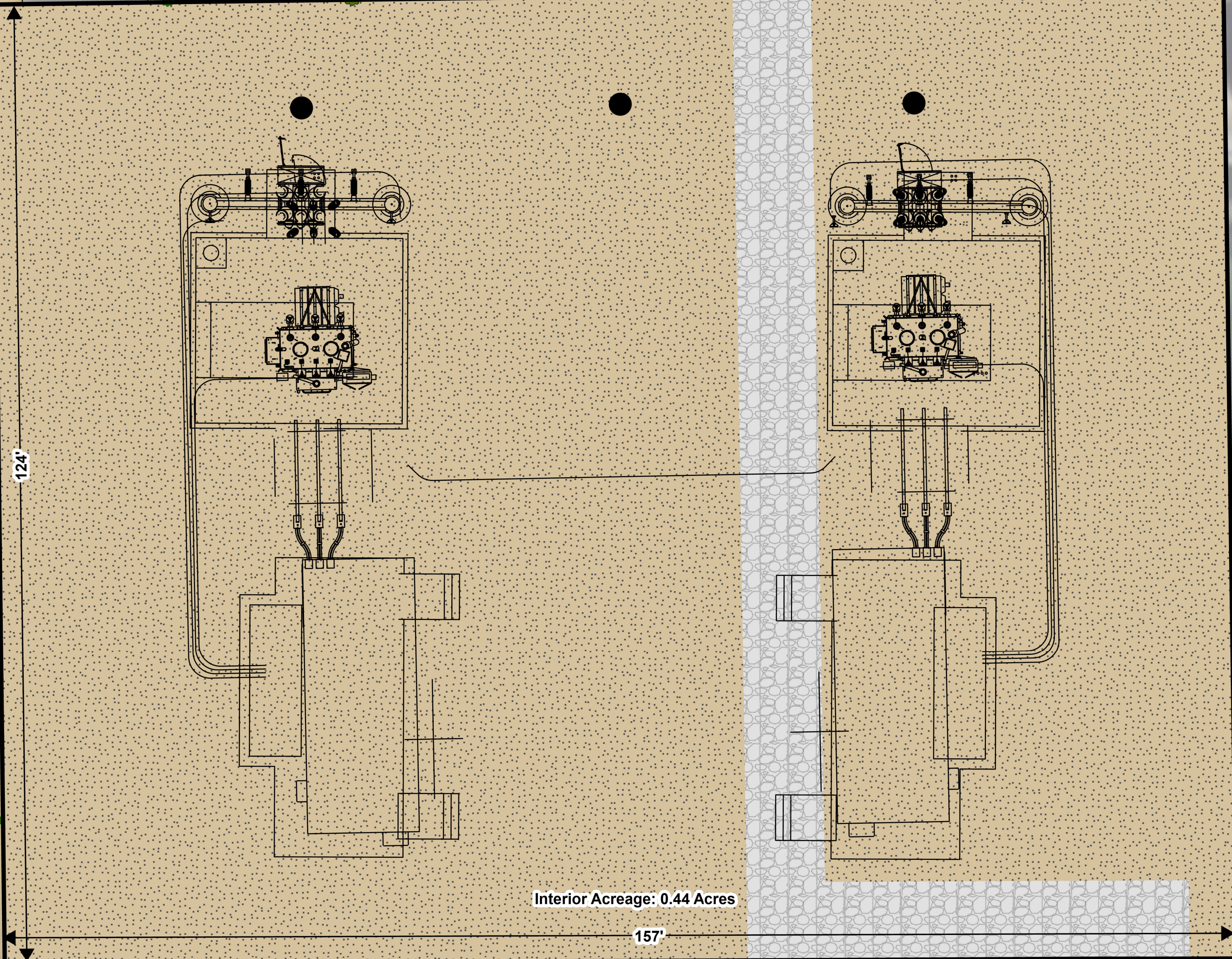


E Mabel St

N Alvernon Way

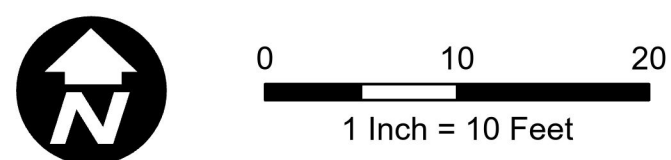
10' Landscaped Area

Storm Water Detention Basin



N Alvernon Substation Conceptual Site Plan

- New Poles
- Parcels
- 12' Wall
- ▨ Drainage Channel
- 🌿 Conceptual Vegetation
- ▨ Storm Water Detention Basin
- ▨ Driveway
- ▨ Decomposed Granite



Sources: Esri, UNIS, TEP, BLM, and Pima County GIS. Projection: NAD 1983 UTM Zone 12N. Basemap: Esri World Imagery. This map is for planning purposes only. TEP and UNIS Energy make no warranty of its accuracy.

North Alvernon 46 kV Substation Expansion

Special Exception Land Use Permit Timeline



2024 2025 2026



Purpose and Need

- Built in 1972, the substation's aging facilities have reached the end of their life expectancy.
- Electrical service from the substation is near capacity and there is minimal ability to serve those the immediate area from other substations in the event of a failure.

Project Benefits

TEP will replace antiquated equipment with modern, more reliable systems that allow for enhanced voltage control, contingency support to existing circuits and greater flexibility for system operators responding to outages.



North Alvernon 46 kV Circuit Breaker



North Alvernon 46 kV to 4.2 kV Transformer



North Alvernon Control Shelter

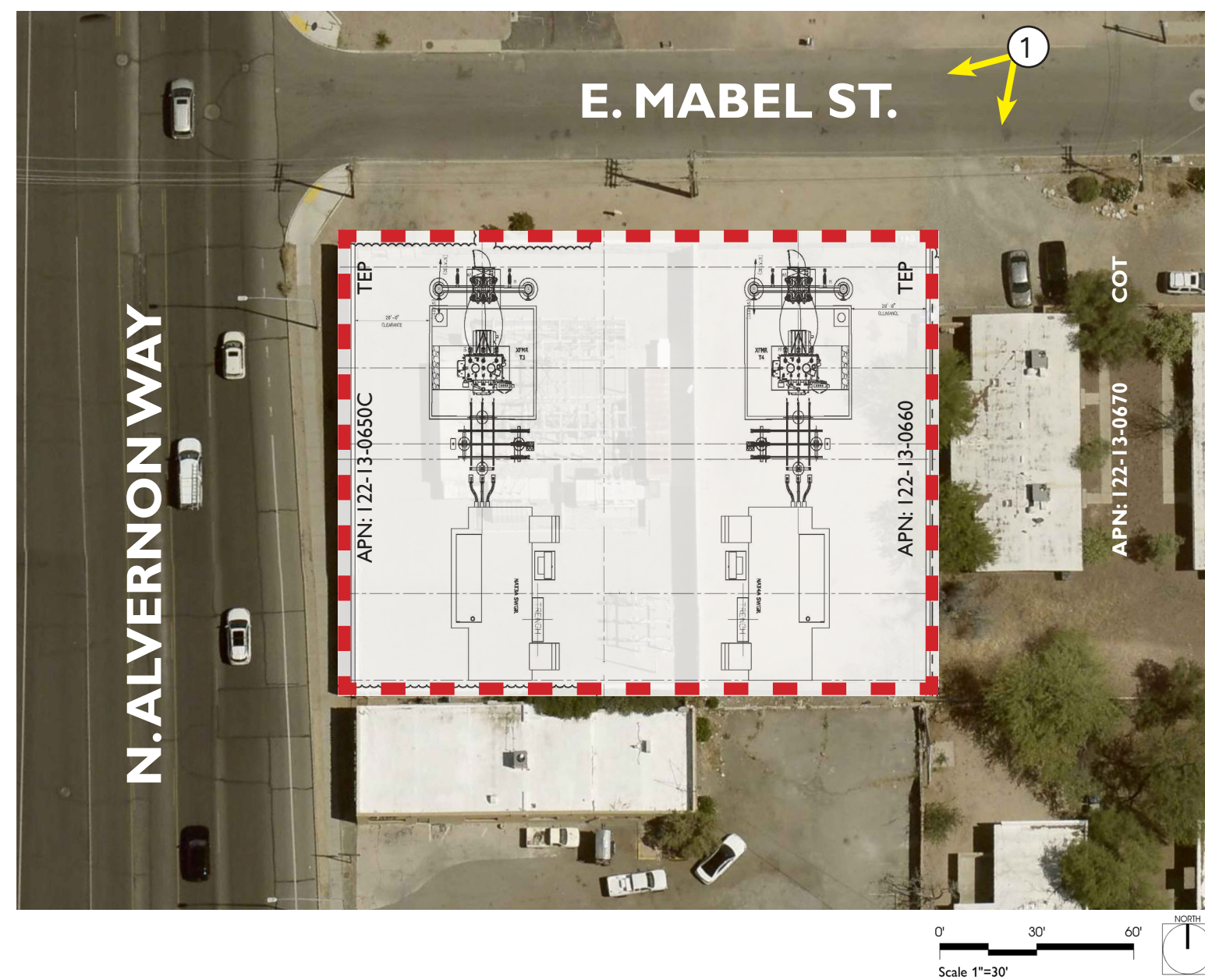
Special Exceptions Request

- TEP is requesting relief from the 20-foot setback requirement in order to maintain critical safety clearances from energized equipment within the walls of the substation.
- TEP is requesting relief from the maximum wall height of 10 feet, to maintain the safety and general welfare of the community surrounding the substation, TEP Security Standard requires a minimum 12-foot-high masonry security wall.

PHOTO SIMULATION | KEY OBSERVATION POINT #1



VIEW FROM MABEL STREET
IN FRONT OF 3922/3924 E. MABEL ST. (DUPLEX)
LOOKING SOUTHWEST TOWARDS THE SUBSTATION

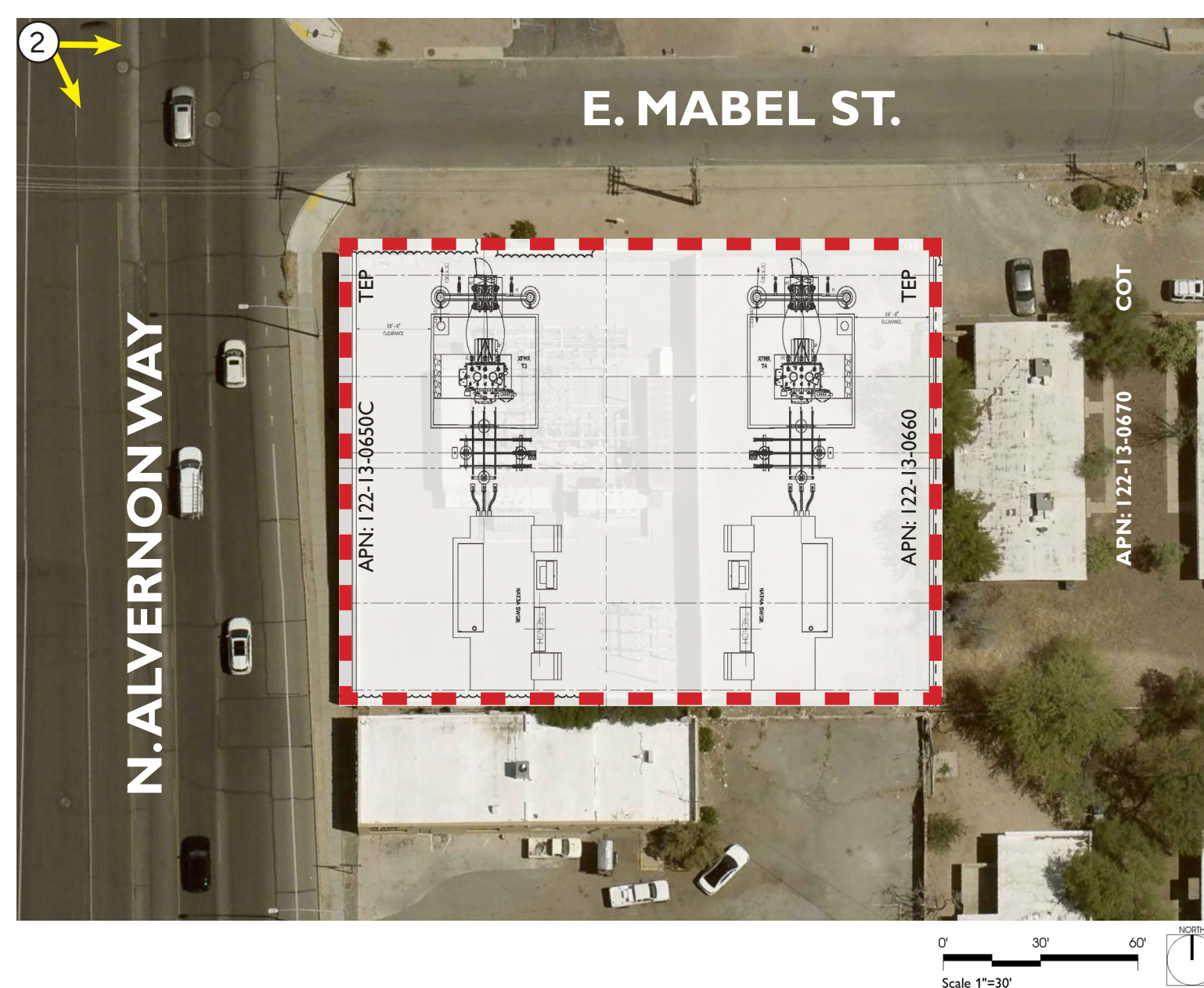


Note: This exhibit is for illustrative purposes only and subject to change pending final engineered plans. The simulation used the Alvernon TEP Substation Preliminary Landscape Plan as a basis for rendering streetscape vegetation. Existing trees sited on the duplex parcel are assumed to be removed for this project. See final approved landscape plans for final planting design. Transmission structure locations are subject to ACC CEC approval. Locations shown are estimates based on PDF site plans provided.

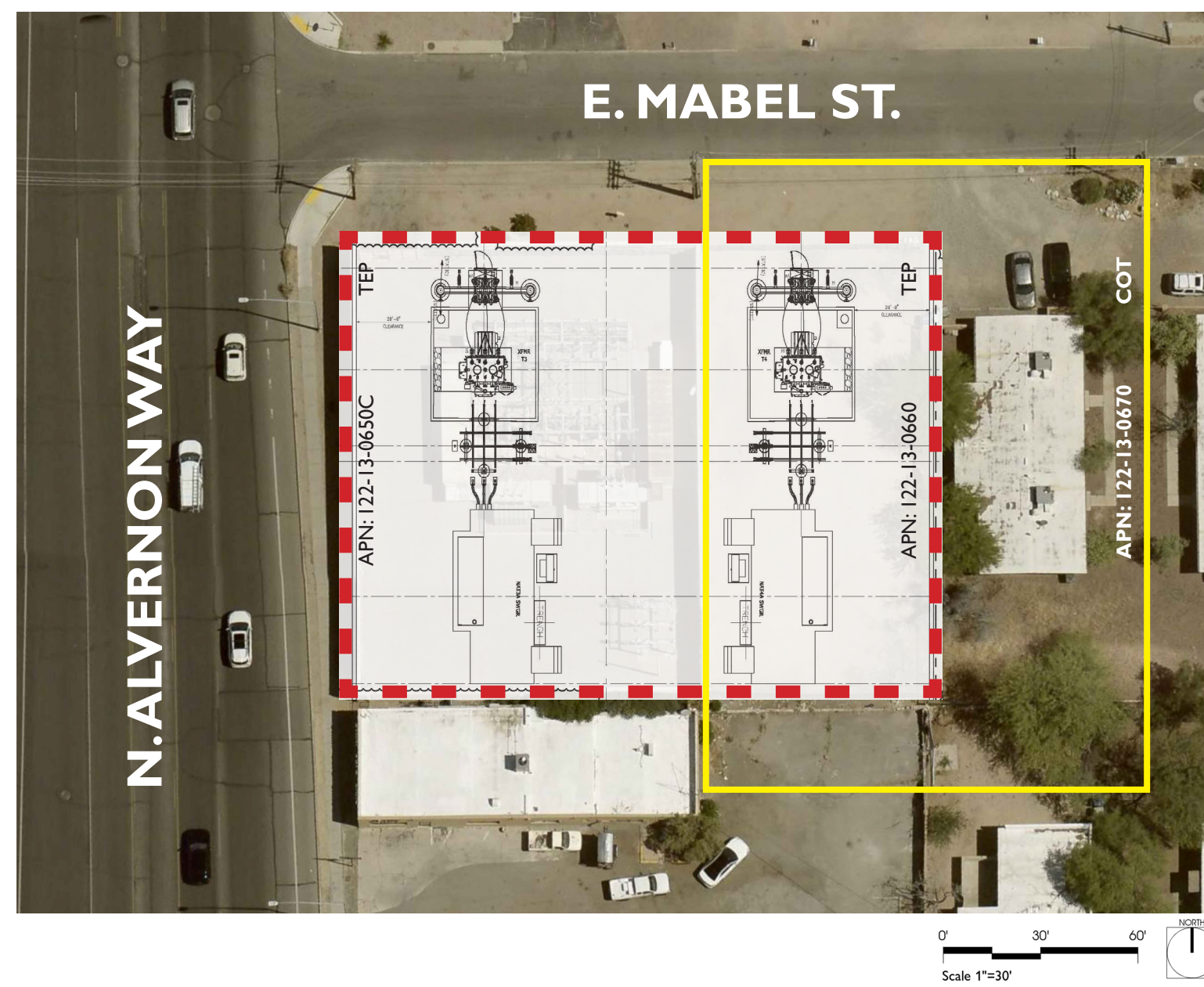
PHOTO SIMULATION | KEY OBSERVATION POINT #2



VIEW FROM WEST SIDE OF ALVERNON WAY
AT THE NORTHWEST CORNER OF ALVERNON WAY AND MABEL STREET
LOOKING SOUTHEAST TOWARDS THE SUBSTATION



Note: This exhibit is for illustrative purposes only and subject to change pending final engineered plans. The simulation used the Alvernon TEP Substation Preliminary Landscape Plan as a basis for rendering streetscape vegetation. Existing trees sited on the duplex parcel are assumed to be removed for this project. See final approved landscape plans for final planting design. Transmission structure locations are subject to ACC CEC approval. Locations shown are estimates based on PDF site plans provided.



SUMMARY

MARCH 21 (Spring Equinox)

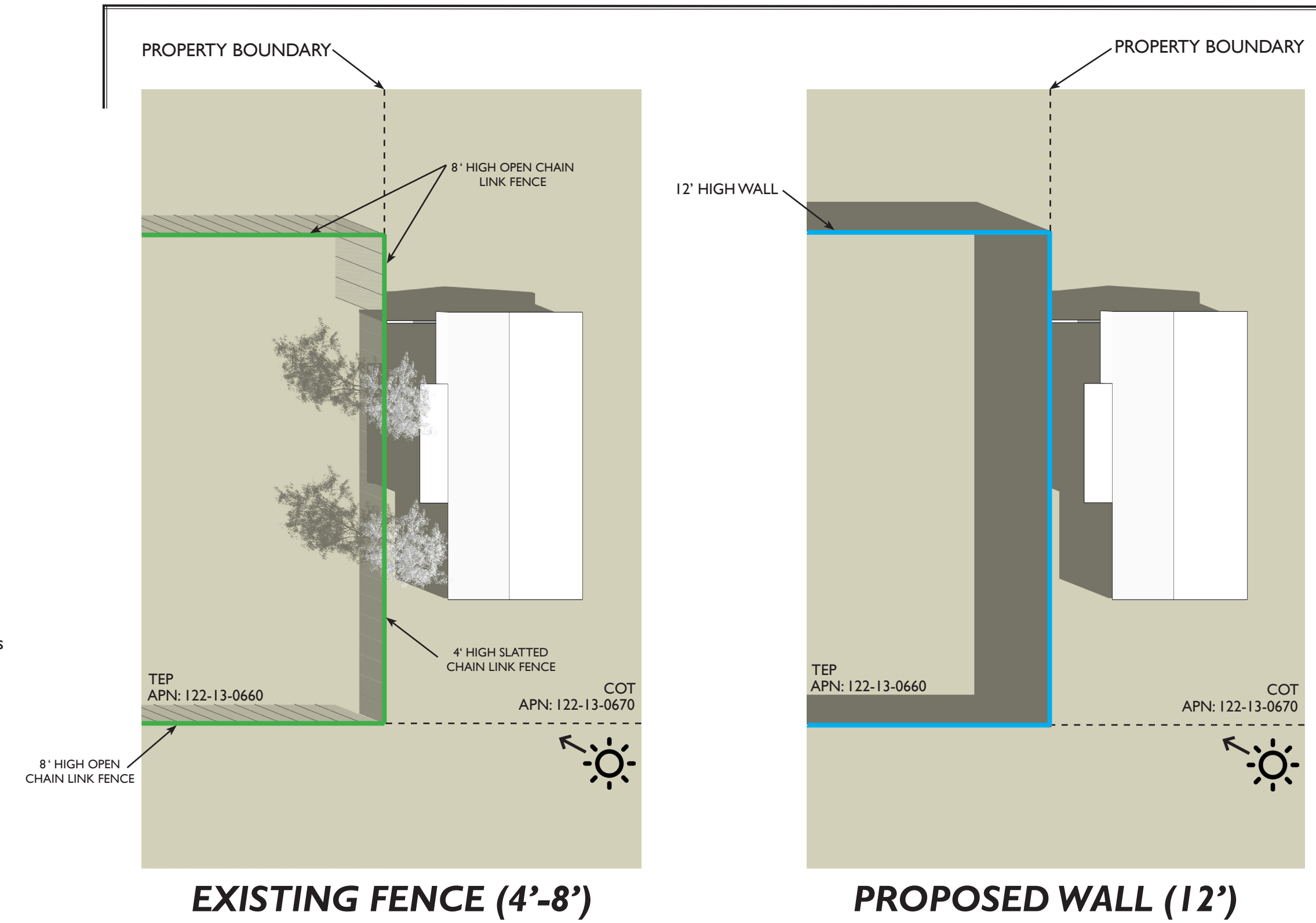
RESULTS

Spring Equinox *March 21st **sunrise occurs 6:27 am and **sunset 6:35 pm. A study of shadow cast by the existing 4' slatted chain link and 8' open chain link fences in comparison to shadow cast by a proposed 12' solid wall is shown side by side at four (4) representative times of day. Morning hours, after sunrise in the east before Noon, and 12:00 pm Noon itself do not impact the western side-yard of the COT parcel, since the duplex and fences/trees/walls cast shadows west upon their own respective lots. Fencelines and trees at 3:00 pm sunlight cast short filtered shadows across a small portion of the COT parcel's side-yard. In comparison, the proposed wall casts a shadow across approximately 3/4 of the side-yard reaching the edge of the outdoor covered patio. At 6:00 pm dusk existing fences and proposed walls cover the entirety of the COT's western side-yard.

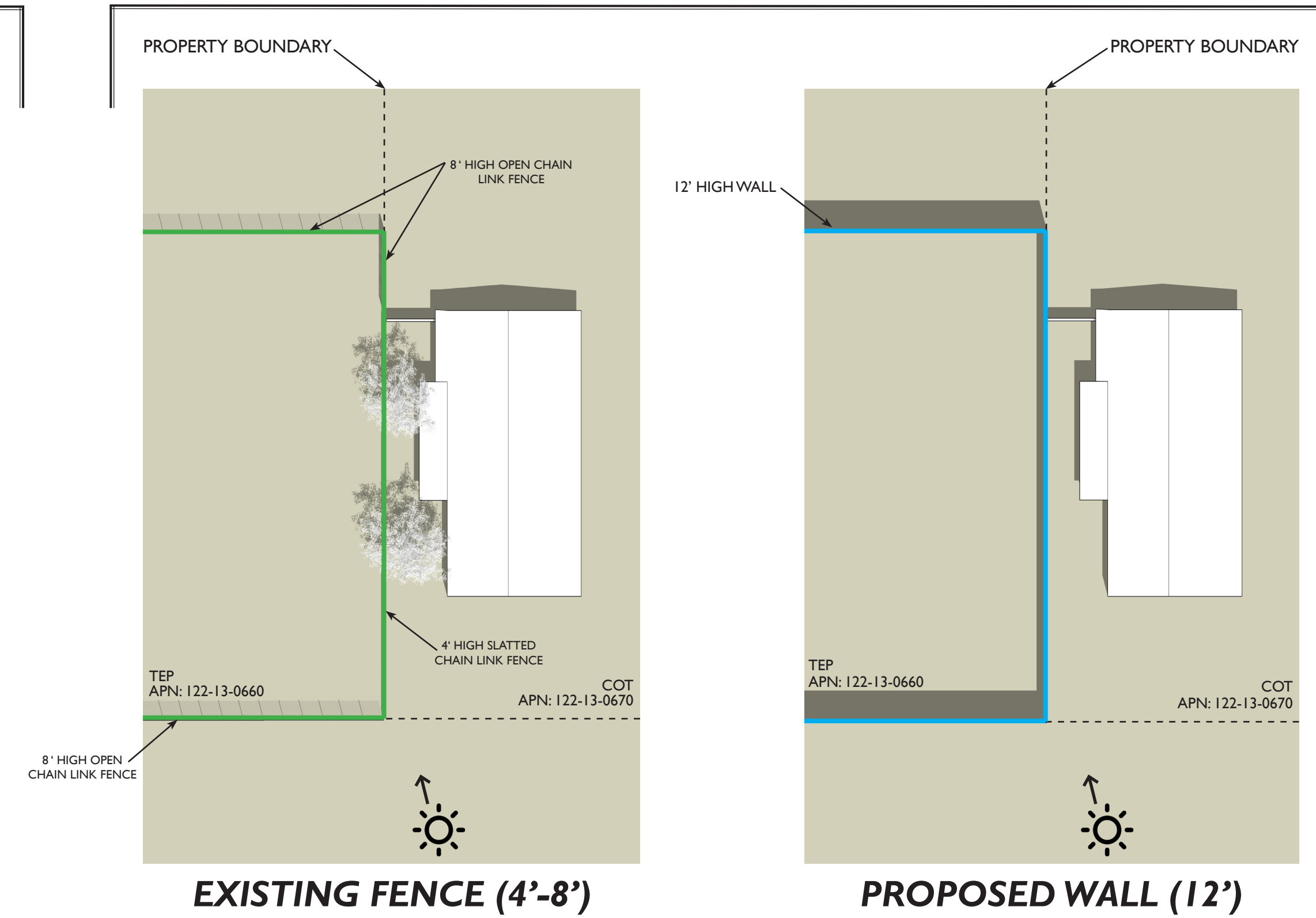
TIME OF IMPACT TO HOME

- The existing slatted chain link fence shades the entirety of the COT's western side-yard at approximately 5:25 pm. Trees cast shadows on 3/4 of the duplex roof.
- The proposed masonry wall will shade the entirety of COT's western side-yard at approximately 3:40pm.
- The proposed masonry wall will reduce the amount of sunlight to COT's western side-yard by approximately 1 hour and 45 minutes on March 21st.

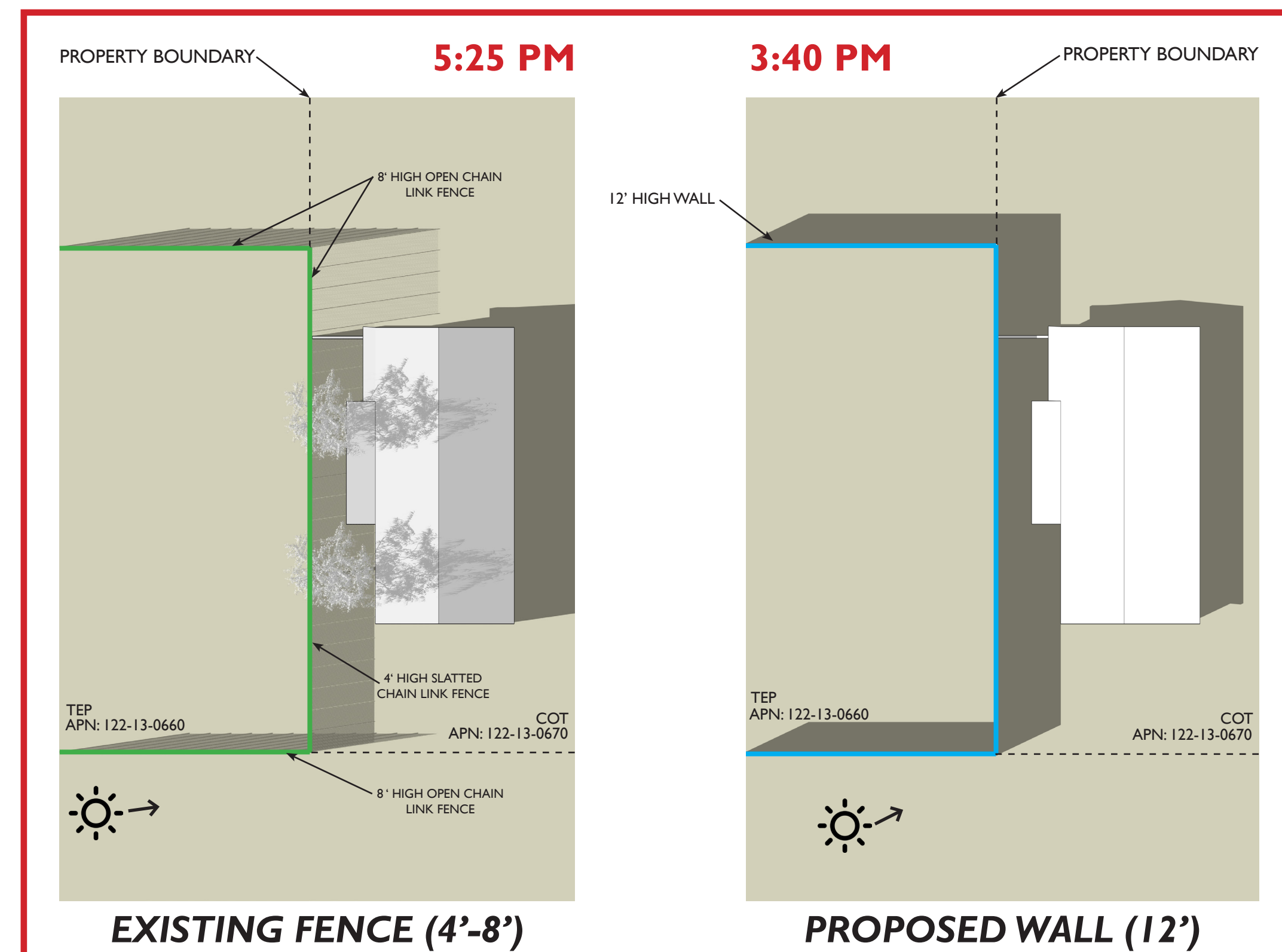
9:00 AM (SUNRISE 6:27 AM)



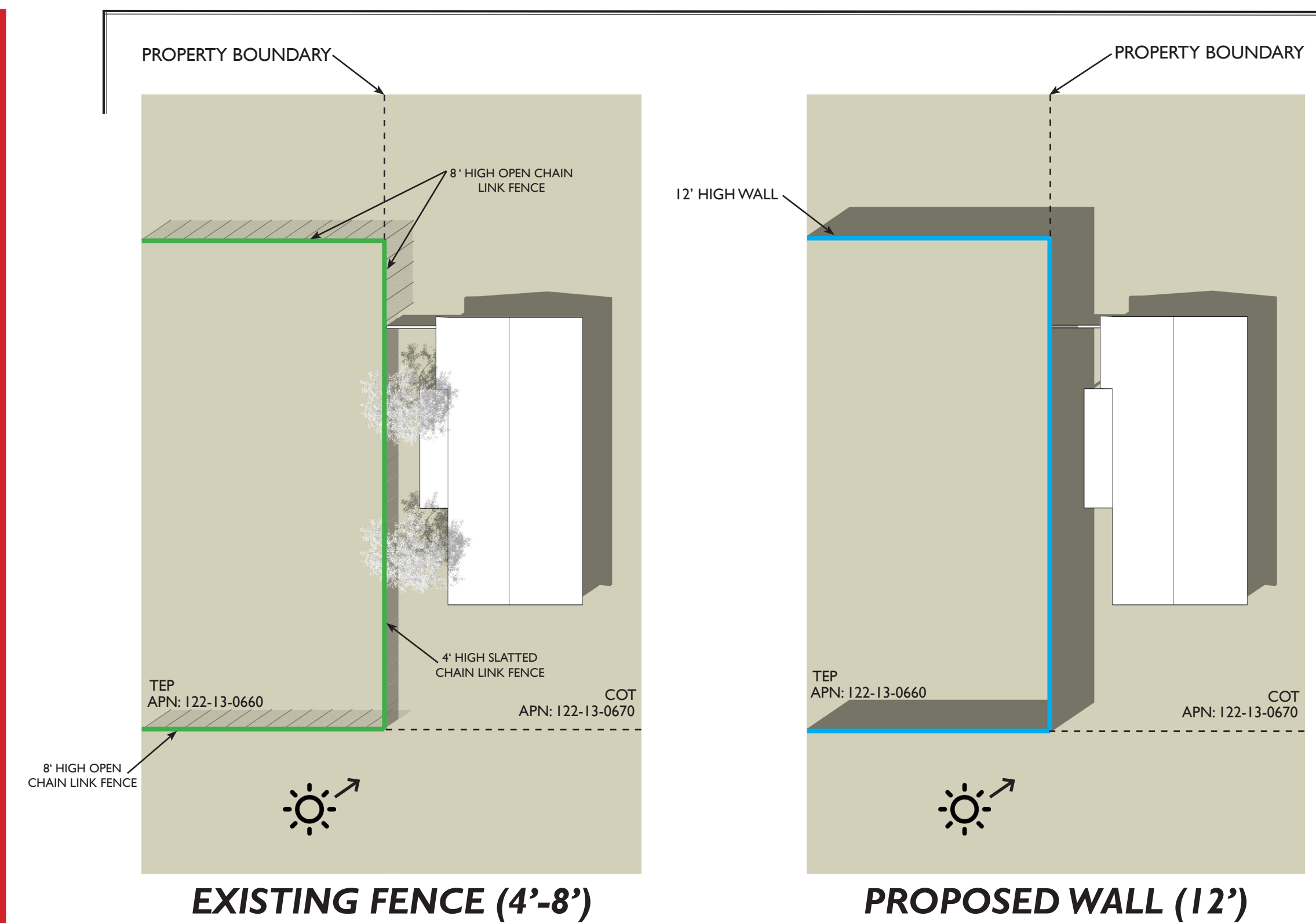
12:00 PM



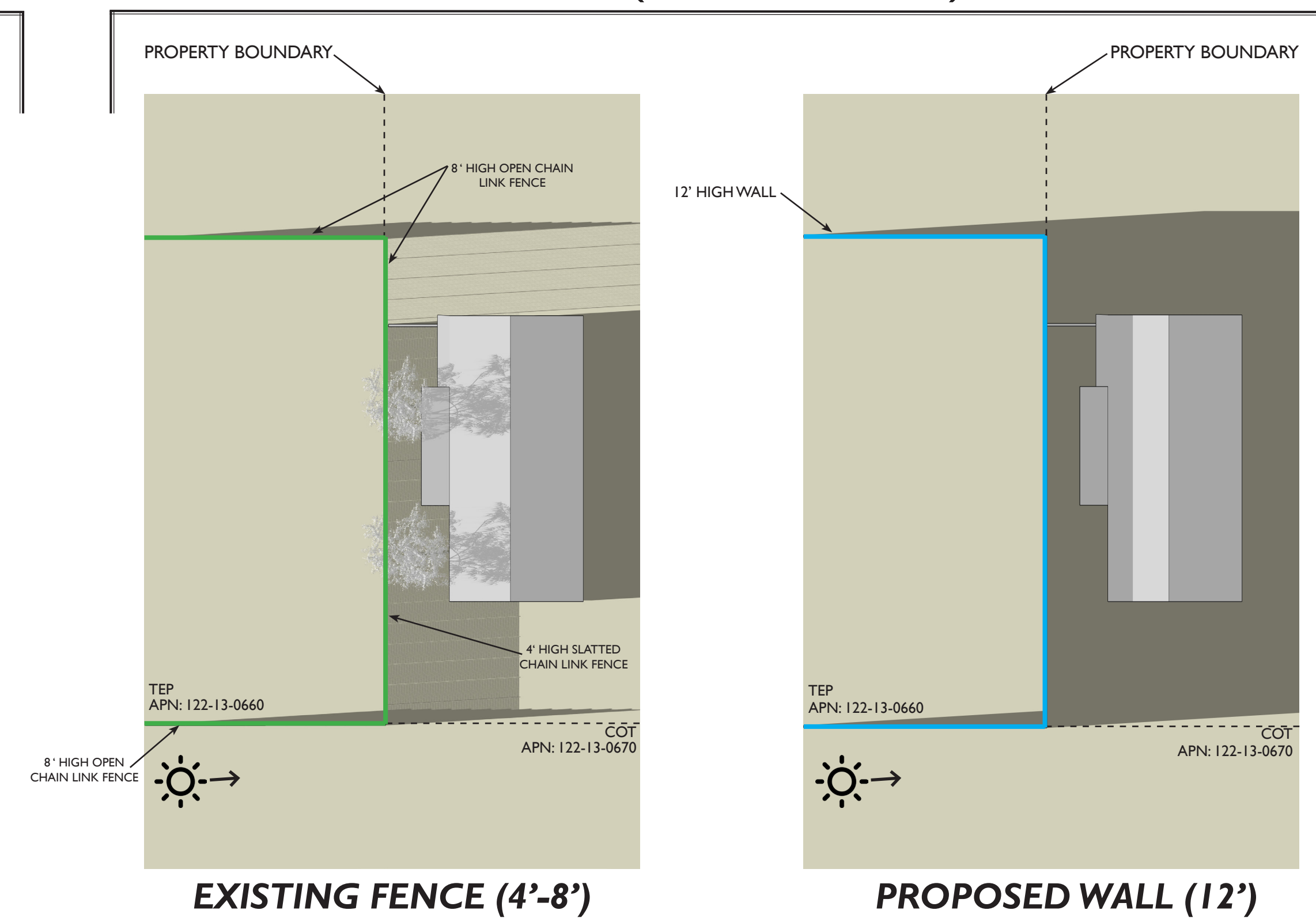
TIME OF FULL SHADE COVERAGE



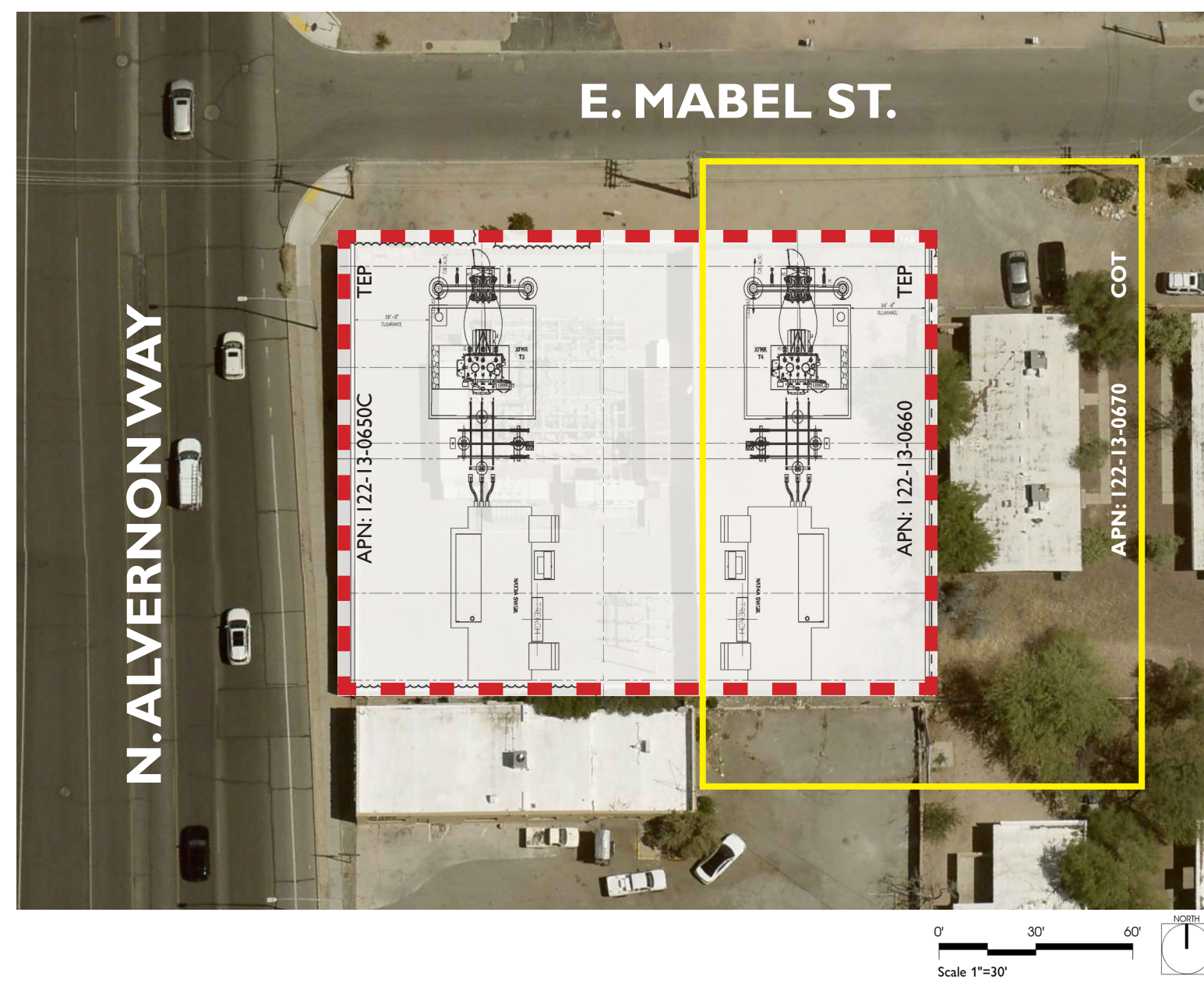
3:00 PM



6:00 PM (SUNSET 6:35 PM)



* Equinox / Solstice exhibit dates are approximate standard days. See calendar for exact dates of any specific year.
 ** Sunrise / Sunset times provided in this study exhibit are based on 2024 equinox / solstice dates for illustrative purposes.



SUMMARY

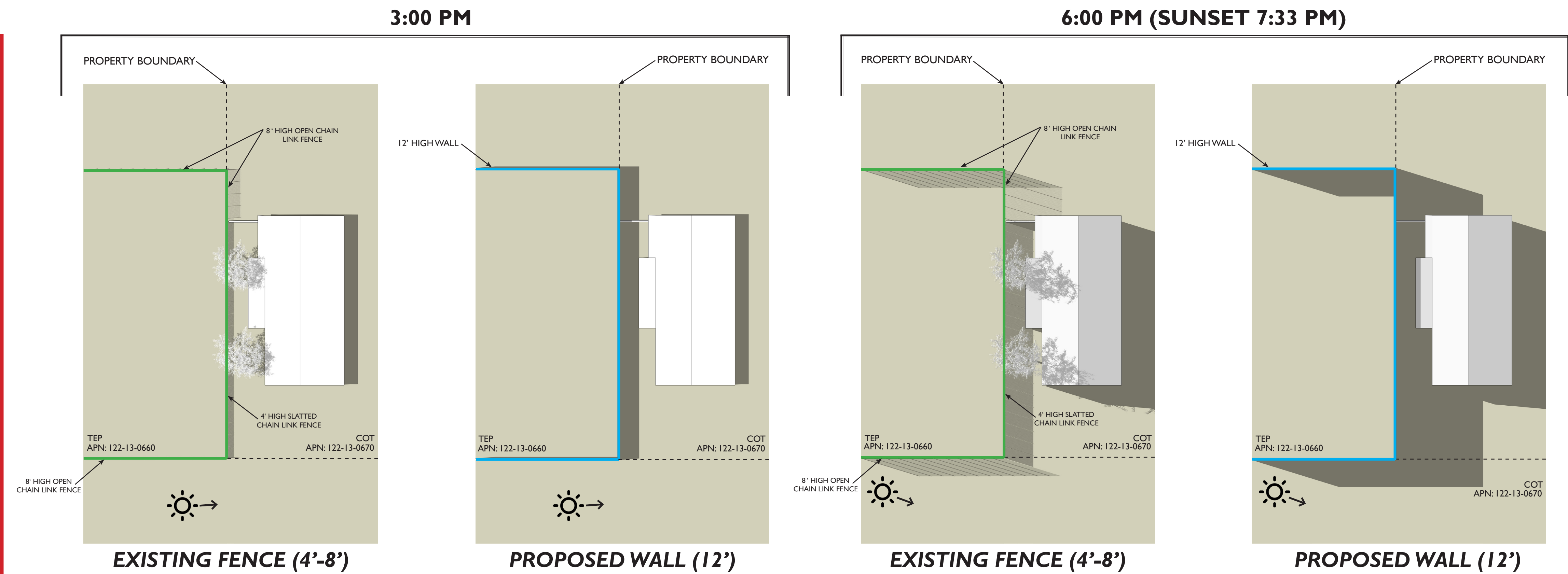
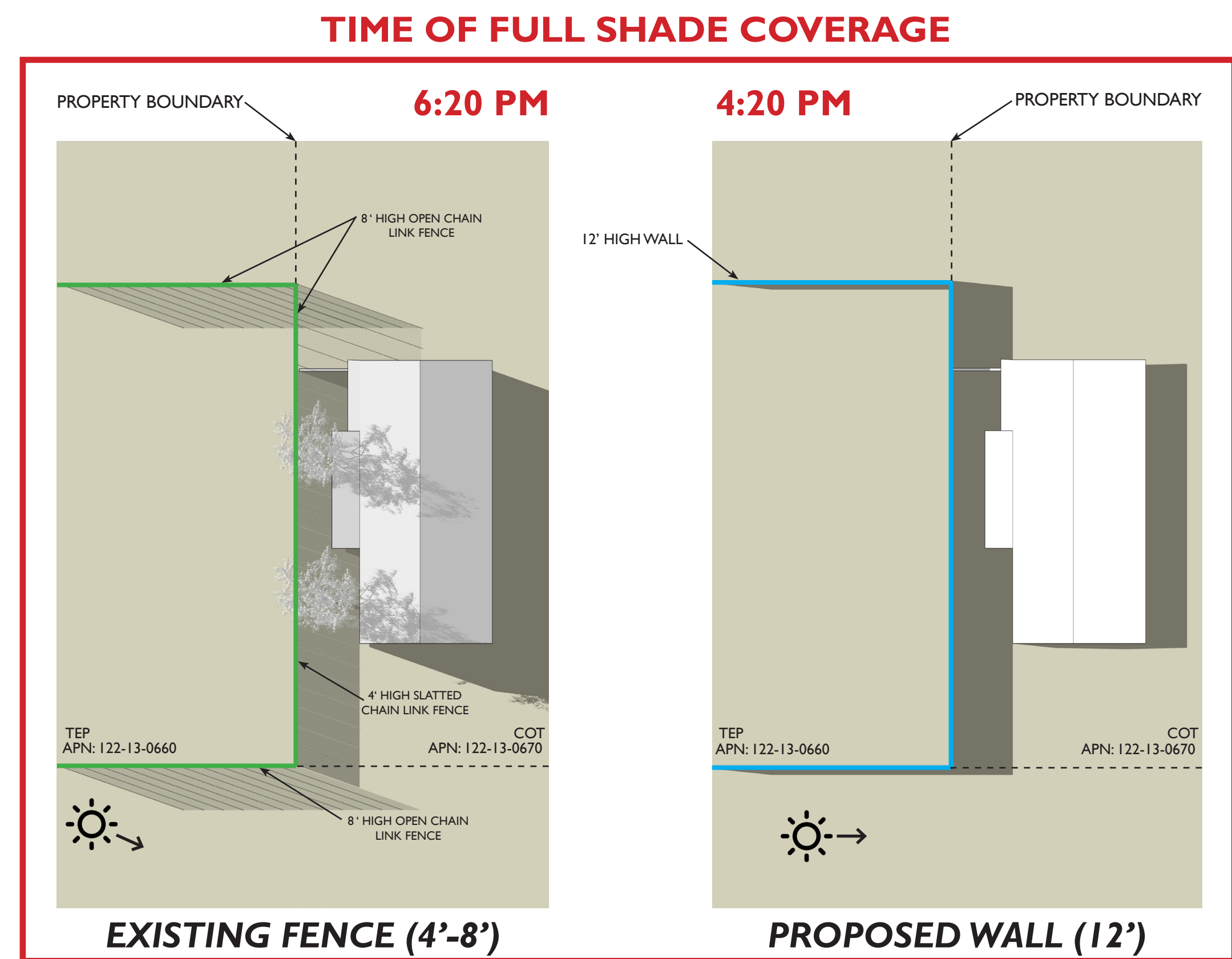
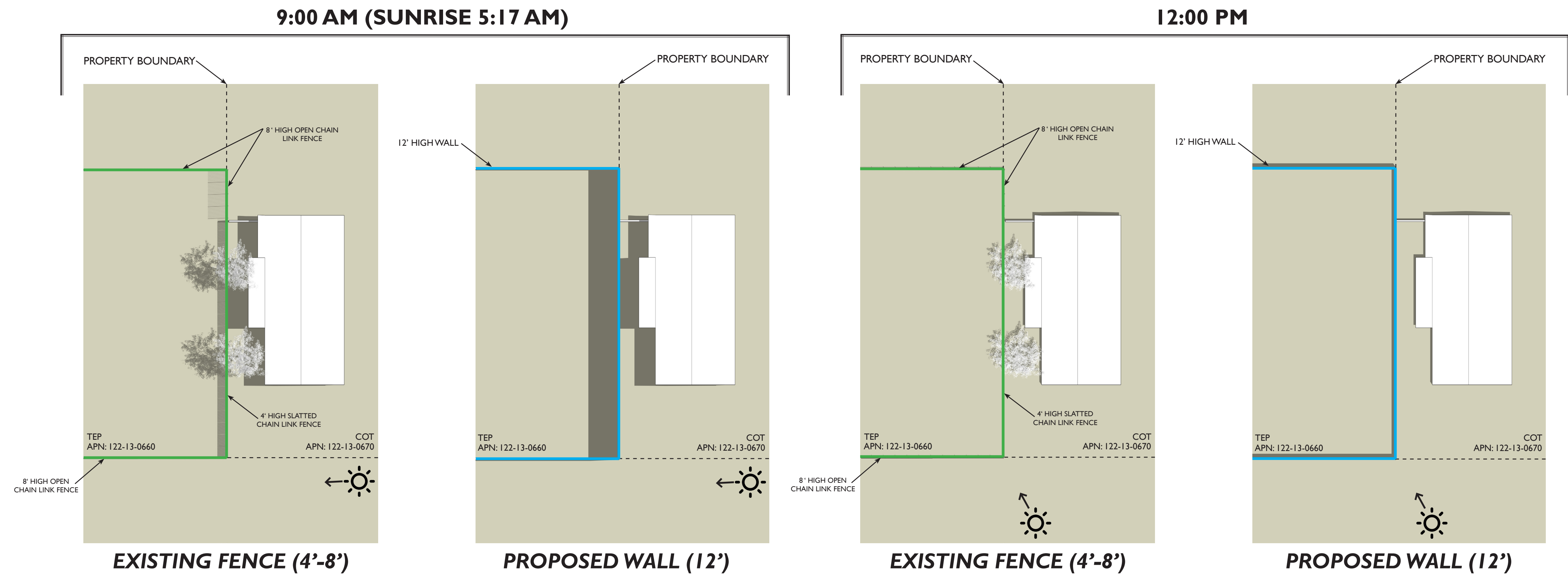
JUNE 21 (Summer Solstice)

RESULTS

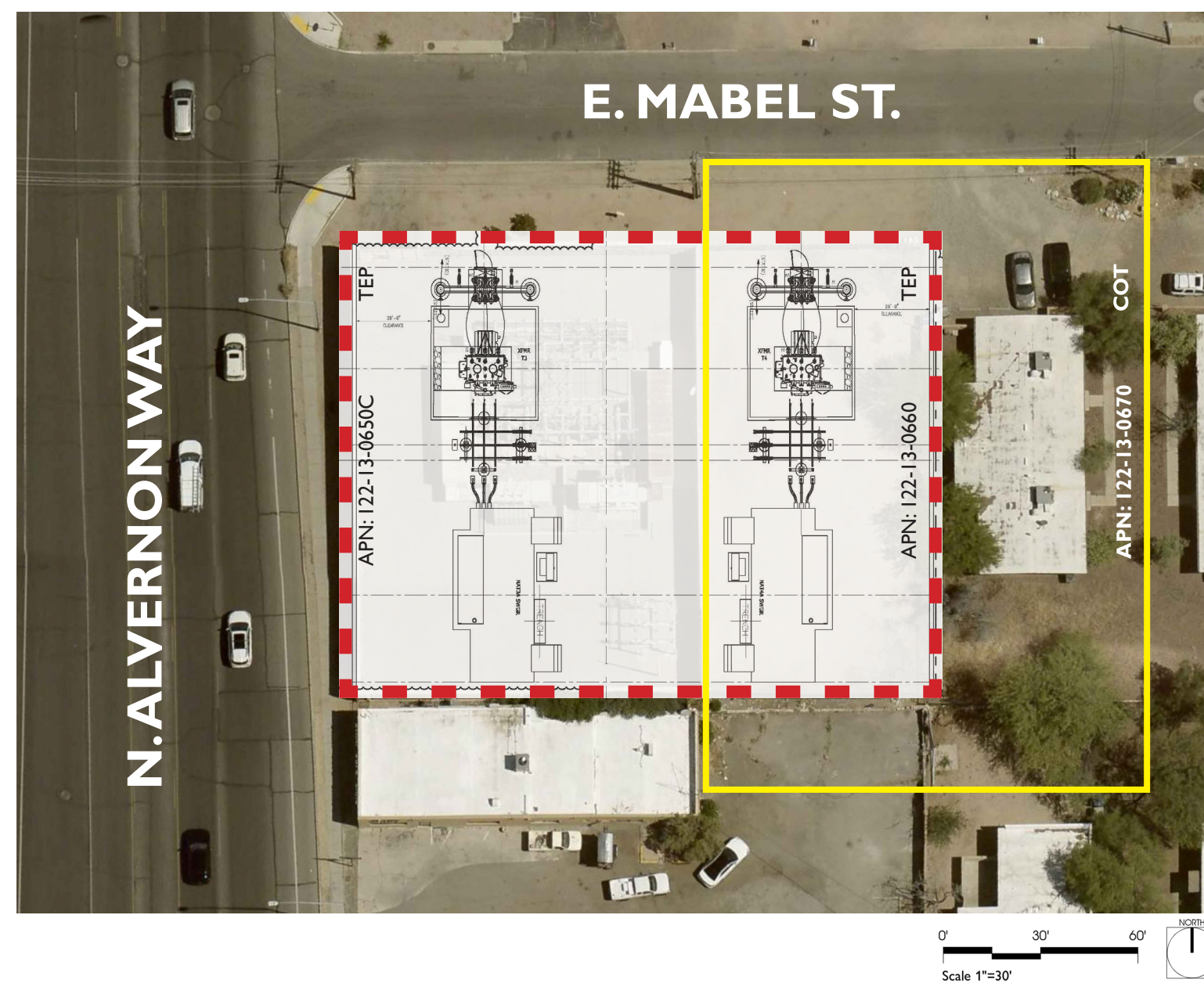
Summer Solstice June 21st sunrise occurs 5:17 am and sunset 7:33 pm. A study of shadow cast by the existing 4' slatted chain link and 8' open chain link fences in comparison to shadow cast by a proposed 12' solid wall is shown side by side at four (4) representative times of day in the exhibit. Morning hours, after sunrise in the east before Noon, and 12:00 pm Noon itself do not impact the western side-yard of the COT parcel, since the duplex and fences/trees/walls cast shadows west upon their own respective lots. Fencelines and trees at 3:00 pm sunlight cast short filtered shadows across a small portion of the COT parcel's side-yard. In comparison, the proposed wall casts a shadow across approximately 1/2 of the side-yard reaching the edge of the outdoor covered patio. At 6:00 pm dusk existing fences and proposed walls covers 3/4 of the COT's western side-yard.

TIME OF IMPACT TO HOME

- The existing slatted chain link fence shades the entirety of the COT's western side-yard at approximately 6:20 pm. Trees cast shadows upon 1/2 of the duplex roof.
- The proposed masonry wall will shade the entirety of COT's western side-yard at approximately 4:20 pm.
- The proposed masonry wall will reduce the amount of sunlight to COT's western side-yard by approximately 2 hours on June 21st.



* Equinox / Solstice exhibit dates are approximate standard days. See calendar for exact dates of any specific year.
 ** Sunrise / Sunset times provided in this study exhibit are based on 2024 equinox / solstice dates for illustrative purposes.



SUMMARY

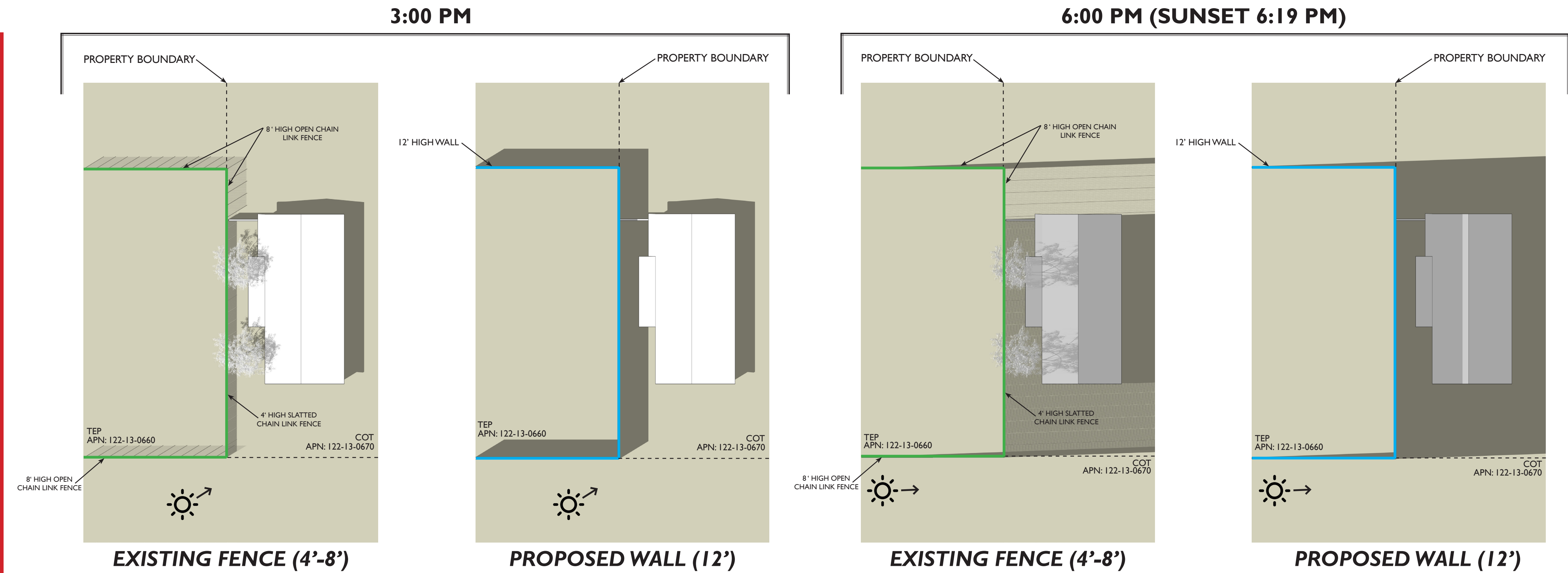
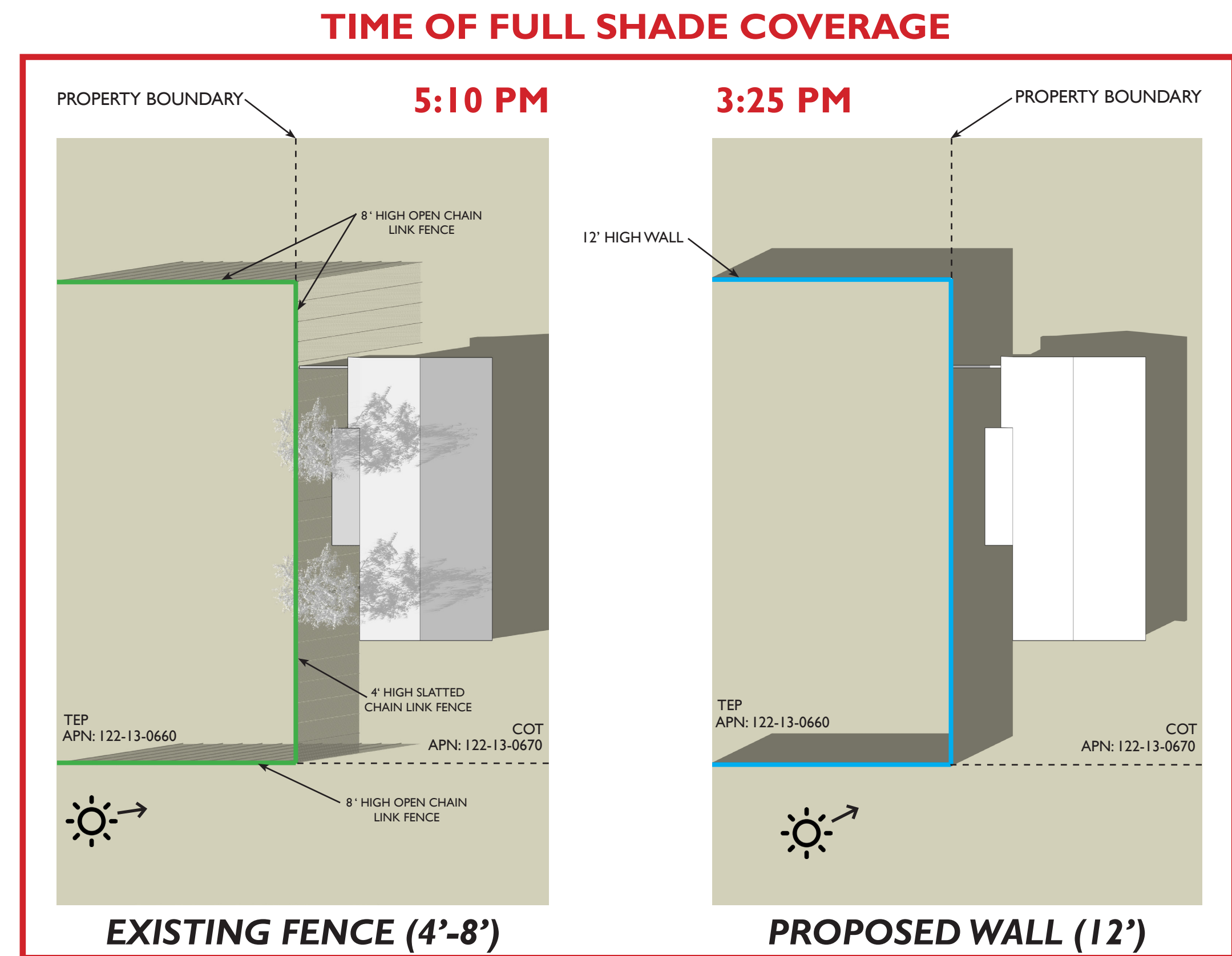
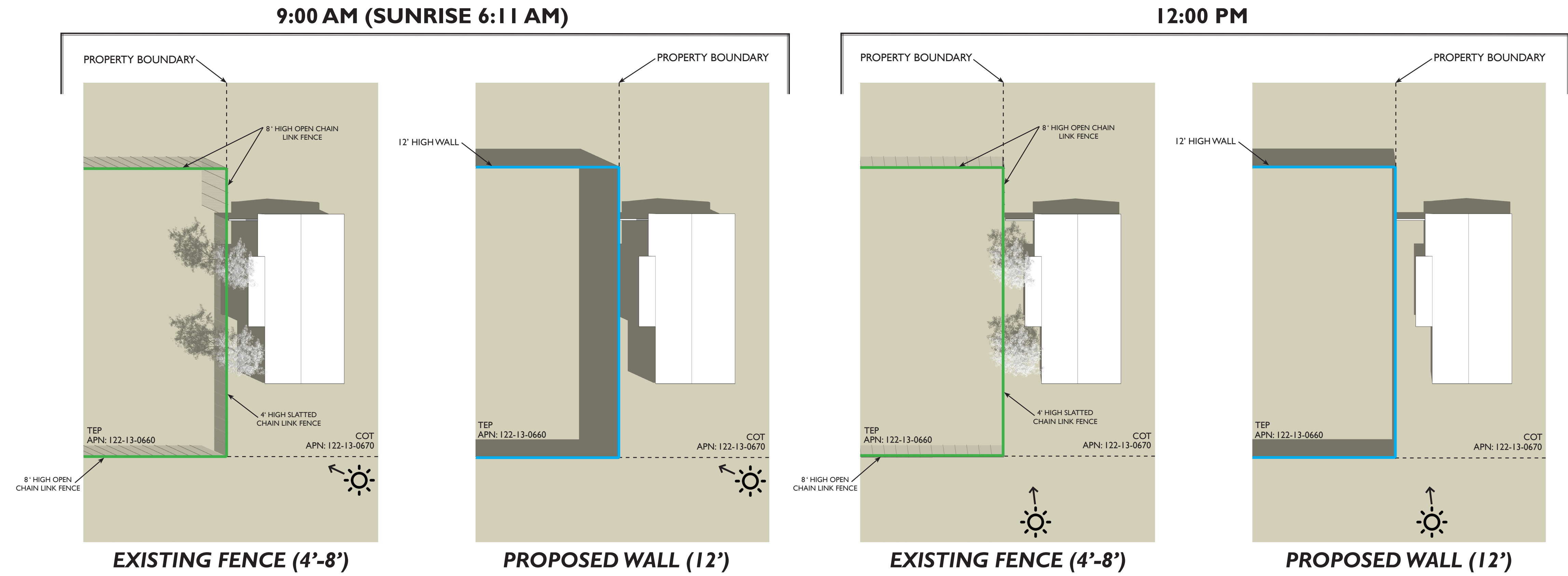
SEPTEMBER 21 (Fall Equinox)

RESULTS

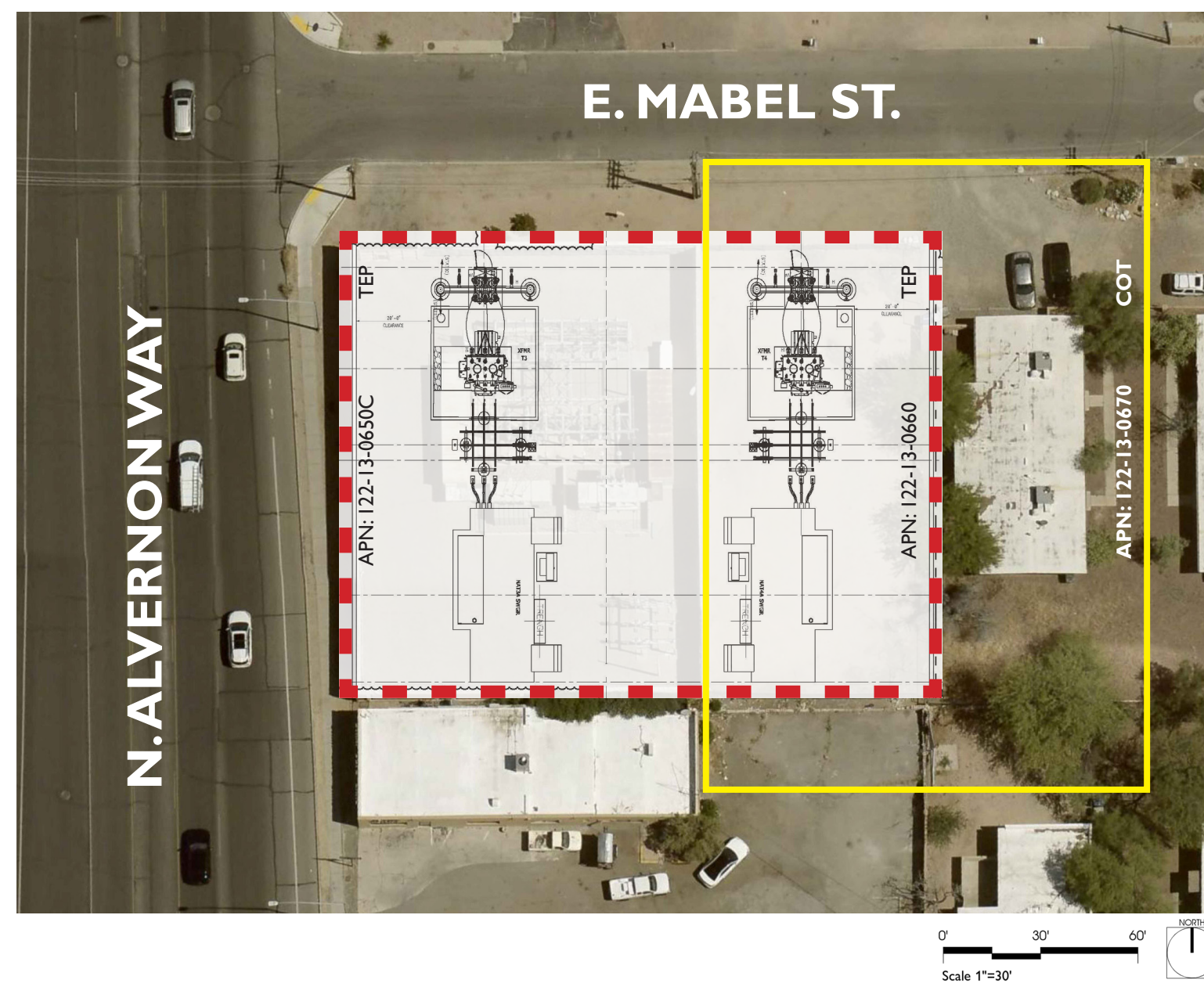
Fall Equinox *September 21st **sunrise occurs 6:11 am and **sunset 6:19 pm. A study of shadow cast by the existing 4' slatted chain link and 8' open chain link fences in comparison to shadow cast by a proposed 12' solid wall is shown side by side at four (4) representative times of day in the exhibit. Morning hours, after sunrise in the east before Noon, and 12:00 pm Noon itself do not impact the western side-yard of the COT parcel, since the duplex and fences/trees/walls cast shadows west upon their own respective lots. Fencelines and trees at 3:00 pm sunlight cast short filtered shadows across a small portion of the COT parcel's side-yard. In comparison, the proposed wall casts a shadow across approximately 3/4 of the side-yard. At 6:00 pm dusk existing fences and proposed walls cover the entirety of the COT's western side-yard.

TIME OF IMPACT TO HOME

- The existing slatted chain link fence shades the entirety of the COT's western side-yard at approximately 5:10 pm. Trees cast shadows upon 1/2 of the duplex roof.
- The proposed masonry wall will shade the entirety of COT's western side-yard at approximately 3:25 pm.
- The proposed masonry wall will reduce the amount of sunlight to COT's western side-yard by approximately 1 hour 45 minutes on September 21st.



* Equinox / Solstice exhibit dates are approximate standard days. See calendar for exact dates of any specific year.
 ** Sunrise / Sunset times provided in this study exhibit are based on 2024 equinox / solstice dates for illustrative purposes.



SUMMARY

DECEMBER 21 (Winter Solstice)

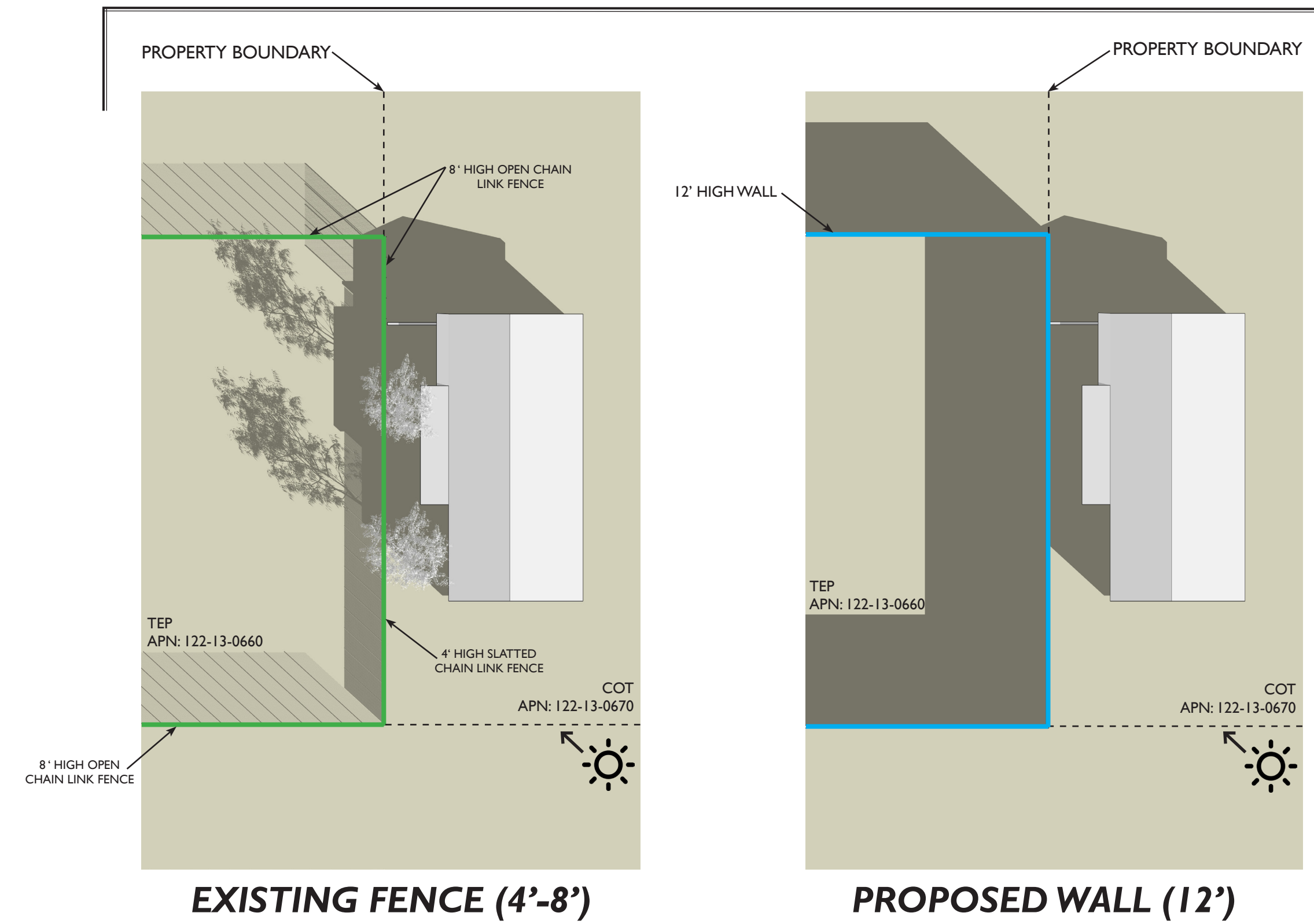
RESULTS

Winter Solstice *December 21st **sunrise occurs 7:20 am and **sunset 5:23 pm. A study of shadow cast by the existing 4' slatted chain link and 8' open chain link fences in comparison to shadow cast by a proposed 12' solid wall is shown side by side at four (4) representative times of day in the exhibit. Morning hours, after sunrise in the east before Noon, and 12:00 pm Noon itself do not impact the western side-yard of the COT parcel, since the duplex and fences/trees/walls cast shadows west upon their own respective lots. Fencelines and trees at 3:00 pm sunlight cast short filtered shadows across 1/2 of the COT parcel's side-yard. Trees also cast shadows across 1/4 of the patio/duplex roofs. In comparison, the proposed wall casts a shadow across the entirety of the western side-yard. At 6:00 pm dusk no shadows fall from existing fences and proposed walls on the COT western side-yard, since the sun has already set.

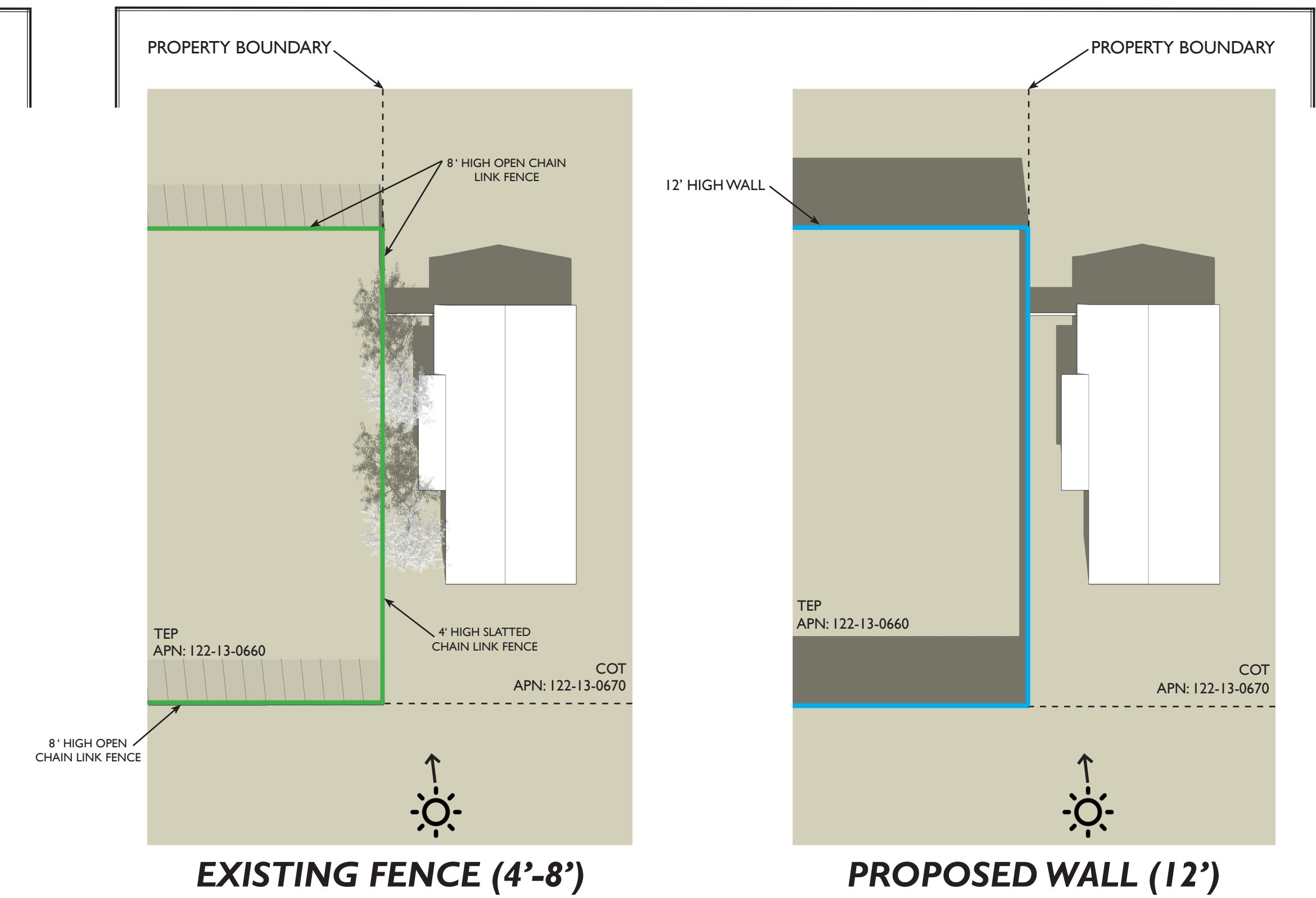
TIME OF IMPACT TO HOME

- The existing slatted chain link fence shades the entirety of the COT's western side-yard at approximately 4:15 pm. Trees cast shadows across almost the entire duplex roof.
- The proposed masonry wall will shade the entirety of COT's western side-yard at approximately 2:45 pm.
- The proposed masonry wall will reduce the amount of sunlight to COT's western side-yard by approximately 1 hour 30 minutes on December 21st.

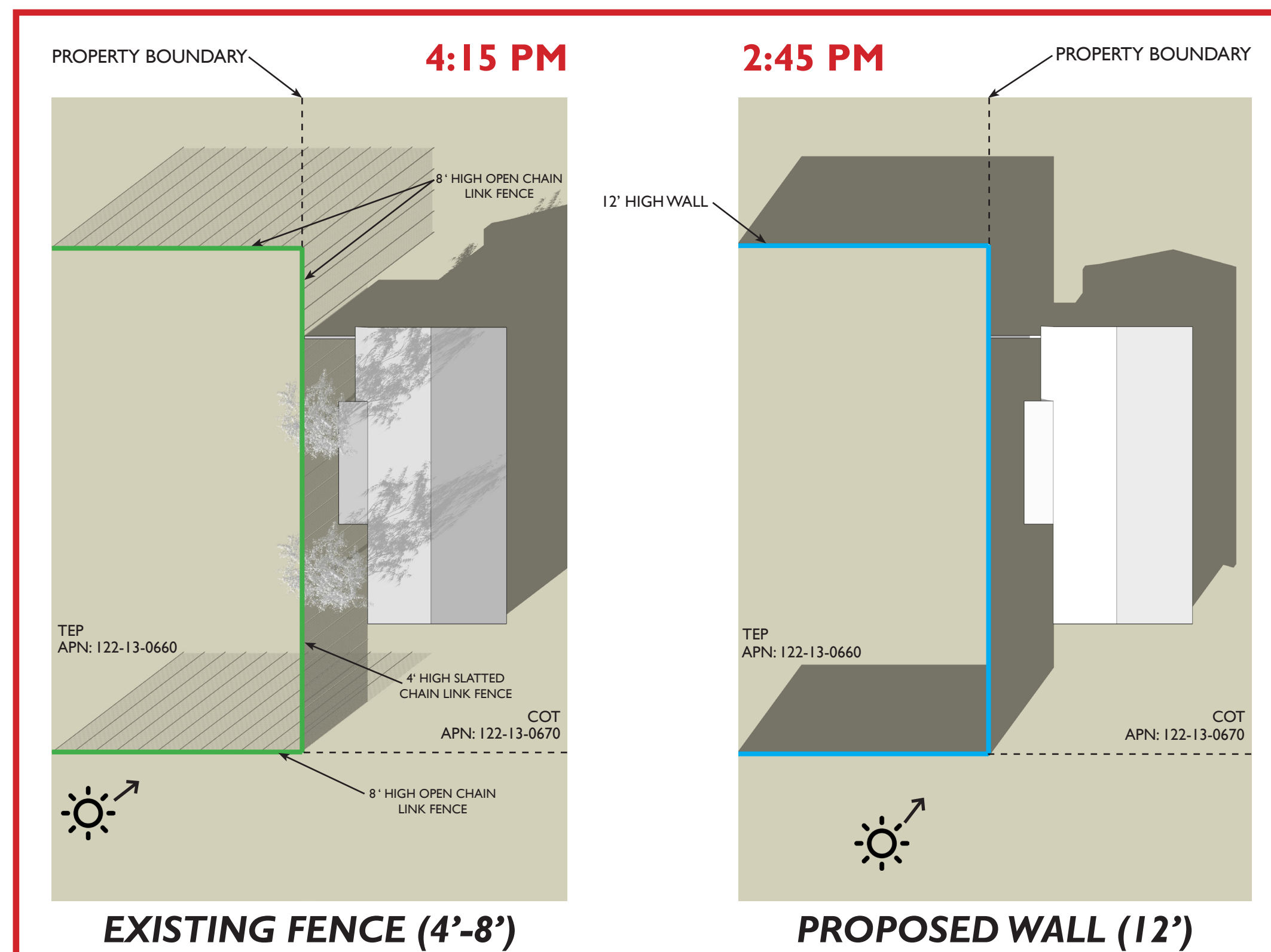
9:00 AM (SUNRISE 7:20 AM)



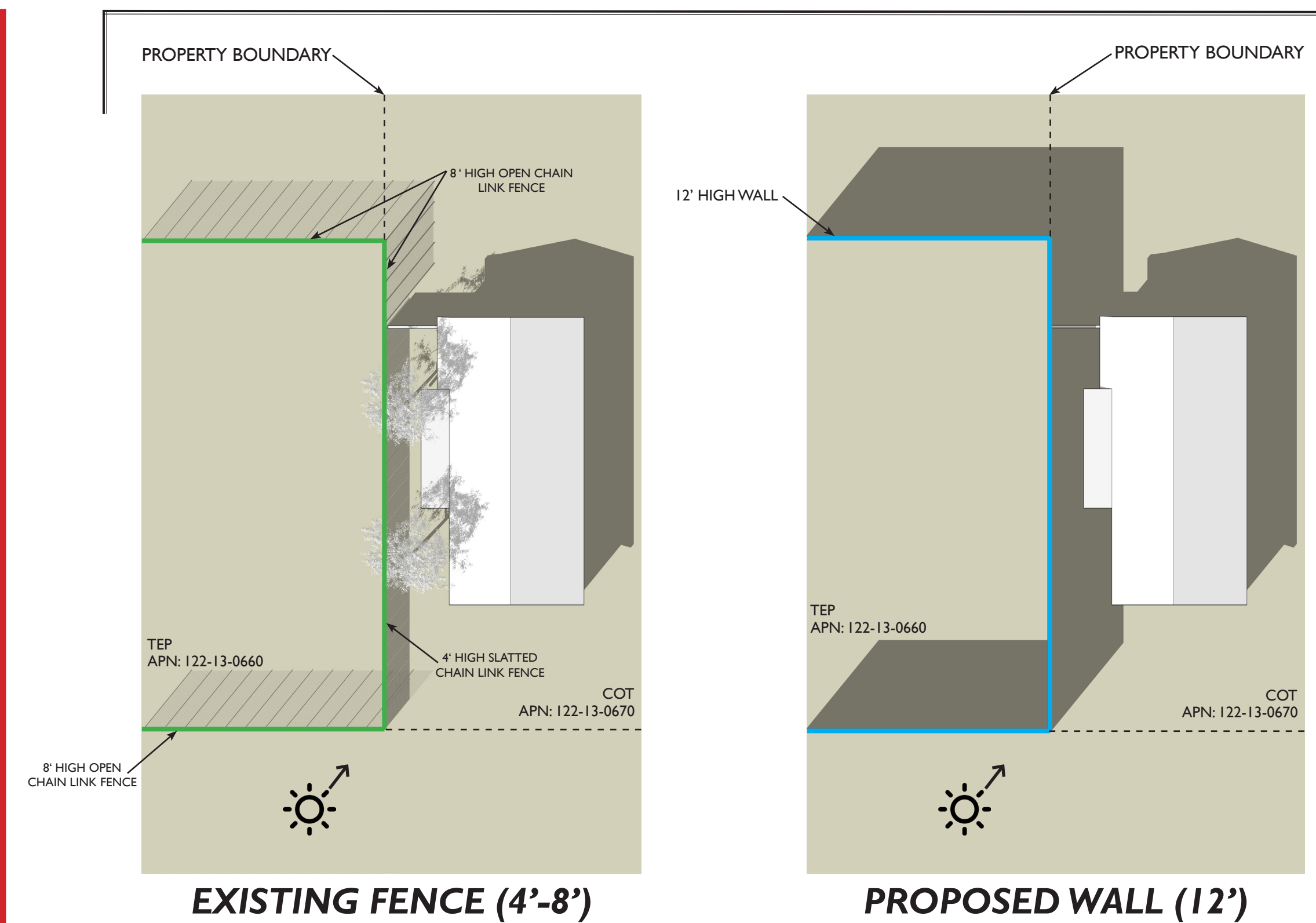
12:00 PM



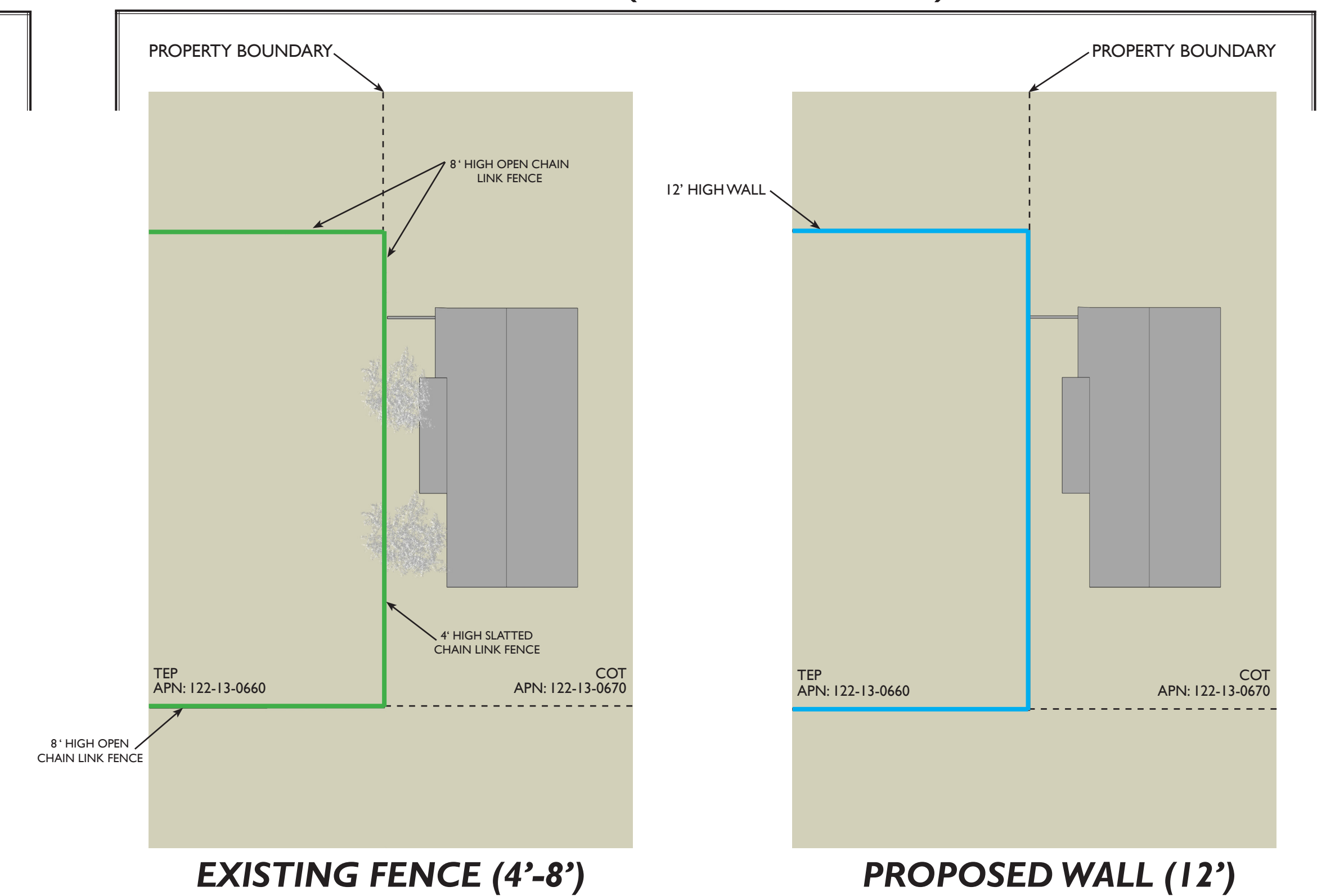
TIME OF FULL SHADE COVERAGE



3:00 PM



6:00 PM (SUNSET 5:23 PM)



* Equinox / Solstice exhibit dates are approximate standard days. See calendar for exact dates of any specific year.

** Sunrise / Sunset times provided in this study exhibit are based on 2024 equinox / solstice dates for illustrative purposes.