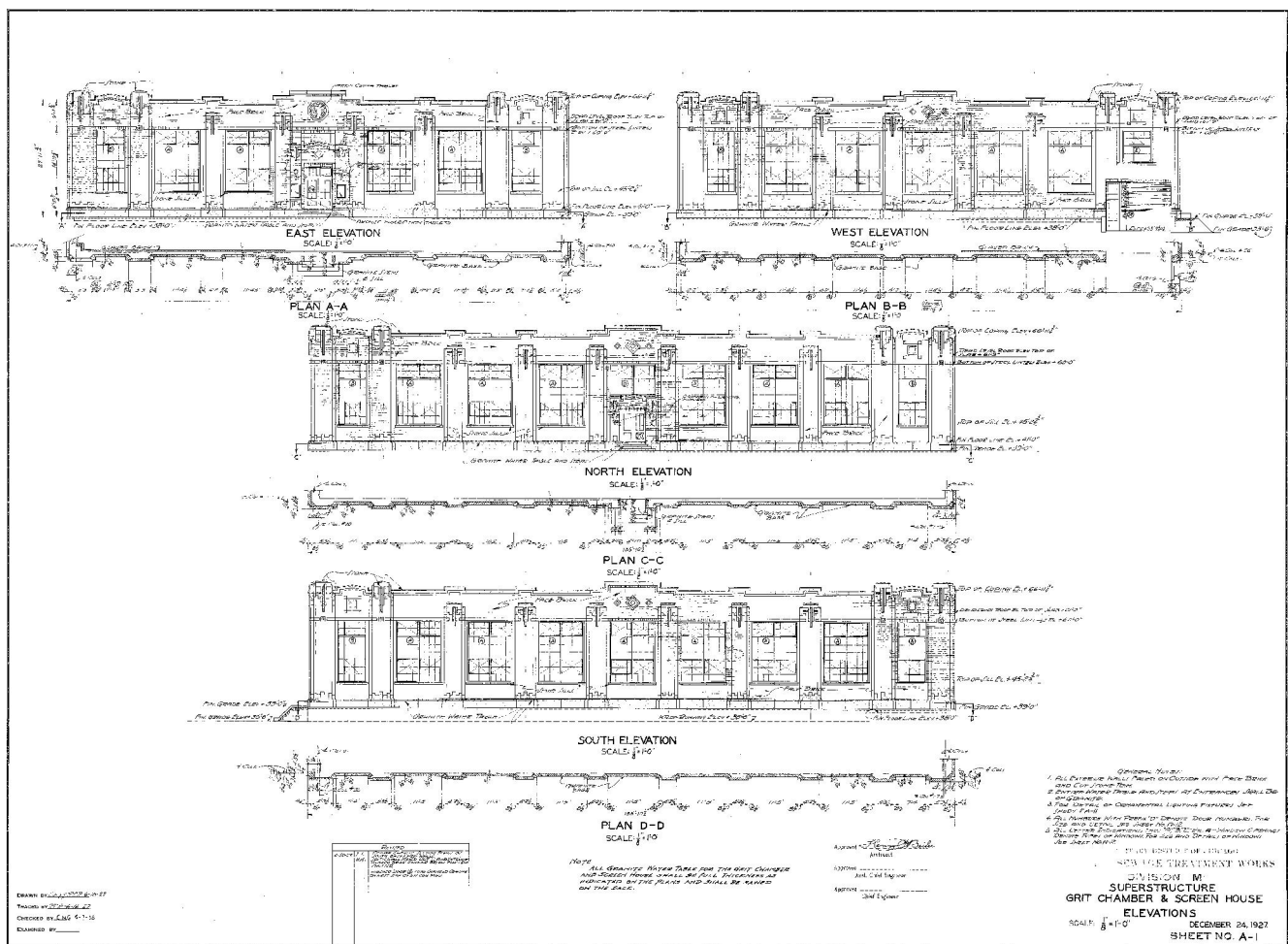


The Fine Screens building at West Side was constructed in 1928, and is essential for operation of the Stickney WRP. It is a steel-frame building with masonry cladding. The District has invested substantial capitol funds into this building recently, including new sewage screens, new HVAC units, and a new roof and skylights.

Fine Screens Building Under Construction



Fine Screens Building Exterior Elevations



Initial Masonry Inspection, December 2012



Damaged Masonry at
Spandrel Beam Area

Masonry at Column Area

An assessment of the defective masonry at the existing Fine Screens Building was performed by consultant Klein & Hoffman in order to determine the scope of restoration work required. During initial inspection, masonry damage was only visible along the spandrel beams above the windows. Masonry at columns appeared to be in good condition. Therefore, inspection openings were only made along the spandrel beams.

Initial Masonry Inspection, December 2012



After looking inside of the inspection openings, it was confirmed that the spandrel beams were severely corroded and were causing the masonry damage. It was determined that the spandrel beams and all the masonry above the windows would have to be removed and replaced. This repair work would be performed in Contract 04-128-3P.

Masonry Removal for Contract 04-128-3P, September 2016



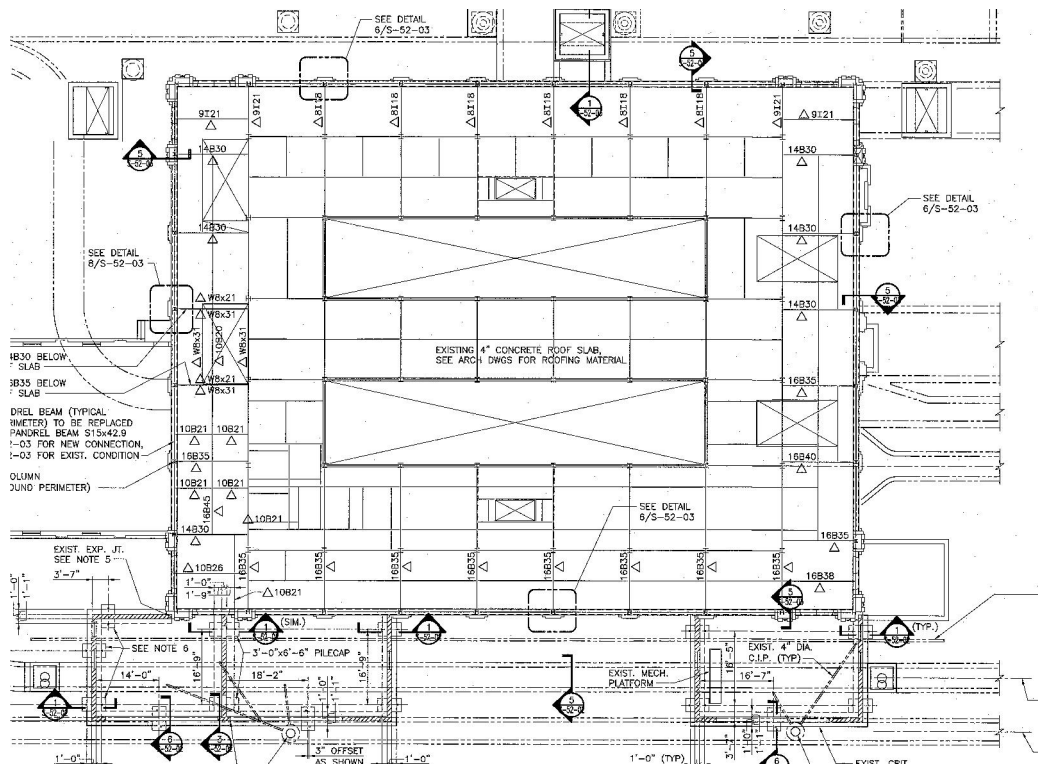
Once the repair work began on 04-128-3P, more masonry was removed in order to replace the corroded spandrel beams. When this masonry was removed, severe corrosion was also discovered on many columns. The cause of this corrosion was determined to be water leaking through the parapet and atmospheric moisture condensing on the columns, with no way for the water to get out.

Masonry Removal for Contract 04-128-3P, September 2016



Additional openings were made and severe corrosion could be seen throughout the height of some columns. The Engineer determined that full height column repairs would be necessary for many of the columns

WS Screen Building Layout



The Screen Building has 32 steel columns on the exterior walls. Masonry must be removed from each pilaster to inspect the column behind.

- If the inspection indicates the column is in good condition, it will be cleaned and painted to prevent corrosion and the brick replaced.
- If the column requires repair, it will be cleaned, reinforced with new steel, painted, and the brick replaced.

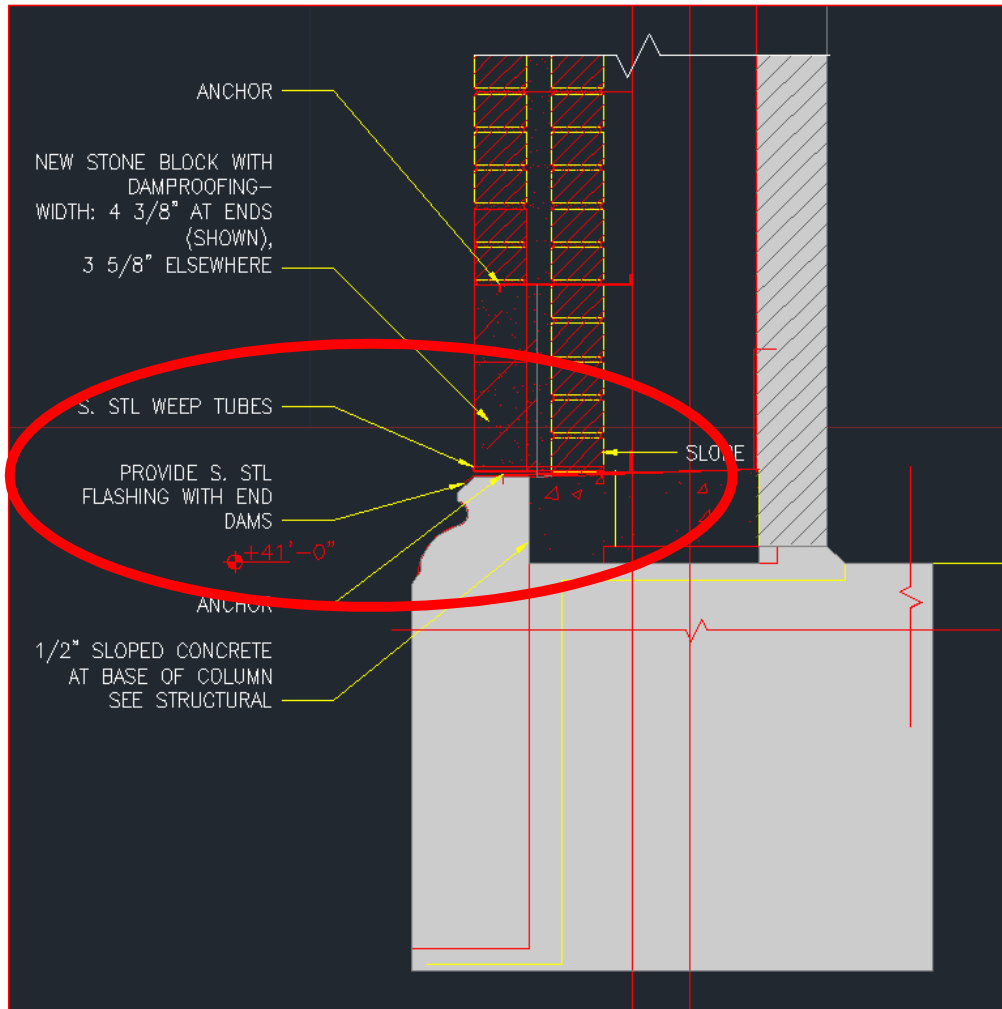
Masonry Removal for Change Order - 081, April 2017



North Elevation of Grit Chamber & Fine Screens Building

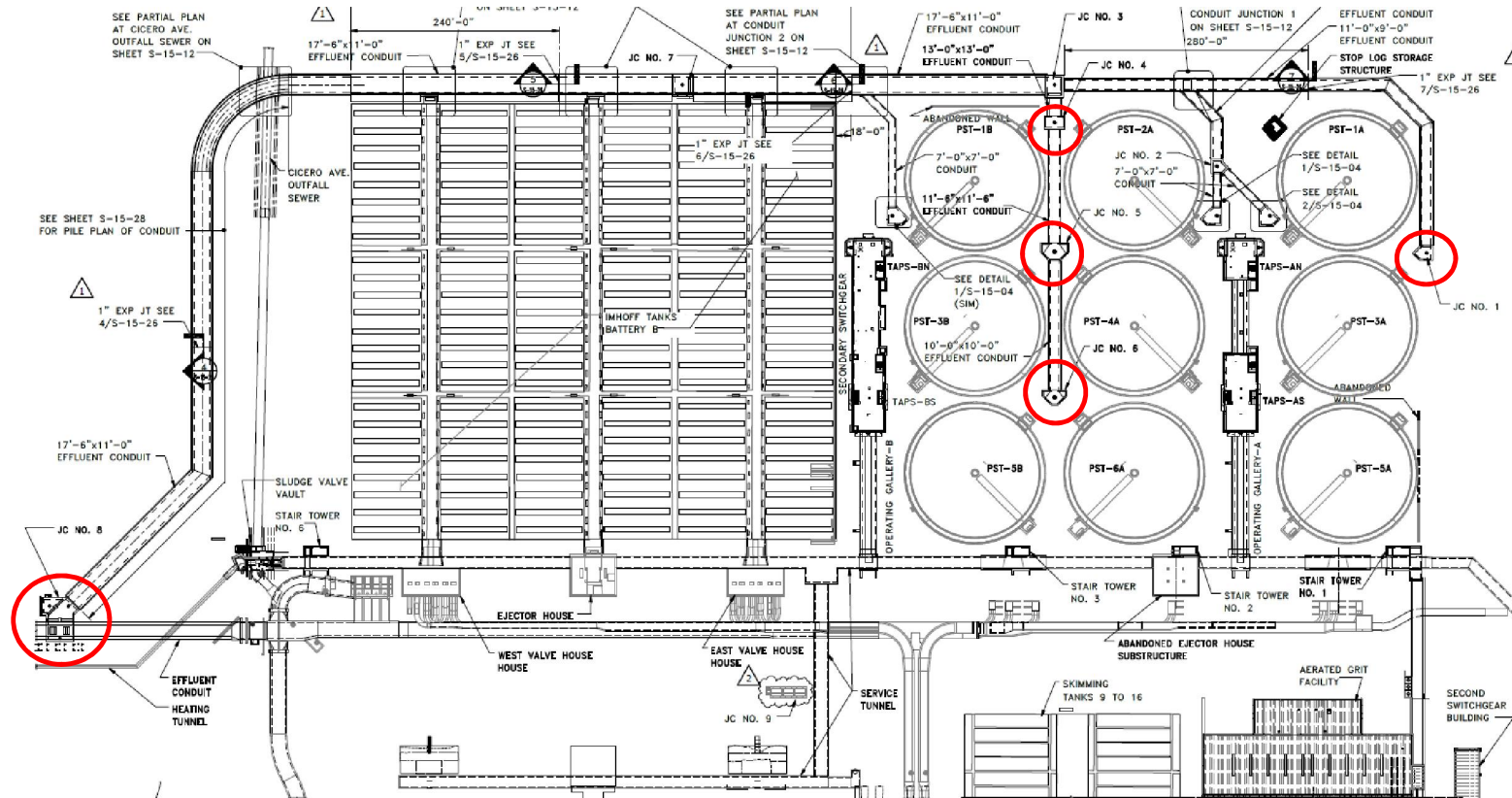
The 32 columns are each approximately 20' tall. Each column will have to be exposed for its entire height in order to determine the complete scope of column repair work. This will require a significant amount of masonry removal, weather protection, and bracing to stabilize the masonry walls, glass block windows, and roof.

Masonry Replacement for Change Order - 081



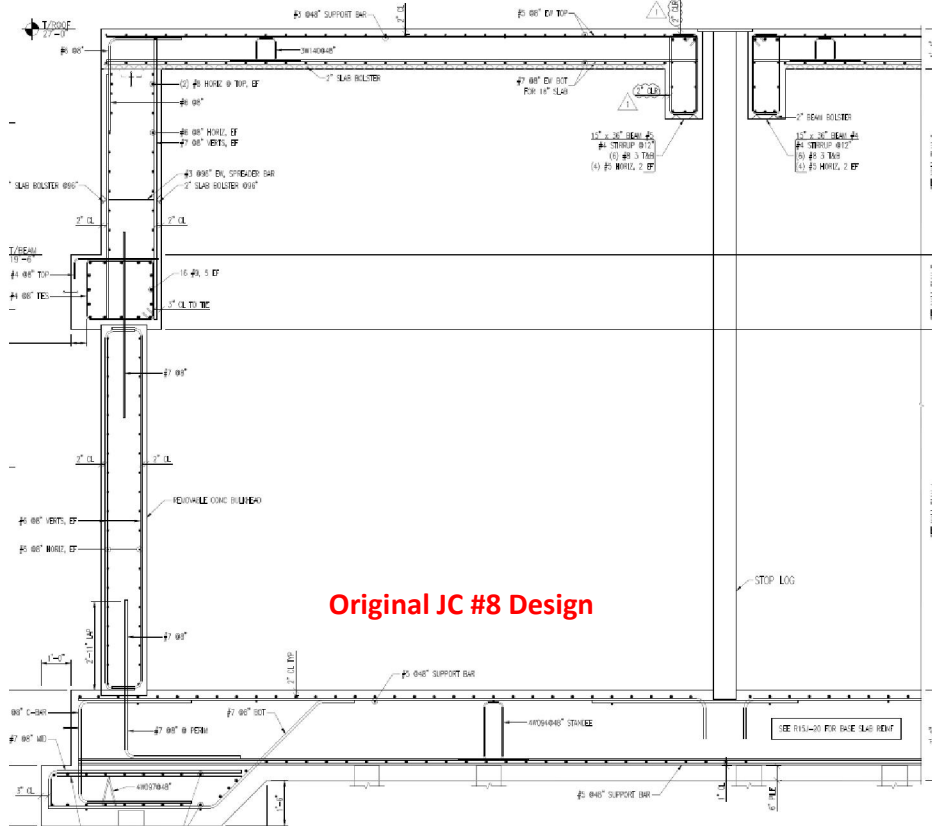
The existing spandrel beams and columns became severely corroded because the original masonry construction did not allow a pathway for water infiltration to escape. The beams and columns were completely encapsulated in masonry which trapped moisture on to the steel surfaces, causing it to corrode. After the masonry is removed for this change order, new masonry will be installed with masonry ties which will leave open space around the beams and columns. Water infiltration will flow through this open space and will be directed out of the wall cavity by stainless steel flashing and weep holes. Therefore, the beams and columns will no longer be in such a corrosive environment

Change Order 070 – Revising Junction Chambers for Overflow Conditions

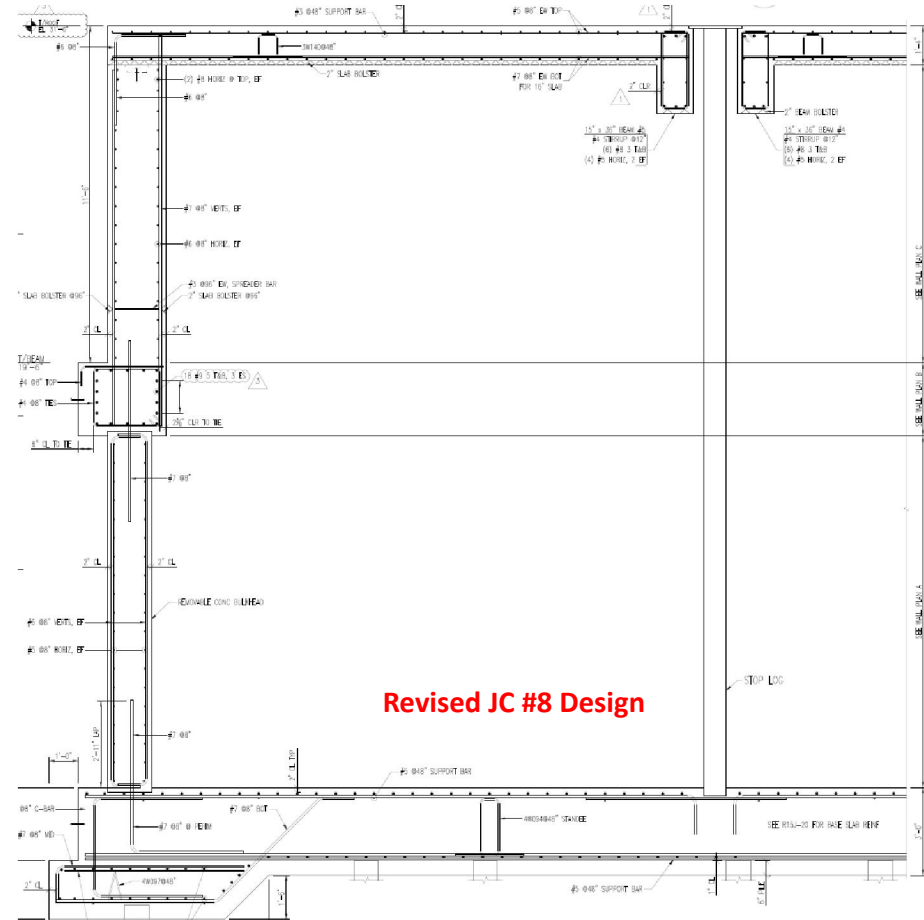


When designing the Junction Chambers, the top elevation of the roof slabs of the chambers was based on normal operating conditions. However, under very high-flow conditions, the District restricts flow from the Westside plant to the Southwest plant. Under this condition, sewage water elevations will be higher than normal conditions and will overflow Junction Chambers 1,4,5,6, & 8. Therefore, the elevations of these chambers must be raised.

Change Order 070 – Raising Elevation of Junction Chambers



Original JC #8 Design



Revised JC #8 Design

For Junction Chamber 8, it is required to increase the height of the two-foot thick reinforced concrete walls and the stop logs by 4'. For the other JC's, the precast barrel sections on top of the roof slabs will be replaced by a water tight cast in place concrete barrel section with dowels and hydrophilic waterstops.