17th Technical Training Series

CalRecycle

April 3-6, 2017 · Long Beach Hyatt

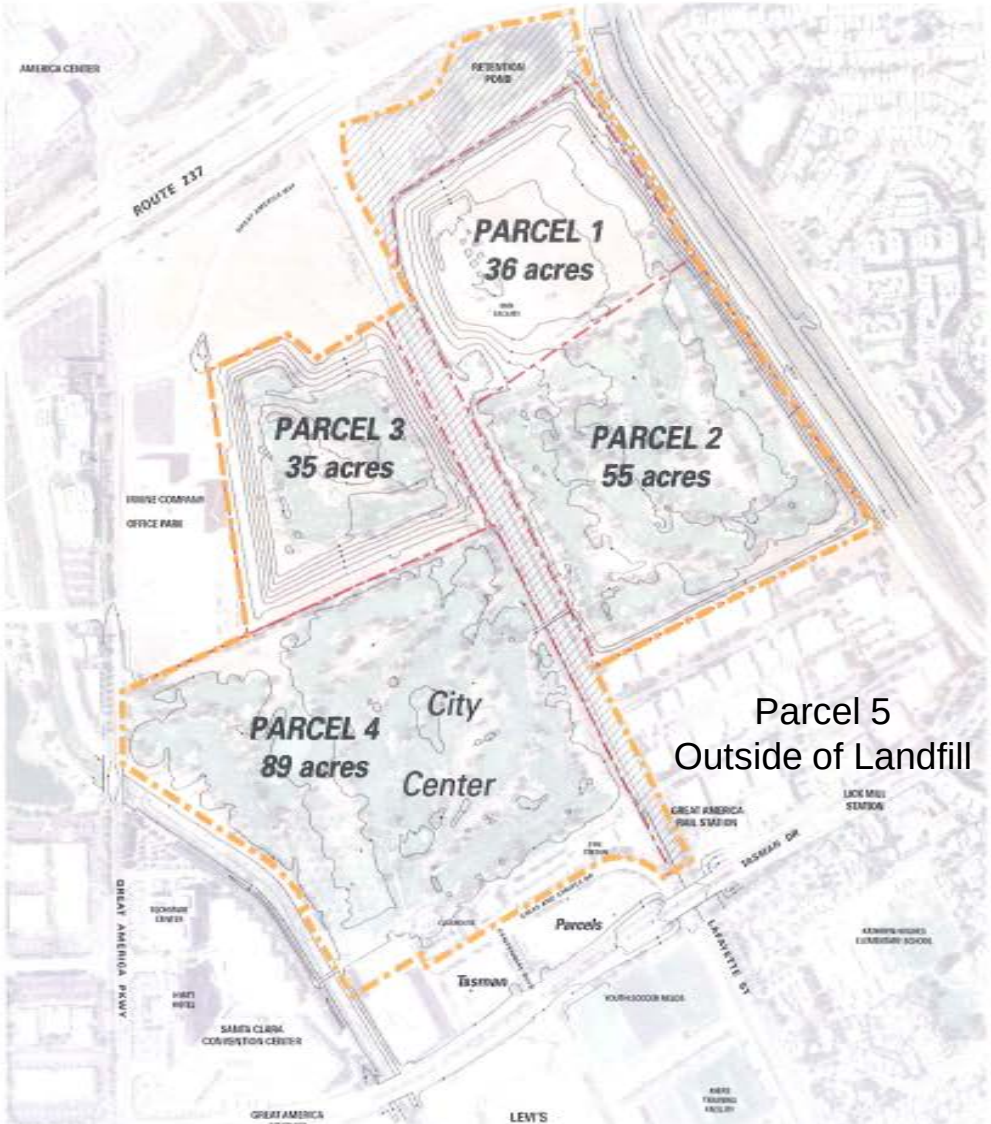
200 South Pine Avenue · Long Beach, California, 90802

Building a Town over a Closed Landfill

Stan Chau
Senior Environmental Health Specialist
County of Santa Clara LEA

Site Description

The overall project site totals 240 acres and includes four areas designated as Landfill Parcels 1, 2, 3 and 4 and an area south of and outside the landfill designated as Parcel 5. Landfill operations began in the late 1960s, taking place on Parcel 4 from sometime in the 1960s through at least 1977, on Parcel 2 between approximately 1977 and 1984, on Parcel 1 between approximately 1982 and 1986, and on Parcel 3 between approximately 1986 and 1991. Landfill operations resumed on the Parcel 1NW area (the northwest corner of Parcel 1) in 1991 and continued until the last refuse was accepted in 1993.



Existing Condition

Total Development Area:

215 Acres

LEGEND

- ENA Site Boundary
- Development Parcels
- Excluded from Development Site

Project Description

The developer proposes to fully redevelop the Site. Parcel 4 is planned for redevelopment as mixed-use including retail/entertainment, hotel and office and residential. Residential apartment units would be constructed above a podium garage structure or above at least one floor of retail space. The planned future uses for the remaining Parcels included office, rental, and hotel. Enclosed basement construction will be prohibited. For reference, a Home Depot is approximately 105,000 square feet (sf) and this project is equivalent to 87 Home Depots.

Parcel	Approximate Thickness of Cover Soil (feet)[1]	Approximate Thickness of Low Permeability Layer (feet)	Approximate Thickness of Refuse (feet)
Parcel 1/1NW	1 to 3.5	2.5 to 6	59.5
Parcel 2	2 to 10	1 to 4	30
Parcel 3/6	2 to 34	2 to 7	45 (estimated)
Parcel 4	1 to 10	1 to 5.5	10.5 to 33

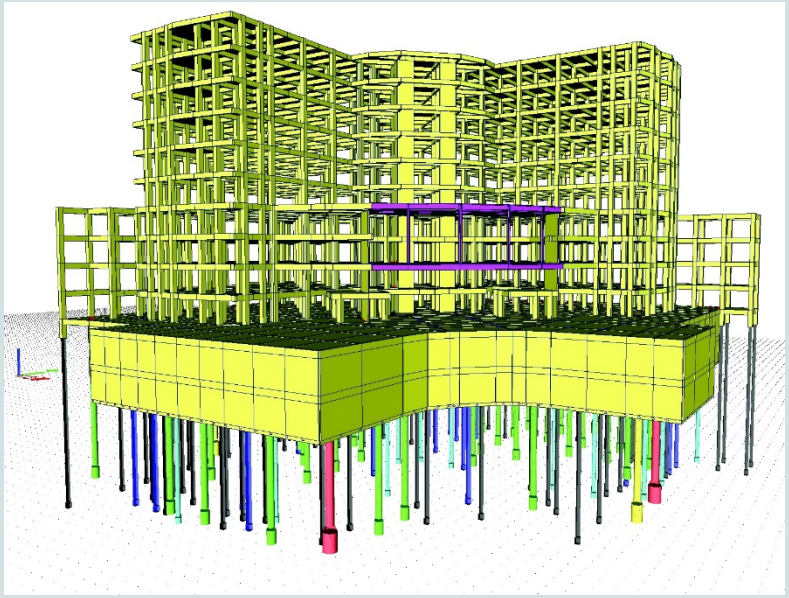
Parcel	Parcel Area (acres)	Potential Development Area (sf)	# of Home Depots
1/1NW	49.6	1,200,000	11.42
2	60.9	2,160,000	20.57
3/6	34.9	720,000	6.8*
4	86.6	4,259,400	40.56
5	8.0	825,000	7.85
			Total 87.2

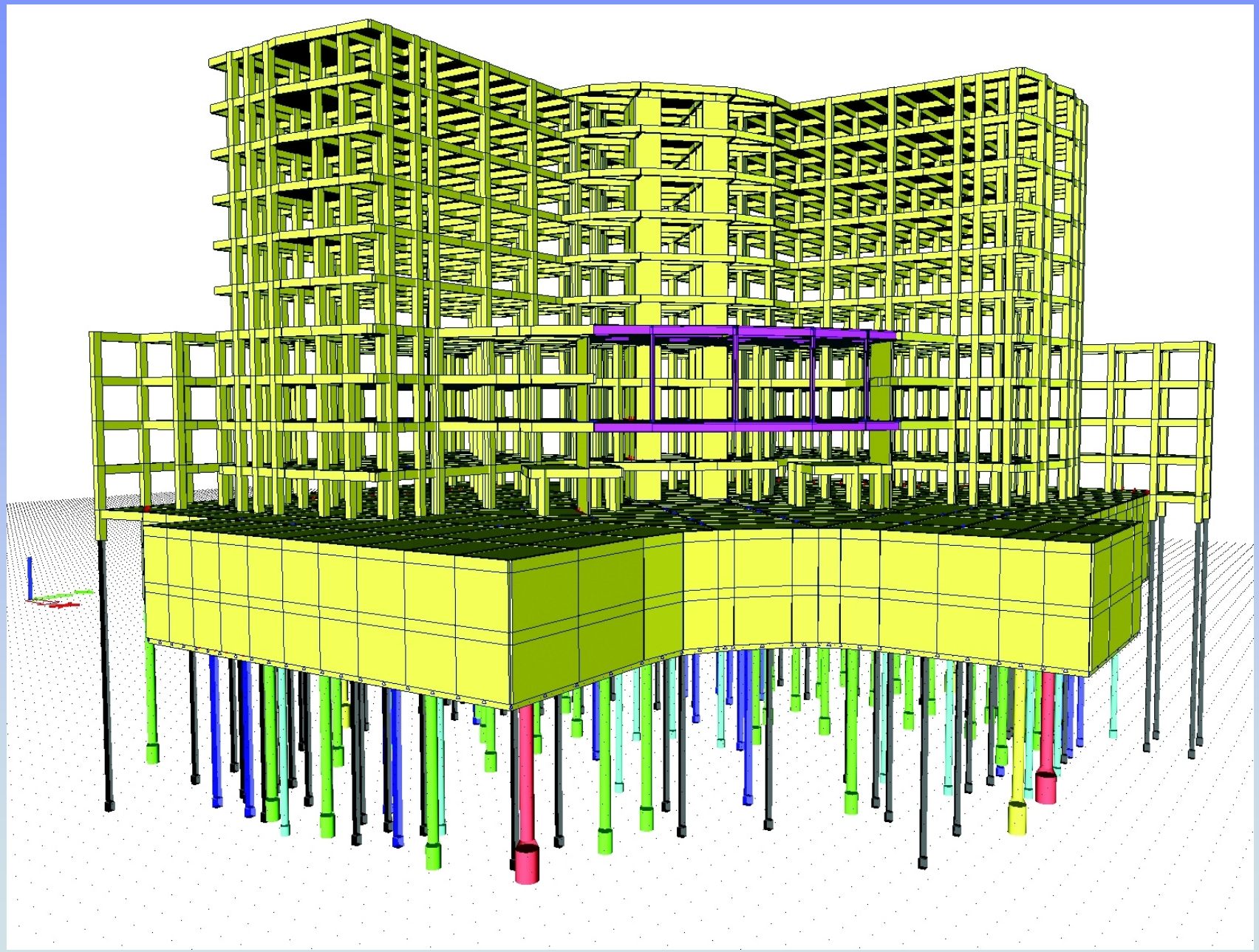
Overall View *looking south*

Overall View *looking North from Levi's Stadium*

This is a present day view from the 49ers Stadium

Approach	How this helped
Use Third Party resources to aid in verifying engineering/geotechnical submittals. See if you can get an arrangement where the developer pays the Third Party but gives direction/authority to the LEA.	Having developer pay for Third Party can allow the LEA the latitude in choosing expertise and affords expediency in selection that a typical procurement process can inhibit. Choosing a Third Party with specific skills for the project was critical for strong review. Third Party actually worked on the landfill when it was active and had construction experience with other closed landfills in the area. Geotechnical help was familiar with obtaining site specific data.. Helped analyze locations for proposed test gas extraction wells for determining accurate performance and spacing. We felt that the proposed test wells were located in ideal conditions, not reflective of overall varying conditions/soils. We negotiated test sites to reflect more realistic conditions for gas extraction performance and built them into the documents. Podium concept. Slab of concrete supported by a series of concrete columns and impact of support columns on Radius of Influence of gas extraction wells. They proposed switching from existing horizontal gas wells to a vertical well system and needed to prove the radius of gas collection would be able to extract gas out from under the concrete podium. We were concerned about how much interference these numerous vertical support columns would have on the gas extraction . The Third Party help allowed us to find deficiencies in their proposal such as overdrafting (landfill fires) and negotiated bolstering the vertical system with horizontal wells.





Approach	How this helped
Network early with appropriate departments/entities so that Health and Safety construction standards are known and can be included into council meetings, CEQA, construction plans, and building permits.	Introduced ourselves into the broader development process groups and communicated our needs. Allowed us to build Quality Assurance/Certifications for Health and Safety requirements throughout plan development, Post Closure Land Use Plan and Post Closure Maintenance Plan and make these known to other agencies to help complement each other.
Each project presents its unique engineering issues. Use joint meetings with all the parties to discuss plans, preferably face to face to reduce confusion or misunderstanding and understand the unique needs of the project. Network with other regulatory agencies/departments and have mutual meetings with developer.	Joint meetings with all the parties helped clarify items that didn't make sense and helped the focus and direction. (EX: passive vs. powered gas venting) Meetings assured understanding with regulators and developer so project was addressed comprehensively and heard from at the same meeting and minimized confusion.
Have regulatory engineers and geologists share ideas on the project.	By sharing resources, we were able to fulfill needs the other may have been lacking and discover areas the other may have missed.
Build Quality Assurance/Certification effectiveness requirements throughout process and into Post Closure Land Use Plan and Post Closure Maintenance Plan.	We created the idea of review milestones to various construction phases. This was a way to allow us to put approval steps in the phases of development and reinforce that plans need to correlate to construction performance.
Giving support to Monitoring and Maintenance Costs and Responsible Party.	We thought that this was a big issue and brought this up every chance we had. In addition, it helped to prevent the subdivision of the project and helped keep an eye on anything that could weaken oversight.


QUESTIONS
?