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Thornton Tomasetti

Memorandum

TO	Jeffrey Winick, Esq.	FROM	Scott Schneider, P.E.
COMPANY	Harris Winick Harris LLP	DATE	February 5, 2024
RE	Lakeside & Concrete Collective REA Response	PROJECT NO	NN17009.00
CC	Lori Healy, Roark Frankel, Paul Schulhof, Robert Honig, Esq.	PROJECT NAME	Obama Presidential Center

Thornton Tomasetti, Inc. ("TT") has prepared this memorandum to defend its services as it approaches its eighth year supporting the design, construction, and ownership teams in helping to build the Obama Presidential Center (the "OPC" or the "Project"). As you know, TT has provided structural engineering, construction engineering, and protective design & security services for the Project. We understand that it is the general contractor, Lakeside Alliance's ("LA") contention that TT is somehow responsible for certain challenges encountered during the Project's concrete construction. Through conversation over the past several months we understand that LA has claimed the following items have had an impact on the Project schedule and cost:

- TT's participation on the Project from our office in New York.
- The timeliness of TT's response during construction administration.
- The quality of our structural drawings and specifications and that we required an impossible to achieve quality standard.
- That the objectives of the preconstruction process were only focused architectural finishes, budget, and sequence.
- The number of Requests for Information ("RFIs") during construction.
- Rebar congestion.
- Splice requirements.

These claims are all factually incorrect and wholly meritless. The construction issues were all unequivocally driven by the underperformance and inexperience of the concrete sub-contractor, Concrete Collective ("CC") and poor coordination and timing by LA with respect to related trades. What follows in this memo is a chronological summary of these issues. LA and CC are sometimes collectively referred to as the "Contractors."

<u>TT's Services were all Performed in a Timely Manner.</u>

TT has delivered this Project across multiple offices, primarily from New York and Chicago to support a similar makeup of the overall design team. We also partnered with an MWBE firm (Stearn Joglekar) in Chicago to deliver our services in an integrated way to help meet the Project's diversity goals. TT delivered its work in a timely manner along the full duration of the Project. During construction we have diligently supported the Project from both New York and Chicago, including on-site presence two days a week from staff in our Chicago office for the last 18 months.

EXHIBIT
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TT collaborated, in all ways possible, during construction including weekly, and many times daily, reprioritization of needs based on work in the field while maintaining the following:

- To date, TT has responded to 1,356 RFIs of the 1,364 issued (more on the nonconformance process follows later in this memo). Of those closed RFIs 1,301 have been issued by LA or CC and TT has responded in an average of 3 working days to those (the Project specification allows for 7 working days).
- For concrete related submittals (316329, 031000, 032000, 033000, and 033816) TT has responded in an average of 9 working days (the Project specification allows for 15 working days).

The contention that the organization of TT's Project team or the timeliness of TT's services somehow contributed to the field delays is completely unfounded and an attempt to disguise the Contractor's own underperformance.

TT's Construction Documents and Preconstruction Efforts Were Entirely Appropriate.

The Contractor's suggestion that TT's design documents were anything other than first rate or held the Contractor to impossible to achieve quality standards is unsupported by the facts and wholly without merit. TT supported the issuance of GMP deliverables by the design team throughout 2020, including delivering GMP 2 for the superstructure in September of that year. The structural Construction Documents, both drawings and specifications, have remained substantially unchanged since then. TT has classified less than 3% of RFI responses as requiring a change to be issued in a bulletin. Items such as concrete reinforcement detailing and splicing requirements were indicated in the Construction Documents which were the basis for CC's GMP bid and have not changed. These requirements are in accordance with industry standards and best practice. If there was any merit to the Contractor's claims, there would have been numerous changes required to the Contract Documents. This was simply not the case and serves as further evidence of the weakness of the Contractor's position.

The design and construction teams participated in a robust preconstruction process during the summer and early fall of 2020 leading to the publishing of the GMP deliverable noted above. This process indeed addressed multiple facets of construction including architectural concrete, structural detailing, and coordination with requirements for the means and methods of construction. Examples of this include submittal 032000-01.1 from August of 2020, a snip shown below in Figure 1, where the full team worked through rebar and PT arrangements as part of the Tower wall mockup as well as Sheet S392 in the GMP deliverable which brought on board agreed to reinforcement requirements to support the selected the formwork system.

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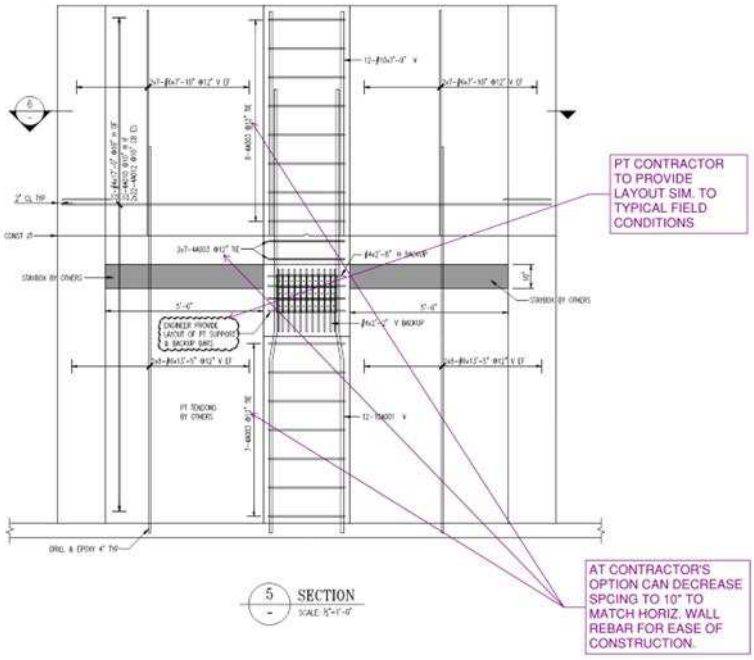

Figure 1. Preconstruction Reinforcement Coordination

If this Project needed to be approached with the "care and caution" as professed by LA's point of view, there was ample time in 2020 to do just that, and TT was amenable to adjusting the Construction Documents with solutions that were agreeable to all parties. There were, however, no requests from LA or CA to make adjustments to the Construction Documents relative to the issues they are now claiming are problems.

TT participated in a Lean Construction Institute event at the OPC site on September 21, 2022. The purpose of the event was to discuss and recognize the advantages that the preconstruction process had brought to this Project. Team members from CC were present and made public remarks at the event that the Project was more challenging than they initially thought, and that they were learning every day on site.

<u>TT Was Not Permitted to Influence the Trade Coordination and Nonconformance Processes.</u>

Starting as early as preconstruction both TT and Tod Williams Billie Tsien Architects ("TWBTA") were vocal that late arriving coordination information from the related trades due to the timing of GMP packages was going to complicate LA's coordination of these related requirements as well as its obligation to provide properly coordinated Comprehensive Layout Drawings, as required by

the Project specification. There were many discussions about this, and it was extensively documented in emails in May 2022 as one example. It turned out to be true and both TWBTA and TT participated in multiple reviews of submittals, essentially helping LA do their trade coordination work. Numerous submittals had upwards of five or six rounds of revisions due to the poor quality of the original submittal and the lack of coordination in advance. This is far from typical and highlights the Contractor's poor performance. This was acknowledged by the Obama Foundation through approved additional services in March of 2023 and July of 2023 for additional construction administration efforts by TT for expedited and out of sequence reviews requested by the Contractors, reviews of additional submittals as a result of dividing packages into smaller scopes of work, and the required reviews of submittals more times than allowed for in the Project specification due to their poor quality.

Similarly, TT and TWBTA asked LA to organize a separate system for tracking requests for corrective field work and substitutions (nonconformances) as these types of items are not RFIs in accordance with the Project specification. The specification is organized in this way to provide clear insight for the owner on changes required in the field. This request was rejected by LA, as documented in emails in August 2022. Of the 1,301 closed RFIs that have been issued by LA or CC, TT classified 586 (45%) of them as requests for corrective field work or substitution. These are not RFIs. TT expended hundreds of hours reviewing, analyzing, re-designing, and responding to corrective work in the field, in addition to the standard construction administration process and still delivered submittal and RFI responses in a timely manner as indicated earlier in this memo. LA's suggestion that the Project suffered from an unacceptable amount of RFIs is an attempt to disguise what actually happened, and its attempt to blame the design team for its own shortcomings should be rejected.

<u>The Contractors Caused a Multitude of Problems in the Field.</u>

The corrective work in the field noted above has been extensive and wide-ranging. Issues that TT has had to review have included, but are not limited to:

- Damage to caisson dowels and claim there's no way to avoid damage.
- Removed mat pour due to curing heat issues.
- Missed keyway in tower cores (RFI-2356).
- Failure to implement cold weather procedures overnight of Level 7 curing when temps were anticipated to be high 20s/low 30s (related to low Level 7 stressing breaks).
- Unsupported beam condition at Plaza Mezz T-1B60 (RFI-1691).
- Exposed rebar at Level 2 slab (RFI-1664).
- Exposed rebar at Level 5 slab (Observation 697. Was opened on 10/10/2023, still has not been addressed by LA or CC).

- Walls constructed with incorrect bar layering (RFI-1676).
- Incorrect installation of reinforcement of beam T-2B1 (ASI 056) and T-4B1 (RFI-2049) leading to introduction of piers.
- Failure to install bars per approved shop drawings (RFI-2771 & 2905).
- P13 library cracked slab shown below in Figure 2. Began at the end of June 2023, repairs began in November (5 months later, including incorrect repairs ignoring our guidance making the ultimate solution more difficult), still not repaired adequately after 7 months. (Observation 624).

Figure 2. Significant Cracking at P13 Library Slab Pour

- Incorrect rebar cage at slender north core piers (RFI-1733).
- Missing large wall openings and inability to confidently say what was installed around intended openings (RFI-2776).
- Significantly displaced reinforcement at wall return due to installation of embed (RFI-0785).
- Missed reinforcement at high torsion beam (RFI-2431).
- Removed sections of AEC walls due to formwork blowouts or excessive cracking (RFI-1022).
- Pouring the garage entry ramp wall as the wrong thickness (RFI-2317)
- Site scope pedestal dowels cast into garage roof slab incorrectly.
- Link beam bars not set at the correct elevation.
- DBRs or stay boxes are missed and require drill/epoxy dowels.

As you can see, this is an inordinate amount of rework, and a more experienced contractor would not have had this many problems. The Contractors' attempt to classify its own errors as RFIs, for which the design team is responsible, is wholly without merit.

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Objections to TT's Concrete Drawings and Specifications are Without Merit.

The Contractor's contention that some concrete elements in the Project were too congested to build is both misleading and incorrect. Similarly, their claims regarding non-contact lap splices are misguided. Once again, all parties had the ability to comment on, and address these, if they were indeed issues, during preconstruction. There was no mention of any of these issues at that time. Subsequently, LA and CC changed formwork suppliers between Preconstruction and Construction causing additional rework.

TT is not aware of any congestion issues other than in the two Tower cores. The vast majority of the core wall reinforcing ratios do not exceed 1.25% of total concrete area, with most wall zones above the Plaza landing in the 0.50%-0.75% range. Similarly, apart from the transfer girder buttresses at the north core, the core buttress vertical reinforcement ratios do not exceed 1.5%. These reinforcement ratios are actually on the low end for a typical concrete building, and well below the maximum 4% allowed by code. TT also worked during construction to do an extensive revision to those reinforcement layouts to suit LA and CC's preference for construction to ease placement from their perspective.

TT's structural drawings and specifications are developed to ensure structural performance as well as to align with industry standards and preferred construction methods. The leading industry organization in terms of the constructability of concrete reinforcement is the Concrete Reinforcing Steel Institute (CRSI) and their guidance on lap splices reads: *Contact Splices – in which the bars touch and are wired together – are preferred because they are more secure against displacement during construction.* TT's specification uses this guidance because we believe it improves the end work result in terms of load transfer and in terms of constructability. In our experience, contractors typically use this method to ensure reinforcement is aligned properly and secured from movement. As noted above this requirement was a part of the Construction Documents at the time of bid and could have been discussed during preconstruction. For this Project it is even more critical given the extent of architecturally exposed concrete. Poor placement, alignment, and securing of, reinforcement has led to several areas where reinforcement ended up partially exposed (as shown in Figure 3) and has required additional rework to finish these surfaces to meet the Project's architectural goals.


Figure 3. Partially Exposed Reinforcement at Architecturally Exposed Concrete Areas

TT continued to do everything possible to ensure that the structural requirements were met, while helping achieve the overall Project goals. In reviewing the RFIs submitted for field fixes related to concrete reinforcement primarily, we generated the summary shown below in Table 1.

	Tower	Forum & Library	Parking Garage
Caisson Dowels	2	19	2
Rebar Placement	139	152	29
Coordination Miss	42	26	5
Short Splice	27	13	8
Non-Contact Splice	59	53	4

Table 1. Breakdown of RFIs Related to Concrete Reinforcement

This chart demonstrates that as the Project got more complex in the Forum, Library, and the Tower, the Contractors ran into more problems placing reinforcement. It also shows that non-contact splice questions were merely 20% of the issues and when the Project requirements were relaxed with non-contact lap splice provisions provided for the Project's concrete elements, the problems persisted. This chart also points to the myriad problems driven by the Contractor's performance including cover tolerance issues, bar layering, hook placement, a significant amount of drilling and epoxying reinforcement that was either missed or misplaced, and incorrect lap splice lengths.

During pre-pour inspections, the Special Inspector identified bars (typically wall verticals) without the required splice length. The Contractors indicated that this issue would be significantly mitigated by having the fabricator deliver bars that were intentionally longer than required to

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achieve the minimum splice length, however TT continued to be asked to review and approve bars with splices shorter than required by code (to ensure proper load transfer). As a part of RFI-2573 LA asked if they could mechanically couple extensions to achieve the required lengths, essentially adding cost, time, and congestion to the Project where it is unnecessary.

In addition to the discussion above regarding the OPC, TT has successfully executed millions of square feet of construction in collaboration with Turner and W.E. O'Neil using the same or substantially similar specification requirements. Our specification requirements in this regard have never been an issue as portrayed here, including a current Project utilizing the same specification which W.E. O'Neil is building not far from the OPC.

Conclusion

The challenges with the concrete on this Project are due solely to the performance of the Contractors. TT understands that all Projects have challenges which must be met. TT has worked through these issues diligently on this Project and will continue to support the Project each day as the concrete construction approaches completion in the next few months. That said, we cannot stand by while the Contractors attempt to blame their own shortcomings on the design team.

The Design Team is very disappointed to learn that the Contractors have questioned our performance on the OPC. TWBTA and TT bent over backwards to assist what everyone knows was a questionably qualified sub-contractor team in areas where a more qualified sub-contractor would not have required it. TT is now repaid for our efforts by criticism for applying the correct engineering standard, in an evenhanded and collaborative manner, and attempting to assist the Contractors at every stage. The history of the OPC Project clearly establishes that any delays or cost overruns were caused by the Contractors, and not by the Design Team.