

04-SF-101, KP 12.8-15.7 (PM 8.0-9.8)
04-SF-001, KP 10.9-11.4 (PM 6.8-7.1)
RU 04242 - EA 163700
Project Cost \$752.3 million

Superseding Fact Sheet

EXCEPTIONS TO MANDATORY DESIGN STANDARDS

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1. PROPOSED PROJECT

This Superseding Fact Sheet – Exceptions to Mandatory Design Standards replaces the Fact Sheet – Exceptions to Mandatory Design Standards that was approved in November 2005 for Alternative 5 – Presidio Parkway. While the approved Fact Sheets for Alternative 5 – Presidio Parkway included several alternatives and options that were under consideration at that time, this Superseding Fact Sheet now addresses the mandatory design exceptions required for the Preferred Alternative – Refined Presidio Parkway.

A. Project Description

Doyle Drive is located in the Presidio of San Francisco (the Presidio), in the northern part of the City of San Francisco at the southern approach to the Golden Gate Bridge (see Attachment A). In 1994, when the US Army transferred jurisdiction of the Presidio to the National Park Service (NPS), it became part of the National Park system and Golden Gate National Recreation Area (GGNRA). In 1998, management of the Presidio was divided between two federal agencies: The Presidio Trust (the Trust), the agency responsible for oversight of 80 percent of the Presidio delineated as Area B; and the NPS, which is responsible for management of the coastal portions of the park (the remaining 20 percent) that are delineated as Area A. Doyle Drive lies predominately within the Area B lands managed by the Trust with a small portion at the western end located in Area A on land operated by the Golden Gate Bridge, Highway and Transportation District (GGBHTD). The Presidio has also been designated a National Historic Landmark District (NHL) since 1962 with the Doyle Drive roadway determined to be a contributing element to that landmark.

Doyle Drive, the southern approach of US 101 to the Golden Gate Bridge, is 2.4 kilometers (1.5 miles) long with six traffic lanes. There are three San Francisco approach ramps which connect to Doyle Drive: one beginning at the intersection of Marina Boulevard and Lyon Street; one at the intersection of Richardson Avenue and Lyon Street; and one where Veterans Boulevard (State Route 1) merges into Doyle Drive approximately 1.6 kilometers (one mile) west of the Marina Boulevard approach. Doyle Drive passes through the Presidio on an elevated concrete viaduct (low-viaduct) and transitions to a high steel truss viaduct (high-viaduct) as it approaches the Golden Gate Bridge Toll Plaza.

The purpose of the South Access to the Golden Gate Bridge - Doyle Drive Project is to replace Doyle Drive in order to improve the seismic, structural, and traffic safety of the roadway within the setting and context of the Presidio of San Francisco and its purpose as a National Park.

The project has been assigned Project Development Category 4A because it will require substantial easements and will not substantially increase traffic capacity. While there were several alternatives under consideration, this Fact Sheet is limited to the mandatory design exceptions required for the Preferred Alternative – Refined Presidio Parkway.

Preferred Alternative – Refined Presidio Parkway

The Preferred Alternative – Presidio Parkway would replace the existing facility with a new six-lane facility and a southbound auxiliary lane, between the Park Presidio interchange and the new Presidio access at Girard Road. The new facility would have an overall width of up to 45 meters (148 feet), and would incorporate wide landscaped medians and continuous shoulders. To minimize impacts to the park, the footprint of the new facility would include a large portion of the existing facility's footprint east of the Park Presidio interchange. A 390-meter (1,279-foot) high-viaduct would be constructed between the Park Presidio interchange and the San Francisco National Cemetery.

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Shallow cut-and-cover tunnels would extend 261 meters (856 feet) past the cemetery to east of Battery Blaney. The facility would then continue towards the Main Post in an open depressed roadway with a wide, heavily landscaped median. From Building 106 (Band Barracks) cut-and-cover tunnels up to 308 meters (1,010 feet) long would extend east of Halleck Street. The facility would then rise slightly on a low level causeway 120 meters (394 feet) long over the site of the proposed Tennessee Hollow restoration and a depressed Girard Road. East of Girard Road the facility would return to existing grade north of the Gorgas warehouses and connect to Richardson Avenue.

The Park Presidio interchange would be reconfigured due to the realignment of Doyle Drive to the south. The exit ramp from southbound Doyle Drive to Veterans Boulevard would be replaced with standard exit ramp geometry and widened to two lanes. The exit ramp from northbound Doyle Drive would be improved to provide standard exit ramp geometry. The northbound Veterans Boulevard connection to northbound Doyle Drive would be rebuilt similarly to the existing direct connector ramp in essentially the same existing configuration with improved exit and entrance geometry.

The Preferred Alternative - Presidio Parkway also includes a diamond interchange for direct access to the Presidio and Marina Boulevard at the eastern end of the project.

Design speeds for mainline Doyle Drive (Route 101) and the Park Presidio Interchange were selected as follows:

- 80 km/h for mainline Doyle Drive (Route 101);
- 80 km/h for exit and entrance noses for all ramps;
- 80 km/h for the “PP-NB” connector ramp from northbound Park Presidio Blvd (Route 1) to northbound Doyle Drive (Route 101);
- 80 km/h for the “SB-PP” connector from southbound Doyle Drive (Route 101) to southbound Park Presidio Blvd (Route 1);
- 50 km/h for the “NB-PP” loop ramp from northbound Doyle Drive (Route 101) to southbound Park Presidio Blvd (Route 1); and
- 80 km/h for the “PP-SB” direct connector ramp alternative from northbound Park Presidio Blvd (Route 1) to southbound Doyle Drive (Route 101).

In addition, at the east end of the project the facility will be designed to ramp standards since mainline vehicles are transitioning speeds from the Girard Road Interchange to the conform with Richardson Avenue. Design speeds will be interpolated from 80 km/h at the Girard Road exit ramp diverge point from southbound Doyle Drive (Route 101) to 55 km/h at the signalized intersection of Richardson Avenue and Lyon Street.

B. Existing Highway

From the east end of the project, Doyle Drive begins on an elevated concrete viaduct and transitions to a high steel truss viaduct as it approaches the Park Presidio Interchange. The facility is a six-lane undivided highway with nonstandard design elements, including: travel lane widths from 2.9 to 3.0 meters (9.5 to 10 feet), no median barrier to separate oncoming traffic, no shoulders for emergency purposes, and exit ramps with tight turning radii. There is a 1.4- to 1.8-meter (4.5- to 6.0-foot) wide sidewalk, currently closed, on the north edge of the roadway, separated from the traffic lanes by a concrete barrier.

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There are three approach ramps along the existing facility: one beginning at the intersection of Marina Boulevard and Lyon Street; one at the intersection of Richardson Avenue and Lyon Street; and one where Park Presidio merges into Doyle Drive, approximately one mile west of the Marina Boulevard approach.

The State does not own right of way within the Presidio; instead the State has permits that vary between 18.3 meters wide (60 feet) for aerial structures and 24.4 meters (80 feet) wide for the abutments and at-grade portions of the facility.

Most of Doyle Drive is on aerial structures; as a result, very little at-grade pavement exists within the project limits.

Drainage systems on the two viaducts have also suffered from age and wear. They are subject to frequent blockage, leading to local ponding.

Doyle Drive was constructed in 1936 and it is approaching the end of its useful life, although regular maintenance, seismic retrofit, and partial rehabilitation activities are keeping the structure safe in the short term. However, further structural degradation caused by age and the effects of heavy traffic and exposure to salt air will cause the structures to become seismically and structurally unsafe in the coming years. In addition, the eastern portion of the aging facility is located in a potential liquefaction zone identified on the State of California Seismic Hazard Zones map dated August 2000.

The facility's existing structures are in poor condition. Caltrans' Bridge Maintenance Inventory Report indicates a sufficiency rating of 2 out of 100 for the Presidio Viaduct and 30 for the Marina Viaduct. Both Caltrans and the Federal National Bridge Inventory recommend that the existing structures be replaced. Currently Caltrans is proceeding with an interim rehabilitation project of the high-viaduct that involves removing the existing paint system, removing and replacing various steel elements and connection rivets due to sectional loss, and repainting the steel truss spans and the steel approach spans. This project is intended to extend the service life of the high-viaduct by ten years, until the facility is replaced. The findings of studies associated with this project do not preclude the execution of interim remedial action by the State; the Presidio Viaduct must remain in service throughout the construction of the Doyle Drive Replacement Project, regardless of the alternative that is selected. It is estimated that this deteriorated and vulnerable bridge will need to remain in service until 2012; the interim repairs are expected to maintain the current level of safety and do not constitute a retrofit or rehabilitation.

The severe degradation of the existing structures and the existing nonstandard design elements, especially the lack of a median barrier, create a great urgency to remove and replace the existing facility with structures designed to current seismic standards while applying current geometric standards wherever feasible.

In addition, given the extreme environmental sensitivity of the project's context and setting within the National Park / National Historic Landmark District, there is a need to develop consensus among the various participating agencies: FHWA, Caltrans, SFCTA, the Cooperating Agencies (GGNRA and Presidio Trust), and the GGBHTD in order to advance this project under the guidelines of 49 U.S.C Section 303 (Department of Transportation Act, Section (4f)) and implement the seismic and traffic safety improvements.

This urgency to address seismic and traffic safety, combined with the extreme environmental sensitivity of the context and setting of the National Park / National Historic Landmark District and the need to develop a consensus among the agencies, requires flexibility in applying the design

standards that is still considered safe and comfortable. Therefore, for this project design exceptions are also being considered with regard to the project's context and setting within a National Park / National Historic Landmark District in order to develop the consensus that is necessary to advance the project. Ultimately, the project as proposed is a tremendous seismic and traffic safety improvement over the condition of the existing facility.

The project team including the FHWA, Caltrans, SFCTA, the Cooperating Agencies (GGNRA and Presidio Trust), the GGBHTD has worked closely together to develop a consensus for the design to seismically upgrade the structures and improve traffic safety that provides for the minimum requirements of traffic operations and balances the design geometry to develop the consensus that is needed to advance the project by minimizing the overall footprint of the facility and impacts to the surrounding environmental/cultural resources while considering traffic handling/construction staging, cost effectiveness, and conforming to adjacent local street and State highway segments.

The facility's existing nonstandard design elements, its context and setting within a National Park / National Historic Landmark District, and the need to develop consensus in order to advance the project all restrict stage construction and the proposed geometry of mainline Doyle Drive (Route 101), the Park Presidio Interchange, Veterans Boulevard (Route 1), and the Girard Road Interchange. Thus the overall footprint of the facility and, consequently, the cross-sectional width of Doyle Drive are restricted by the need to conform with nonstandard lane and shoulder widths at the Toll Plaza, Veterans Boulevard, and Richardson Avenue; the existing cultural/environmental resources within the National Park / National Historic Landmark District; and the need to develop a consensus among the participating agencies.

In addition, the existing compact geometry of the Park Presidio Interchange restricts the configuration of mainline Doyle Drive (Route 101) and mainline Veterans Boulevard (Route 1). Veterans Boulevard (Route 1) approaches the interchange at a descending grade of approximately 6% and then rapidly ascends to tie into mainline Doyle Drive (Route 101). The horizontal curvature of this interchange is also tight. This existing geometry supports operating speeds through the interchange of approximately 30 km/h to 50 km/h. Compounding this existing restrictive geometry is the requirement of the GGBHTD for grades to match the existing mainline Doyle Drive (Route 101) at a minimum of 300 meters to the east of the Toll Plaza. The GGBHTD uses the 300 meters for Toll Plaza operations by revising lane configurations to accommodate the morning and afternoon commutes.

The cultural/environmental resources are numerous along the alignment. Beginning at the Toll Plaza and working toward the conform to Richardson Avenue, the cultural/environmental constraints are as follows:

Historic Officer Housing and endangered species of vegetation are along the southwest quadrant at the Park Presidio Interchange. Endangered species of vegetation are also north of the Park Presidio Interchange. The Cavalry Stables restrict the geometry in the southeast quadrant of the Park Presidio Interchange and extend easterly along the southern side of the High Viaduct.

Historic Stillwell Hall abuts the existing high viaduct between the Park Presidio Interchange and the Battery Bluff. At the Battery Bluff, the Historic Batteries abut the northbound mainline; Lincoln Blvd and the National Cemetery abut the southbound mainline. Lincoln Blvd roughly parallels the southbound mainline from the bluff to Building #106, which is also an historic building that restricts geometry.

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Along the northern edge of the northbound mainline between the bluff and the Post Commissary is an area of archaeological resources that must remain undisturbed. The Post Commissary abuts the northbound mainline at nearly the same location across from Building #106.

To the east of Building #106 and the Post commissary is Halleck Street, which must be restored after construction. Halleck Street is also reserved as part of the Historic Rail Corridor, which also includes Girard Road. Directly to the east of Halleck Street, between Halleck Street and the Girard Road Interchange, is the area reserved for the planned Crissy Marsh Expansion and Tennessee Hollow Restoration projects.

As the alignment traverses the area reserved for the planned Crissy Marsh expansion and Tennessee Hollow restoration, it curves toward the south across the Girard Road Interchange and conforms to Richardson Avenue. The historic Mason Street Warehouses are adjacent to the existing Marina Viaduct and in the northeast quadrant of the Girard Road Interchange. The historic Gorgas Warehouses abut the southern edge of the mainline along the curve at Girard Road and continue along Richardson Avenue to the project conform and beyond. The Palace of Fine Arts at the north side of Richardson Avenue further restricts the geometry at the east end of the project.

C. Safety Improvements

The Preferred Alternative proposes to incorporate safety improvements wherever reasonably feasible within the setting and context of a National Park to the standards established in the Highway Design Manual, considering traffic handling, construction staging, cost effectiveness, and conforming to adjacent street and State highway segments. The proposed safety improvements include:

- seismic upgrading of structures
- divided roadbeds for northbound and southbound Doyle Drive
- improved structure vertical clearances and upgrading of bridge rails
- improved geometry including horizontal and vertical curvature, stopping sight distances, deceleration lengths, ramp geometry, and superelevations
- standard 3.6-meter lane widths wherever feasible with 3.3-meter lane widths at constrained locations
- standard shoulders wherever feasible

D. Total Project Cost

The estimated cost for the Preferred Alternative is \$752.3 million (year 2007 dollars), \$34.8 million (year 2009 dollars) of which is for right of way and mitigation cost, leaving \$717.5 million for construction. The estimated costs are based upon 2007 dollars. The balanced funding strategy developed for the Doyle Drive Project relies upon a combination of federal, state and local funds. The available funding for the project will determine the scope and the deliverable phases of the project. Construction is scheduled for programming in FY 2009.

2. FEATURES REQUIRING AN EXCEPTION

The Preferred Alternative proposes to replace the existing facility in essentially the same location in order to minimize adverse impacts to adjacent cultural/environmental resources. To avoid these important resources several nonstandard design elements are proposed.

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Table 1 describes the proposed nonstandard features, and shows the standard for which the exception is requested, the proposed nonstandard value, the reason for the request, and the cost to make standard. The attachment sheets, series ML, MP and MX, indicate the location of each of the nonstandard features identified in Table 1 for each design option in plan, profile and section. The California Highway Design Manual (HDM) mandatory standards to which one or more exceptions are being requested are listed below.

The exception numbers referenced in italics refer to Table 1.

- Index and Table 201.1: Stopping Sight Distance – *Exception No. 1*;
- Index and Table 202.2: Standards for Superelevation – *Exception No. 2*;
- Index and Table 203.2: Standards for Curve Radius – *Exception No. 3*;
- Index and Table 204.3: Standards for Grade – *Exception No. 4*;
- Index 301.1: Traveled Way Width – *Exception No. 5*;
- Index and Table 302.1: Shoulder Width & Index 309.1(3): Horizontal Clearance – *Exception No.6*;
- Index 309.4: Lateral Clearance for Elevated Structures – *Exception No.7*; and
- Index 504.2 (2) and Figure 504.2B: Deceleration Length – *Exception No. 8*.

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

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| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|--|----------------------------------|--|---|----------------------------------|---------------------------------|---|
| 1 (Horizontal) 201.1: Stopping Sight Distance | | | | | | |
| A | NB Line STA 122+10 to 125+20 | 117 m to 95 m (75 km/h to 63 km/h) / 75 m (54 km/h) 201.1 | At this location, the Girard Road Interchange, the alignment and cross-sectional width are restricted by the existing geometry, cultural/environmental resources, and the need to develop a consensus to advance the project as described in Section 1.B. Existing Highway. In order to attain the standard stopping sight distance the inside shoulder would need to be increased from its current 1.2-meters to 4.4-meters. The additional width needed to provide standard stopping sight distance would require a shift in the adjacent southbound alignment, which would in turn impact the historic Gorgas Warehouses; or would decrease the separation between the structures, however the separation is a requirement of developing consensus. Since the alignment is transitioning from the conform with northbound Richardson Avenue, which has a posted speed limit of 56 km/h (35 mph), the stopping sight distance would be adequate for accelerating vehicles and balances the transition from the conform with Richardson Avenue to the mainline facility. | Historic Gorgas Warehouses #1167 | Widen \$1.7 million | |
| O | SB Line STA 112+40 to 114+65 | 130 m (80 km/h) / 120 m (76 km/h) 201.1 | At this location, first the tunnel wall and median barrier restrict the stopping sight distance. The alignment and cross-sectional width are restricted by the historic Batteries to the north and the National Cemetery to the south. In order to fit the alignment through these constraints and provide the space required for the Battery Tunnel structure, the inside shoulder is 1.2-meters throughout the Battery Tunnel with a transition to 3.0-meters at the east portal of the Battery Tunnel. To achieve standard, the horizontal clearance to the obstructions (the transitioning tunnel wall and the median barrier) would have to be increased to 3.6-meters from 3.0-meters. This nonstandard element affects only the #1 lane. | | Widen <\$500,000 | |
| B | SB Line STA 121+80 to 124+00 | 122 m to 100 m (77 km/h to 68 km/h) / 91 m (63 km/h) 201.1 | At this location, the Girard Road Interchange, the alignment is restricted by the existing geometry and cultural/environmental resources described in Section 1.B. Existing Highway. In order to attain the standard stopping sight distance the outside shoulder would need to be increased from its current 2.4-meters to 5.2-meters. The additional width needed to provide standard stopping sight distance would impact the historic Gorgas Warehouses. Currently, this alignment creates a nonstandard lateral clearance of 1.5-meters between the southbound structure and Gorgas Warehouse #1167. Since the alignment is transitioning to the conform with northbound Richardson Avenue, which has a posted speed limit of 56 km/h (35 mph), the stopping sight distance would be adequate for decelerating vehicles and balances the transition from the mainline facility to the conform to Richardson Avenue. | Historic Gorgas Warehouses #1167 | Widen \$1.2 million | |
| C | SB-PP Line STA 10+65 to 12+20 | 130 m (80 km/h) / 81 m (57 km/h) 201.1 | As described in Section 1.B. Existing Highway, the geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources. Increasing the outside clear distance from 10.3-meters to 16-meters in order to attain the standard would require an equivalent shift in the adjacent "NB-PP" ramp, which would then encroach upon the historic Officer Housing. The nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 56 km/h, which is in balance with the design speed supported by this nonstandard stopping sight distance. | Historic Officer Housing | Widen \$650,000 | |
| D | PP-NB Line STA 12+30 to 14+80 | 130 m (80 km/h) / 108 m (71 km/h) 201.1 | As described in Section 1.B. Existing Highway, the geometry of the Park Presidio Interchange is constrained by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources. The alignment follows the existing roadway in order to maintain traffic for this ramp during stage construction. Since the obstruction that causes this nonstandard stopping sight distance is a bridge abutment, increasing the inside clear distance from 7.0-meters to 13-meters in order to attain the standard would require an equivalent lengthening of the bridge to shift its abutment. This would then encroach upon the temporary bridge that is proposed for maintaining northbound Doyle Drive traffic during stage construction. The nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 64 km/h, which is in balance with the design speed supported by this nonstandard stopping sight distance. | | Widen \$500,000 | |
| D | PP-NB Line STA 12+30 to 14+80 | 130 m (80 km/h) / 89 m (61 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. Widening the inside clearance to the obstruction from its current 3.8-meters to 24-meters is not recommended since the curve length is only 90-meters and the horizontal curvature of the ramp supports a design speed of 51 km/h, which is less than the design speed supported by this nonstandard stopping sight distance. | | Widen \$500,000 | |
| K | PP-NB Line STA 15+15 to 16+25 | 130 m (80 km/h) / 90 m (63 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. Widening the horizontal clearance to the obstruction from its current 3.0-meters to 3.6-meters is not recommended since it would cause impairment to the horizontal clearance of the adjacent loop ramp. The nonstandard stopping sight distance is mitigated by the preceding curve which supports a speed of 61 km/h, which is less than the design speed supported by this nonstandard stopping sight distance. | | Widen \$100,000 | |
| E | NB-PP Line STA 10+85 to 12+05 | 95 m (65 km/h)/ 75 m (55 km/h) 201.1 | As described in Section 1.B. Existing Highway, the geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources. Since the obstruction is the bridge rail, widening the outside clearance from its current 4.8-meters to 7-meters would increase the shoulder width on this structure from its current 3.0-meters to 5.2-meters. At this location, the nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 60 km/h, which balances the design speed supported by this nonstandard stopping sight distance. | | Widen \$600,000 | |
| F | NB-PP Line STA 13+35 to 14+75 | 95 m (65 km/h)/ 74 m (55 km/h) 201.1 | As described in Section 1.B. Existing Highway, the geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources. Widening the outside clearance to the obstruction from its current 4.8-meters to 8.5-meters would cause the ramp's footprint to encroach upon the historic Officer Housing. At this location, the nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 60 km/h, which balances the design speed supported by this nonstandard stopping sight distance. | Historic Officer Housing | Widen \$600,000 | |

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

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| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|------------------------------|--|---|---|---|--|--|
| | V | PP-SB Line STA 10+15 to 12+25 | 95 m (65 km/h) / 65 m (50 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. Widening the inside clearance to the obstruction from its current 3.0-meters to 6.5-meters would require an equivalent shift in the adjacent "PP-NB" ramp, which is fixed by the need to use the existing ramp alignment in order to maintain traffic during stage construction. | | Widen \$350,000 |
| | (Vertical) | | | | | |
| | C | SB-PP Line STA 11+80 to 13+40 (SAG) | 140 m (80 km/h) / 77 m (56 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This sag vertical curve cannot be lengthened because it is restricted by the need to conform to the existing grade of southbound Route 1 (Park Presidio Boulevard). Lengthening the vertical curve would require reconstructing southbound Route 1 in order to raise its grade. The nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 57 km/h, which is nearly balanced with the design speed supported by this nonstandard stopping sight distance, and this sag curve would be lit. | | Reconstruct Ruckman Viaduct >\$7.5 million |
| | E | NB-PP Line STA 10+65 to 11+80 (CREST) | 130 m (80 km/h) / 76 m (56 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This crest vertical curve cannot be lengthened because it is restricted by the need to conform into the existing northbound Doyle Drive to southbound Park Presidio Boulevard loop ramp and to attain adequate vertical clearance underneath mainline Doyle Drive. The curve matches grade at approximately Sta 12+20. Lengthening the vertical curve would require an equivalent lengthening of the ramp. The nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 55 km/h, which is nearly balanced with the design speed supported by this nonstandard stopping sight distance, and this sag curve would be lit. | | |
| | F | NB-PP Line STA 14+55 to 15+10 (SAG) | 95 m (65 km/h) / 69 m (52 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This sag vertical curve cannot be lengthened because it is restricted by the need match the adjacent "SB-PP" ramp from southbound Doyle Drive to southbound Park Presidio Boulevard and the need to conform to the existing grade of southbound Route 1 (Park Presidio Boulevard). The curve matches the grade at approximately Sta 15+00. Lengthening the vertical curve would require an equivalent lengthening on the adjacent ramp in order to maintain grades across the entrance ramp gore and reconstructing southbound Route 1 in order to raise its grade. The nonstandard stopping sight distance is mitigated by the horizontal curvature of the ramp, which supports a design speed of 55 km/h, which is nearly balanced with the design speed supported by this nonstandard stopping sight distance, and this sag curve would be lit. | | |
| | H | PP-SB Line STA 10+05 to 10+75 (SAG) | 130 m (80 km/h) / 57 m (45 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This sag vertical curve cannot be lengthened because it is restricted by the need to match the adjacent "PP-NB" ramp from Park northbound Presidio Boulevard to northbound Doyle Drive, the need to conform to the existing grade at southbound Route 1 (Park Presidio Boulevard) while fitting the alignment under the overdressing structures, which themselves must match the existing grade of mainline Doyle Drive in order to maintain traffic during stage construction. The curve matches grade at approximately Sta 10+60. Lengthening the vertical curve would require an equivalent lengthening of the adjacent ramp in order to maintain grades across the entrance ramp gore, reconstructing northbound Route 1 in order to raise its grade as well as raising the grades of the overcrossing structures. This sag curve would be lit, which would mitigate this non-standard stopping sight distance. | | Reconstruct Ruckman Viaduct >\$7.5 million |
| | D | PP-NB Line STA 12+05 to 13+95 (SAG) | 130 m (80 km/h) / 85 m (60 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This sag vertical curve cannot be lengthened because it is restricted by the need to conform to the existing grade of northbound Route 1 (Park Presidio Boulevard). The curve matches the existing grade at approximately Sta 13+40. Lengthening the vertical curve would require reconstructing northbound Route 1 in order to raise its grade. This sag curve would be lit, which would mitigate this nonstandard stopping sight distance. | | Reconstruct Ruckman Viaduct >\$7.5 million |
| | K | PP-NB Line STA 15+15 to 16+25 (CREST) | 130 m (80 km/h) / 100 m (67 km/h) 201.1 | The geometry of the Park Presidio Interchange is restricted by the existing interchange geometry, Toll Plaza operations and the surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This crest vertical curve cannot be lengthened because it is restricted by the need to conform to northbound Route 101 prior to the area reserved for the Toll Plaza operations. The curve matches northbound mainline at approximately Sta 16+70. Vehicles would be slowing to traverse the Toll Plaza which has a posted speed limit of 25 mph in order to negotiate the tight curvature around the toll booths. | | Lengthen curve <\$500,000 |
| | I | GI-NB Line STA 10+60 to 11+40 (CREST) | 85 m (60 km/h) / 62 m (48 km/h) 201.1 | At this location, the entrance ramp is ascending to meet the descending northbound Route 101, which is on structure. The curve cannot be lengthened because it is restricted by the need to match northbound Doyle Drive on structure. Lengthening the curve from 85 m to 375 m in order to obtain the standard would lower the grade of the structure and impinge upon the area reserved for the Crissy Marsh expansion and the Tennessee Hollow restoration. This nonstandard stopping sight distance is prior to the entrance ramp nose and is also mitigated by the ramp's full shoulders and an addition of lane #3 to mainline Doyle Drive. | Crissy Marsh expansion and Tennessee Hollow restoration | Lengthen curve <\$500,000 |
| 2 | 202.2: Standards for Superelevation | | | | | |
| | U | NB Line STA 112+75 to 114+91 | 0.08 / 0.06 202.2 | The superelevation of this 460 m radius curve is restricted by the need to develop consensus in order to advance the project. In order to develop a consensus without compromising safety or maximum comfort for the driver a 6% superelevation rate was selected. HDM Figure 202.2 shows that a 6% superelevation for a 460 m radius will support a maximum comfortable speed of approximately 100 km/h, which is greater than the design speed of 80 km/h and in balance with the 102 km/h speed supported by this 460 m radius curve. | See Section 1.B. Existing Highway | Increase Super <\$500,000 |

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

04-SF-101, KP 12.8 - 15.7 (PM 8.0 - 9.8)
 04-SF-001, KP 10.9 - 11.4 (PM 6.8 - 7.1)
 RU 04242 - EA 163700
 Project Cost \$752.3 million

| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|------------------------------|-------------------------------------|---------------------------------|---|--|--------------------------------------|--|
| S | NB Line STA 118+25 to 119+34 | | 0.05 / 0.03 202.2 | The superelevation of this 740 m radius curve is restricted by the need to develop consensus in order to advance the project. In order to develop a consensus without compromising safety or maximum comfort for the driver a 3% superelevation rate was selected. HDM Figure 202.2 shows that a 3% superelevation for a 740 m radius will support a maximum comfortable speed of approximately 112 km/h, which is greater than the design speed of 80 km/h and in balance with the 115 km/h speed supported by this 740 m radius curve. | See Section 1.B. Existing Highway | Increase Super < \$500,000 |
| A | NB Line Sta STA 121+54 to 124+56 | | 0.11 / 0.05 202.2 | The superelevation of this 440 m and 232 m radii compound curves is restricted by the proximity to the conform with northbound Richardson Avenue and constrained geometry of the Girard Road Interchange. In order to provide for a smooth transition and maximum comfort for the driver while balancing the geometric elements of the Girard Road Interchange and the transition from the conform with northbound Richardson Avenue (which has a posted speed limit of 56 km/h (35 mph)), a 5% superelevation rate was selected. HDM Figure 202.2 shows that a 5% superelevation for the 440 m and 232 m radii compound curves will support a maximum comfortable speed of approximately 100 and 75 km/h, which is in balance with the design speed of 73 km/h and the 102 km/h and 75 km/h speed supported by these 440 m and 232 m radii curves. | | Increase Super < \$500,000 |
| O | SB Line STA 113+38 to 115+32 | | 0.08 / 0.06 202.2 | The superelevation of this 440 m radius curve is restricted by the need to develop consensus in order to advance the project. In order to develop a consensus without compromising safety or maximum comfort for the driver a 6% superelevation rate was selected. HDM Figure 202.2 shows that a 6% superelevation for a 440 m radius will support a maximum comfortable speed of approximately 97 km/h, which is greater than the design speed of 80 km/h and in balance with the 100 km/h speed supported by this 440 m radius curve. | See Section 1.B. Existing Highway | Increase Super < \$500,000 |
| T | SB Line STA 119+59 to 120+16 | | 0.08 / 0.06 202.2 | The superelevation of this 430 m radius curve is restricted by the need to develop consensus in order to advance the project. In order to develop a consensus without compromising safety or maximum comfort for the driver a 6% superelevation rate was selected. HDM Figure 202.2 shows that a 6% superelevation for a 355 m radius will support a maximum comfortable speed of approximately 100 km/h, which is greater than the design speed of 80 km/h and less than the 100 km/h speed supported by this 430 m radius curve. | See Section 1.B. Existing Highway | Increase Super < \$500,000 |
| Y | SB Line STA 121+29 to 121+44 | | 0.08 / 0.06 202.2 | The superelevation of this 410 m radius curve is restricted by the need to develop consensus in order to advance the project. In order to develop a consensus without compromising safety or maximum comfort for the driver a 6% superelevation rate was selected. HDM Figure 202.2 shows that a 6% superelevation for a 410 m radius will support a maximum comfortable speed of approximately 95 km/h, which is greater than the design speed of 80 km/h and in balance with the 95 km/h speed supported by this 410 m radius curve. | | Increase Super < \$500,000 |
| B | SB Line STA 122+70 to 124+49 | | 0.11 / 0.05 202.2 | The superelevation of this 220 m radius and 252 m radius compound curve is restricted by the vertical clearance above Girard Road. Increasing the superelevation to attain the standard of 11% would cause a nonstandard vertical clearance over Girard Road. Lowering the profile of Girard Road is not recommended since it would increase the grade, which is designed at 5%, and require an equivalent revision to the grades and cross-slopes for the entrance and exit ramps that tie to this Girard Road Interchange. In order to provide for the maximum level of comfort for the driver while balancing all of the geometric elements of the Girard Road Interchange and the transition to the conform with Richardson Avenue, which has a posted speed limit of 56 km/h (35 mph), a superelevation rate of 5% was selected. HDM Figure 202.2 shows that a 5% superelevation for a 220 m and 252 m radii will support a maximum comfortable speed | | Increase Super < \$500,000 |
| C | SB-PP STA 11+70 to 12+70 | | 0.12 / 0.08 202.2 | The superelevation of this curve is restricted by the tight reversing curvature and the need to conform to existing southbound Park Presidio Boulevard. In order to provide for a smooth transition and allow for the maximum comfort for the driver a superelevation rate of 8% was selected. HDM Figure 202.2 shows that an 8% superelevation for a 140 m radius will support a maximum comfortable speed of approximately 60 km/h, which is greater than the 58 km/h supported by the horizontal curvature of this ramp. | | Increase Super < \$500,000 |
| E | NB-PP Line STA 11+53 to 11+60 | | 0.12 / 0.08 202.2 | The superelevation of this curve is restricted by the short length of curve and the tight reversing curvature of the alignment as it transitions from the exit diverge to the loop ramp. In order to provide for a smooth transition and allow for the maximum comfort for the driver a superelevation rate of 8% was selected. It should be noted that HDM Figure 202.2 shows that a 8% superelevation for a 150 m radius will support a maximum comfortable speed of approximately 65 km/h, which is greater than the 53 km/h speed supported by this curve and balances the speed as traffic transitions to the loop ramp. | | Increase Super < \$500,000 |
| F | NB-PP Line STA 14+25 to 15+10 | | 0.12 / 0.08 202.2 | The superelevation of this curve is restricted by the short length of curve and the need to conform to the entrance gore at southbound Park Presidio Boulevard. In order to provide for a smooth transition and allow for the maximum comfort for the driver a superelevation rate of 8% was selected. HDM Figure 202.2 shows that an 8% superelevation for a 145 m radius will support a maximum comfortable speed of approximately 60 km/h, which balances the 56 km/h supported by the horizontal curvature of the ramp as it transitions from the loop ramp to the entrance nose. | | Increase Super < \$500,000 |
| K | PP-NB Line STA 16+06 to 16+56 | | 0.11 / 0.08 202.2 | The superelevation of this 210 m radius curve is restricted by the tight curvature, its short length of curve, and the conform with northbound Route 101. In order to allow for a smooth transition while providing for the maximum level of comfort for the driver a 8% superelevation rate was selected. HDM Figure 202.2 shows that a 6% superelevation for a 210 m radius curve will support a maximum comfortable speed of approximately 75 km/h, which is in balance with the 72 km/h supported by this 210-meters radius curve. | | Increase Super < \$500,000 |
| L | SB-GI Line STA 12+00 to 12+82 | | 0.10 / 0.04 202.2 | This 303.6 m radius curve is the last curve of the ramp after exiting southbound Route 101 and terminates at a signalized intersection with Girard Road. The superelevation is restricted by the need to maintain freeboard under the structure soffit for the 100-year high tide event as the bridge spans the proposed Crissy Marsh expansion. Increasing the superelevation to attain the standard of 12% would cause the soffit of the structure to be submerged during the 100-year high tide event. A superelevation of 4% is the maximum rate attainable while providing the required clearance during the 100-year high tide event. HDM Figure 202.2 shows that a 4% superelevation for a 300 m radius will support a maximum comfortable speed in excess of 70 km/h, which balances the transition between an 80 km/h design speed at the exit nose and a 40 km/h design speed at the ramp terminal with a signalized intersection. | Crissy Marsh expansion | Increase Super < \$500,000 |

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

04-SF-101, KP 12.8 - 15.7 (PM 8.0 - 9.8)
 04-SF-001, KP 10.9 - 11.4 (PM 6.8 - 7.1)
 RU 04242 - EA 163700
 Project Cost \$752.3 million

| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|------------------------------|--|----------------------------------|---|---|---|--|
| | I | GI-NB Line STA 10+00 to 11+39 | 0.12 / 0.04 202.2 | This 240 m radius is the first curve at the beginning of the ramp at a signalized intersection, and the superelevation is restricted by the conform to this intersection with Girard Road and the reversing curvature of the ramp. Increasing the superelevation to 12% to attain the standard would cause an equivalent increase in grade for Girard Road. A superelevation of 4% was selected to match the grade of Girard Road while providing for a smooth transition and maximum comfort for the driver. HDM Figure 202.2 shows that a superelevation of 4% for a 240 m curve would support a maximum comfortable speed of approximately 75 km/h, which is greater than the 40 km/h design speed for the ramp terminus at a signalized intersection. | | Increase Super < \$500,000 |
| 3 | 203.2: Standards for Curve Radius | | | | | |
| | C | SB-PP Line STA 11+50 to 12+89 | 260 m (80 km/h) / 140 m (58 km/h) 203.2 | The horizontal curvature for this interchange is restricted by the existing geometry and Toll Plaza operations, and constrained by surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. At this location, the alignment is conforming to the existing facility of southbound Route 1 (Park Presidio Blvd.). Increasing the curve radius to attain the standard would require an additional increase in the footprint of the Park Presidio Interchange, which would impact the surrounding cultural/environmental resources. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| | D | PP-NB Line STA 13+23 to 14+36 | 260 m (80 km/h) / 155 m (61 km/h) 203.2 | The horizontal curvature for this interchange is restricted by the existing geometry and Toll Plaza operations, and constrained by surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. At this location, the curvature approximates the existing ramp curvature in order to maintain traffic during stage construction. Increasing the curve radius to attain the standard would preclude maintaining this ramp movement during stage construction and require an additional increase in the footprint of the Park Presidio Interchange, which would impact the surrounding cultural/environmental resources. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| | D | PP-NB Line STA 14+36 to 12+25 | 260 m (80 km/h) / 140 m (58 km/h) 203.2 | The horizontal curvature for this interchange is restricted by the existing geometry and Toll Plaza operations, and constrained by surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This curve is designed as such in order to maintain the ramp traffic during stage construction of the reconfigured loop ramps. Increasing the curve radius to attain the standard would preclude maintaining this ramp movement during stage construction and require an additional increase in the footprint of the Park Presidio Interchange, which would impact the surrounding cultural/environmental resources. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| | E | NB-PP Line STA 11+33 to 12+05 | 175 m (65 km/h) / 150 m (60 km/h) 203.2 | The horizontal curvature for this interchange is restricted by the existing geometry and Toll Plaza operations, and constrained by surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. This is the first curve after the exit nose and the alignment is transitioning from an 80 km/h design speed at the exit nose to a 50 km/h design speed for the loop ramp, thus the desired design speed for this curve is interpolated to be 65 km/h. Increasing the curve radius to attain the standard would require an additional increase in the footprint of the Park Presidio Interchange, which would impact the surrounding cultural/environmental resources. Since the exit ramp has a standard deceleration length and its posted speed limit would be 40 km/h to accommodate the loop ramp, the 60 km/h design speed supported by this curve would adequately balance the transition between the exit nose and loop ramp. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| | F | NB-PP Line STA 13+84 to 15+29 | 175 m (65 km/h) / 145 m (59 km/h) 203.2 | The horizontal curvature for this interchange is restricted by the existing geometry and Toll Plaza operations, and constrained by surrounding cultural/environmental resources as described in Section 1.B. Existing Highway. At this location, the alignment is transitioning from a 50 km/h design speed for the loop ramp to 80 km/h at the entrance nose, thus the desired design speed for this curve is interpolated to be 65 km/h. Increasing the curve radius to attain the standard would require an additional increase in the footprint of the Park Presidio Interchange, which would impact the surrounding environmental/historical resources. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| | V | PP-SB Line STA 11+10 to 12+60 | 260 m (80 km/h) / 90 m (47 km/h) 203.2 | As described in Section 1.B. Existing Highway, the overall curvature of the interchange is restricted by the existing geometry and constrained by the surrounding cultural/environmental resources. This curve is restricted by the need to conform to existing northbound Route 1 (Park Presidio Boulevard) and to minimize the ramps proximity to the Calvary Stables. Increasing the curve radius to attain the standard would require an additional increase in the footprint of the Park Presidio Interchange, which would impact the Cavalry Stables, and would move the ramp diverge further south, which would require a reconstruction of the existing Ruckman Viaduct. | Endangered Species, Historic Officer Housing, and Cavalry Stables | Increase Footprint >\$15 million |
| 4 | 204.3: Grade | | | | | |
| | M | NB Line STA 105+77 to 111+20 | 4.0% / 4.3% 204.3 | The profile grade is restricted by the need to match the mainline grades at the existing Park Presidio Interchange to the west while allowing for adequate clearance above the Battery Tunnel at the National Cemetery and Historic Batteries to the east, so traffic can be maintained during stage construction. Reducing the grade to 4% to attain the standard would cause the proposed Battery Tunnel to be raised, which would preclude maintaining mainline traffic lanes during stage construction of the Battery Tunnel. | Historic Batteries and National Cemetery | Stage Construction Mainline Detour >\$50 million |
| | N | SB Line STA 105+75 to 110+70 | 4.0% / 4.2% 204.3 | Due to the requirement of maintaining traffic during stage construction and to reconstruct Lincoln Boulevard in its existing location, the profile grade is restricted by the need to match existing mainline grades at the Park Presidio Interchange and to allow adequate clearance to reconstruct Lincoln Boulevard above the Battery Tunnel at the National Cemetery to the east. Reducing the grade to 4% to attain the standard would cause the proposed Battery tunnel to be raised, which would preclude reconstructing Lincoln Boulevard to its existing configuration and impact the National Cemetery. | Lincoln Boulevard and National Cemetery | Stage Construction Mainline Detour >\$50 million |

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

04-SF-101, KP 12.8 - 15.7 (PM 8.0 - 9.8)
 04-SF-001, KP 10.9 - 11.4 (PM 6.8 - 7.1)
 RU 04242 - EA 163700
 Project Cost \$752.3 million

| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|---|-------------------------|----------------------------------|---|---|---|--|
| 5 301.1: Traveled Way Width | | | | | | |
| | M | NB Line STA 101+48 to 127+20 | 3.6 m / 3.3 m 301.1 | The overall cross-sectional width of the facility is restricted at several locations along the alignment as described in Section 1.B. Existing Highway, and by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park. Therefore, to develop consensus in order to advance the project while allowing for a consistent cross-section and the maximum level of comfort for the driver, the lane widths are designed as 3.3 meters for the #1 and #2 lanes throughout the length of the alignment. The #3 lane and the outside shoulder are standard width. Furthermore, the existing condition has 3.0 m lanes, no shoulders, and is undivided without a median barrier. | See Section 1.B. Existing Highway | Widen \$5.4 million |
| | N | SB Line STA 101+48 to 127+20 | 3.6 m / 3.3 m 301.1 | The overall cross-sectional width of the facility is restricted at several locations along the alignment as described in Section 1.B. Existing Highway, and the requirement to minimize the overall footprint of the facility within the context and setting of the National Park. Therefore, to develop consensus in order to advance the project while allowing for a consistent cross-section and the maximum level of comfort for the driver, the lane widths are designed as 3.3 meters for the #1 and #2 lanes, and the auxiliary lane throughout the length of the alignment. The #3 lane and the outside shoulder are standard width. Furthermore, the existing condition has 3.0 m lanes, no shoulders, and is undivided without a median barrier. | See Section 1.B. Existing Highway | Widen \$8.2 million |
| | D & K | PP-NB Line STA 10+16 to 17+65 | 3.6 m / 3.3 m 301.1 | This ramp is restricted by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park and to build consensus in order to advance the project. Therefore, to develop consensus while maintaining consistency of cross-section as applied in other restricted locations throughout the facility, the #1 lane of this multilane ramp is designed at 3.3-meters. The #2 lane of this multilane ramp and the outside shoulder are designed to standard widths; the inside shoulder is designed to standard width where feasible. | See Section 1.B. Existing Highway | Widen < \$100,000 |
| | C | SB-PP Line STA 10+00 to 15+08 | 3.6 m / 3.3 m 302.1 | This ramp is restricted by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park and to build consensus in order to advance the project. Therefore, to develop consensus while maintaining consistency of cross-section as applied in other restricted locations throughout the facility, the #1 lane of this multilane ramp is designed at 3.3-meters. The #2 lane of this multilane ramp and the outside shoulder are designed to standard widths; the inside shoulder is designed to standard width where feasible. | See Section 1.B. Existing Highway | Widen < \$100,000 |
| | L | SB-GI Line STA 10+00 to 12+75 | 3.6 m / 3.3 m 302.1 | This multilane ramp is constrained by the requirement to accommodate the future plans for the Crissy Marsh expansion and Tennessee Hollow restoration as well as the need to minimize the overall footprint of the facility within the context and setting of the National Park in order to develop consensus to advance the project. Therefore in order to meet the requirements and develop consensus to advance the project, the inside lanes of this ramp are designed to 3.3-meters. The outside lane of this multilane ramp and the shoulders are designed to standard widths. | Crissy Marsh expansion and Tennessee Hollow restoration | Widen < \$250,000 |
| | Q & X | RI-GI Line STA 10+00 to 11+70 | 3.6 m / 3.3 m 302.1 | At this location the single lane ramp is constrained by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park, the necessity to limit encroachment toward the Palace of Fine Arts, and the need to develop consensus to advance the project. This is a short exit ramp that connects Richardson Avenue (NB 101), which has nonstandard lane widths, with Girard Road, and functions like a one-way local street. The shoulders of this multilane ramp are designed to standard widths, and the ramp has good access from Girard Road, Richardson Avenue and the Palace of Fine Arts for maintenance and emergency vehicles. | Palace of Fine Arts | Widen < \$150,000 |
| | I | GI-NB Line STA 10+00 to 11+20 | 3.6 m / 3.3 m 302.1 | At this location the ramp is constrained by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park as well as the necessity to develop consensus to advance the project. Therefore the lanes are designed as 3.3-meters for the two-lane section of this ramp, and the shoulders are designed to standard widths. Furthermore, the two-lane section then merges into a single lane with standard lane and shoulder widths. | See Section 1.B. Existing Highway | Widen < \$100,000 |
| 6 302.1: Shoulder Width 309.1: Horizontal Clearances | | | | | | |
| | M | NB Line STA 103+05 to 120+85 | 3.0 m (Left) / 1.2 m (Left) 302.1 & 309.1 | The overall cross-sectional width of the facility is restricted at several locations along the alignment as described in Section 1.B. Existing Highway as well as the requirements to minimize the overall footprint of the facility within the context and setting of the National Park and to develop consensus in order to advance the project. Therefore, to allow for a consistent cross-section and to develop consensus to advance the project, the left shoulder width is designed as 1.2-meters throughout the length of the alignment. The #3 lane and the outside shoulder are standard width. Furthermore, the existing condition has 3.0 m lanes, no shoulders, and is undivided without a median barrier. | See Section 1.B. Existing Highway | Widen \$14.6 million |
| | N | SB Line STA 106+90 to 114+15 | 3.0 m (Left) / 1.2 m (Left) 302.1 & 309.1 | The overall cross-sectional width of the facility is restricted at several locations along the alignment as described in Section 1.B. Existing Highway as well as the requirements to minimize the overall footprint of the facility within the context and setting of the National Park and to develop consensus in order to advance the project. Therefore, to allow for a consistent cross-section and to develop consensus to advance the project, the left shoulder width is designed as 1.2-meters from begin bridge of the High Viaduct to the east portal of the Battery tunnel. The #3 lane and the outside shoulder are standard width. Furthermore, the existing condition has 3.0 m lanes, no shoulders, and is undivided without a median barrier. | See Section 1.B. Existing Highway | Widen \$10.7 million |
| | T | SB Line STA 117+80 to 120+95 | 3.0 m (Left) / 1.2 m (Left) 302.1 & 309.1 | The overall cross-sectional width of the facility is restricted at several locations along the alignment as described in Section 1.B. Existing Highway as well as the requirements to minimize the overall footprint of the facility within the context and setting of the National Park and to develop consensus to advance the project. Therefore, to allow for a consistent cross-section and to develop consensus to advance the project, the left shoulder width is designed as 1.2-meters throughout the Main Post tunnel. The #3 lane and the outside shoulder are standard width. Furthermore, the existing condition has 3.0 m lanes, no shoulders, and is undivided without a median barrier. | See Section 1.B. Existing Highway | Widen \$4.7 million |

Table 1 - Nonstandard Mandatory Design Features for Preferred Alternative - Presidio Parkway

04-SF-101, KP 12.8 - 15.7 (PM 8.0 - 9.8)
 04-SF-001, KP 10.9 - 11.4 (PM 6.8 - 7.1)
 RU 04242 - EA 163700
 Project Cost \$752.3 million

| Design Exception Feature No. | Location Attachment C1A | Nonstandard Feature Description | Standard / Proposed Nonstandard Values Corresponding Design Speed STD/Non-STD HDM Section | Reason for Requesting Exception | Cultural/ Environmental Impacts | Added Cost to make Standard (Does not include cost of cultural/ environmental impacts) |
|------------------------------|---|---|---|--|--|--|
| | E | NB-PP Line STA 11+33 to 12+05 | 1.5 m (Left) / 1.2 m (Left) 302.1 & 309.1 | This ramp is restricted by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park and to build consensus in order to advance the project. The nonstandard features are adjacent to the bridge rail when the ramp is on structure. It should be noted that the travel lane and the outside shoulder are designed to standard widths, and the inside shoulder has standard width along the at-grade sections. | See Section 1.B. Existing Highway | Widen < \$150,000 |
| | V | PP-SB Line STA 10+82 to 12+85 | 1.5 m (Left) / 1.2 m (Left) 302.1 & 309.1 | This ramp is restricted by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park and to build consensus in order to advance the project. The nonstandard features are adjacent to the bridge rail when the ramp is on structure. It should be noted that the travel lane and the outside shoulder are designed to standard widths, and the inside shoulder has standard width along the at-grade sections. | See Section 1.B. Existing Highway | Widen < \$150,000 |
| | L | SB-GI Line STA 11+00 to 12+70 (Left) STA 12+00 to 12+70 (Right) | 3.0 m (Left & Right) / 0.6 m (Left & Right) 309.1 | This ramp is constrained by the requirement to accommodate the future plans for the Crissy Marsh expansion and Tennessee Hollow restoration as well as the need to develop consensus to advance the project. This ramp transitions from bridge to fill section to cut section at the ramp terminus at the intersection with Girard Road. On the left side the nonstandard horizontal clearance is adjacent to a bridge rail, barrier rail, and then retaining wall in cut section near the ramp terminus at the intersection with Girard Road. This is a multilane ramp transitioning from a two-lane exit to three lanes at the signalized intersection with Girard Road and has good access from Girard Road for emergency and maintenance vehicles, which mitigates this nonstandard feature. | Crissy Marsh expansion and Tennessee Hollow restoration | Widen < \$250,000 |
| | I | GI-NB Line STA 10+15 to 10+92 | 3.0 m (Left & Right) / 1.2 m (Left & Right) 309.1 | At this location the ramp is constrained by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park as well as the necessity to develop consensus to advance the project. This is a two-lane entrance ramp that transitions from a cut section to fill section to a bridge. The nonstandard horizontal clearance is adjacent to a short length of retaining wall (approximately 20-meters) within the cut section of the ramp, which is near the intersection. The shoulders of this multilane ramp are designed to standard widths, and the two-lane section then merges into a single lane with standard lane and shoulder widths. This nonstandard element is mitigated by the short length of retaining wall, and the fact that this ramp ties into Girard Road with good access from both directions of Girard Road for emergency and maintenance vehicles. | See Section 1.B. Existing Highway | Widen < \$100,000 |
| | Q & X | RI-GI Line STA 10+00 to 11+70 | 3.0 m (Left & Right) / 0.6 m (Left & Right) 309.1 | This is a single lane ramp that exits Richardson Ave tying into a signalized intersection at Girard Road. At this location the horizontal clearance to the retaining walls cannot be widened because the ramp is restricted by the requirement to minimize the overall footprint of the facility within the context and setting of the National Park, the necessity to limit encroachment toward the Palace of Fine Arts, and the need to develop consensus to advance the project. This nonstandard feature is mitigated by the very short distance of retaining walls (approximately 20-meters) as well as the fact that this ramp is of similar character to a local street transitioning from existing Richardson Avenue to Girard Road with good access from Richardson Avenue and Girard Road and the Palace of Fine Arts for emergency and maintenance vehicles. | See Section 1.B. Existing Highway and Palace of Fine Arts | Widen < \$100,000 |
| 7 | 309.4: Lateral Clearance for Elevated Structures | | | | | |
| | P | SB Line STA 123+55 | 4.6 m / 1.5 m 309.4 | This curve is prior to the project conform with Richardson Avenue and it is restricted by the facility's existing geometry and the surrounding cultural/environmental resources. Since this nonstandard lateral clearance is a spot location involving the corner of Historic Gorgas Warehouse #1167 and the southbound Girard Road U.C. structure, maintenance and inspection of the structure could be accomplished from the local road below the structure. Also, the clearance provided is ample for seismic deflections. | Historic Gorgas Warehouse #1167 | Remove Historic Gorgas Warehouses #1167 |
| 8 | 504.2(2): Ramp Deceleration Lane Length (DL) | | | | | |
| | Q | RI-GI Line | 82.3 m / 65.8 m 504.2(2) | This location is constrained by the Palace of Fine Arts to the north, the Gorgas Warehouses to the south, and the project conform at Richardson Avenue. Any shifting of the mainline alignments or moving the ramp diverge point to attain the standard would result in either impacts to the Gorgas Warehouses or encroachment toward the Palace of Fine Arts. Since the Richardson Avenue approach to this ramp has a posted speed limit of 56 km/h (35 mph) and is metered by the existing signalized intersections, the exit ramp traffic will have adequate length to decelerate. | Historic Gorgas Warehouses and Palace of Fine Arts | Extend Decel Lane < \$250,000 |
| | V | PP-SB Line 10+00 to 10+82 | 150 m / 110 m 504.2(2) | The exit ramp diverge is restricted by the need to conform with northbound Route 1 and southbound Route 101. Increasing the deceleration length to obtain the standard would cause the ramp conform with northbound Route 1 to move more southerly, which would require the complete reconstruction of the Ruckman Viaduct. | | Reconstruct Ruckman Viaduct > \$7.5 million |

3. TRAFFIC DATA

Doyle Drive has adequate capacity for current traffic because it is located between two points which effectively act as meters: Golden Gate Bridge Toll Plaza to the west (north) and local streets to the east (south) (Traffic Screening Report, April 2001). The Year 2030 anticipated peak hourly volumes are 4,890 vehicles southbound in the AM and 4,800 vehicles northbound in the PM, with a daily volume of 110,700 vehicles and overall level of service (LOS) of C in the AM peak direction and LOS D in the PM peak direction.

The traffic analysis (Draft Revised Traffic and Transit Operations Report July, 2004) quantitatively measured the effect of this alternative on both traffic intersections and roadway segments for the Base Year 2000 and the Year 2030 future conditions. The future year of 2030 was determined by anticipating completion of construction in 2010 plus 20 years post opening. Although completion of construction is now anticipated in 2012, the design year is 2030 as projections beyond 2030 indicate a level or possible decrease in demand. This design year 2030 was selected as the more conservative approach. For each of these project alternatives, the Authority travel demand model (SF-TDM) was used to generate the expected future traffic demand.

The highest weekday traffic volume observed was between 6:00AM and 9:00AM during the AM peak period, and between 3:30PM and 6:30PM during the PM peak period. The highest weekend traffic volume observed on a Saturday was between 3:30PM and 6:30PM. For traffic operational analyses, these peak periods were converted to peak hour. The peak period to peak hour conversion factors used are:

- AM Peak Hour is 38% of the AM Peak Period; and
- PM Peak Hour is 35% of the PM Peak Period.

Derivation of these conversion factors is based on traffic counts collected on the Golden Gate Bridge, Marina Boulevard, and Richardson Avenue during the morning, midday and evening periods. Table 2 presents Year 2000 and Year 2030 average daily traffic volumes for the Doyle Drive corridor.

Table 2: Years 2000 And 2030 Traffic Volumes for Preferred Alternative

| | | Year 2000 | | Year 2030 | |
|---|----|--|--------------|--|--------------|
| | | Average Daily Traffic Volumes (vehicles) | | Average Daily Traffic Volumes (vehicles) | |
| | | AM Peak Hour | PM Peak Hour | AM Peak Hour | PM Peak Hour |
| US 101 from Merchant Drive ramps to Veterans Blvd. | SB | 63,000 | | 80,200 | |
| | | 6,150 | 3,120 | 6,540 | 5,606 |
| US 101 from Veterans to Merchant Drive ramps. | NB | 60,000 | | 78,900 | |
| | | 2,994 | 5,649 | 5,092 | 6,355 |
| US 101 from Veterans to Marina Blvd. access ramps. | SB | 53,000 | | 57,100 | |
| | | 5,203 | 2,608 | 4,886 | 3,493 |
| US 101 from Marina Blvd. access ramps to Veterans | NB | 46,000 | | 53,600 | |
| | | 2,049 | 4,619 | 2,940 | 4,793 |
| Richardson Ave. from Marina Blvd. access ramps to Lyon St. | SB | 37,000 | | 35,900 | |
| | | 3,717 | 1,734 | 2,986 | 2,272 |
| Richardson Ave. from Lyon St. to Marina Blvd. access ramps. | NB | 30,000 | | 36,200 | |
| | | 1,443 | 2,802 | 2,143 | 3,296 |
| Marina Blvd. from Doyle Drive merger to Lyon St. | EB | 16,000 | | 15,500 | |
| | | 1,486 | 873 | 1,300 | 977 |
| Marina Blvd. from Lyon St. to Doyle Drive merger. | WB | 17,000 | | 14,600 | |
| | | 606 | 1,820 | 718 | 1,379 |
| Veterans from US 101 ramps to Veterans tunnel | SB | 32,000 | | 38,400 | |
| | | 2,380 | 2,251 | 2,594 | 2,986 |
| Veterans from Veterans tunnel to US 101 ramps. | NB | 35,000 | | 40,600 | |
| | | 2,379 | 2,768 | 3,092 | 2,834 |
| US 101 between Veterans on-and off-ramps. | SB | 41,000 | | 48,600 | |
| | | 4,217 | 1,884 | 4,261 | 2,878 |
| US 101 between Veterans off- and on-ramps. | NB | 36,000 | | 46,800 | |
| | | 1,601 | 3,605 | 2,625 | 4,135 |

Source: Final Traffic and Transit Operations Report, December 2004.

4. ACCIDENT ANALYSIS

Accident data for the 3-year period from 2003 to 2006 for the Doyle Drive corridor, ramps and intersections leading up to Doyle Drive are summarized in Tables 3 & 4. Actual (recorded within the

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study section limits) and average (recorded for similar transportation facilities statewide) accident rates were obtained from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS). TASAS values are expressed in terms of accidents per million vehicle miles (MVM).

The actual accident rates for northbound traffic, southbound traffic and the approach to the Golden Gate Bridge Toll Plaza on Doyle Drive were all below statewide average accident rates. Actual accident rates on all the ramp connections were also below the statewide average accident rates.

Within the Doyle Drive corridor, the prevalent accident types were Sideswipe (30.8%) and Rear End (47.4%). The next highest category was Hit Object (13.7%). These types of accidents are typical of driver error in congested traffic. Median barriers, wider lanes, shoulders, and more standard design elements would improve safety. A median barrier would prevent head-on collisions; wider lanes would alleviate sideswipes, and shoulders would allow disabled vehicles to pull off the traveled way, reducing the need for other drivers to swerve around them. Improvements to the geometry of the ramps, especially Ramp B, would provide smoother transitions for vehicles entering and exiting the roadways, resulting in improved traffic safety. The goal of the project is to implement these safety improvements in a way that has the least impact on the Presidio's natural and cultural resources. There is no apparent correctable pattern of accidents related to the exceptions being requested.

Tables 3 and 4 below provide accident data for the Doyle Drive mainline and ramps.

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Table 3: Doyle Drive Accident Data – Highway Segments

| Highway Location | Accidents | | | Accident Rate | |
|---|-----------|------------|----------|---------------|----------------|
| | Total | Fatalities | Injuries | Actual (MVMT) | Average (MVMT) |
| NB Doyle Drive: PM 8.052-9.39 (From beginning / end of Richardson Ave. ramps to Presidio Interchange) | 42 | 1 | 9 | 0.71 | 2.54 |
| SB Doyle Drive: PM 8.052-9.39 (From beginning / end of Richardson Ave. ramps to Presidio Interchange) | 28 | 0 | 8 | 0.53 | 2.34 |
| NB/SB Doyle: Drive PM 9.40-9.75 (Combined from Presidio Interchange to PM 9.75, 500 feet east of the Golden Gate Toll Plaza) | 98 | 0 | 18 | 1.75 | 1.95 |

Table 4: Doyle Drive Accident Data – Ramps

| Ramp Location | Accidents | | | Accident Rate | |
|---|-----------|------------|----------|---------------|----------------|
| | Total | Fatalities | Injuries | Actual (MVMT) | Average (MVMT) |
| NB Doyle Drive / SB Highway 1 US 101 PM 9.42 | 8 | 0 | 1 | 0.87 | 0.60 |
| SB Doyle Drive / SB Highway 1 US 101 PM 9.46 | 3 | 0 | 2 | 0.12 | 0.45 |
| NB Highway 1 / NB Doyle Drive US 101 PM 9.611 | 4 | 0 | 1 | 0.14 | 0.55 |
| NB Highway 1 / SB Doyle Drive US 101-9.35 | 6 | 0 | 3 | 0.66 | 0.40 |
| Doyle Drive to / from Marina Blvd. US 101 PM 8.440 | 4 | 0 | 2 | 0.15 | 0.70 |

Source: TASAS Table B Selective Accident Rate Calculation Request Activity Report. 01APR2003 to 31MAR2006

SB = Southbound
 NB = Northbound
 MVMT = Million Vehicle Miles Traveled
 PM = Post Mile

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5. INCREMENTAL IMPROVEMENTS

There are no practical stages that are intermediate between this proposal and the full standard.

6. FUTURE CONSTRUCTION

There is no future construction planned to bring the conditions described herein to standard.

ATTACHMENTS

Attachment A – Location Map

Attachment B – Project Area

Attachment Sheets ML-1 through ML-9 – Design Exception Location Layout Sheets

Attachment Sheets MP-1 through MP-14 – Design Exception Location Profile Sheets

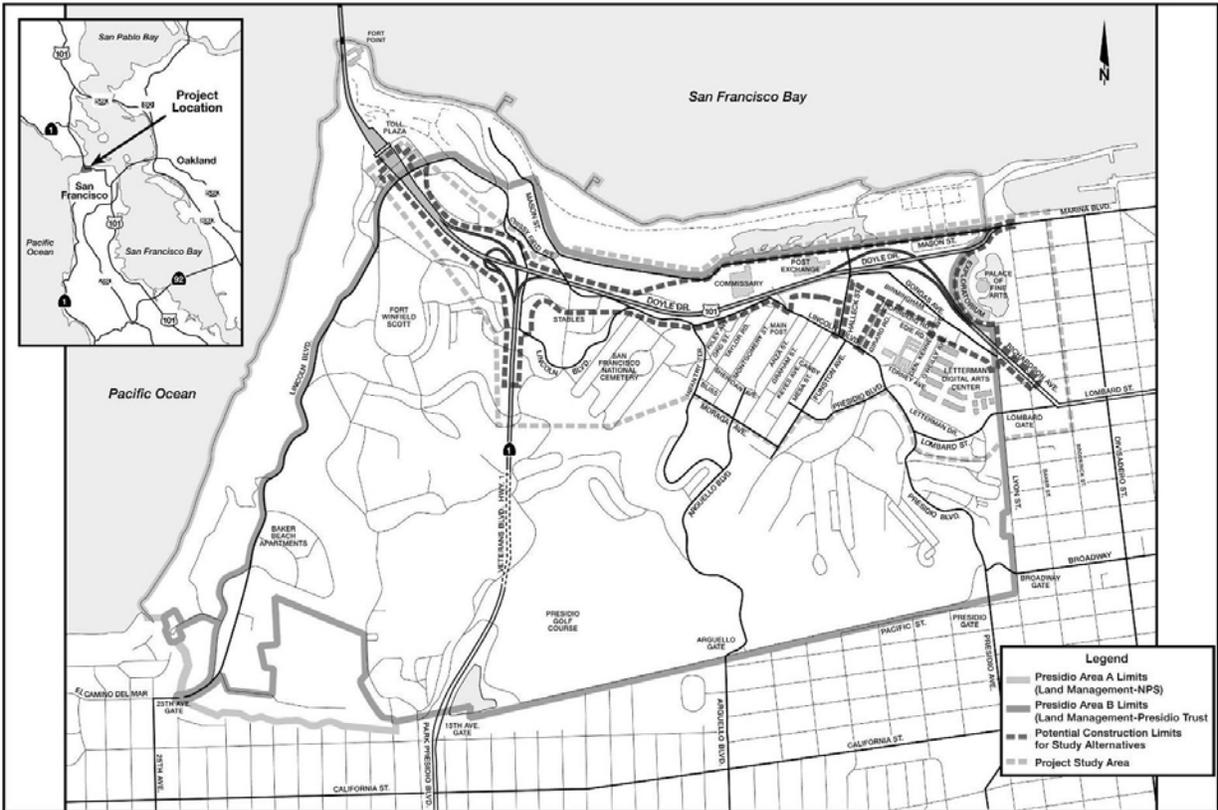
Attachment Sheets MX-1 through MX-2 – Design Exception Typical Sections

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Attachment A

Project Location Map

04-SF-101, KP 12.8–15.7 (PM 8.0–9.8)
04-SF-001, KP 10.9-11.4 (PM 6.8-7.1)
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Project Cost \$752.3 million



Project Vicinity and Location

Preferred Alternative – Refined Presidio Parkway

Project Location

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Attachment B

Project Area



**PREFERRED ALTERNATIVE - REFINED PRESIDIO PARKWAY
PROJECT AREA**

04-SF-101, KP 12.8–15.7 (PM 8.0–9.8)
04-SF-001, KP 10.9-11.4 (PM 6.8-7.1)
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Attachment Sheets
Design Exception Locations

ML-1 to ML-9: Design Exception Layout
MP-1 to MP-14: Design Exception Profile and Superelevation
MX-1 to MX-2: Sections

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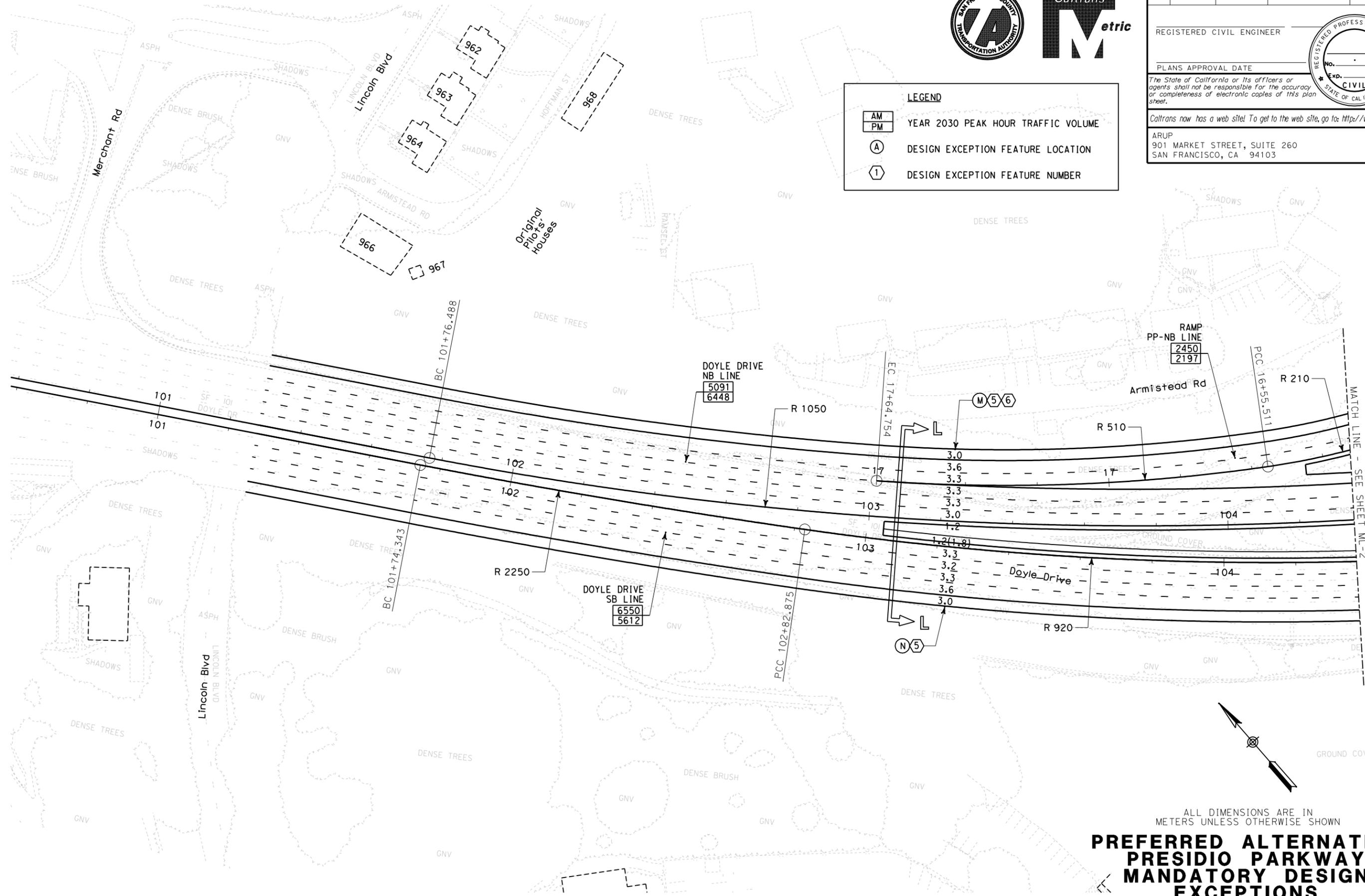
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LEGEND

- AM YEAR 2030 PEAK HOUR TRAFFIC VOLUME
- A DESIGN EXCEPTION FEATURE LOCATION
- 1 DESIGN EXCEPTION FEATURE NUMBER



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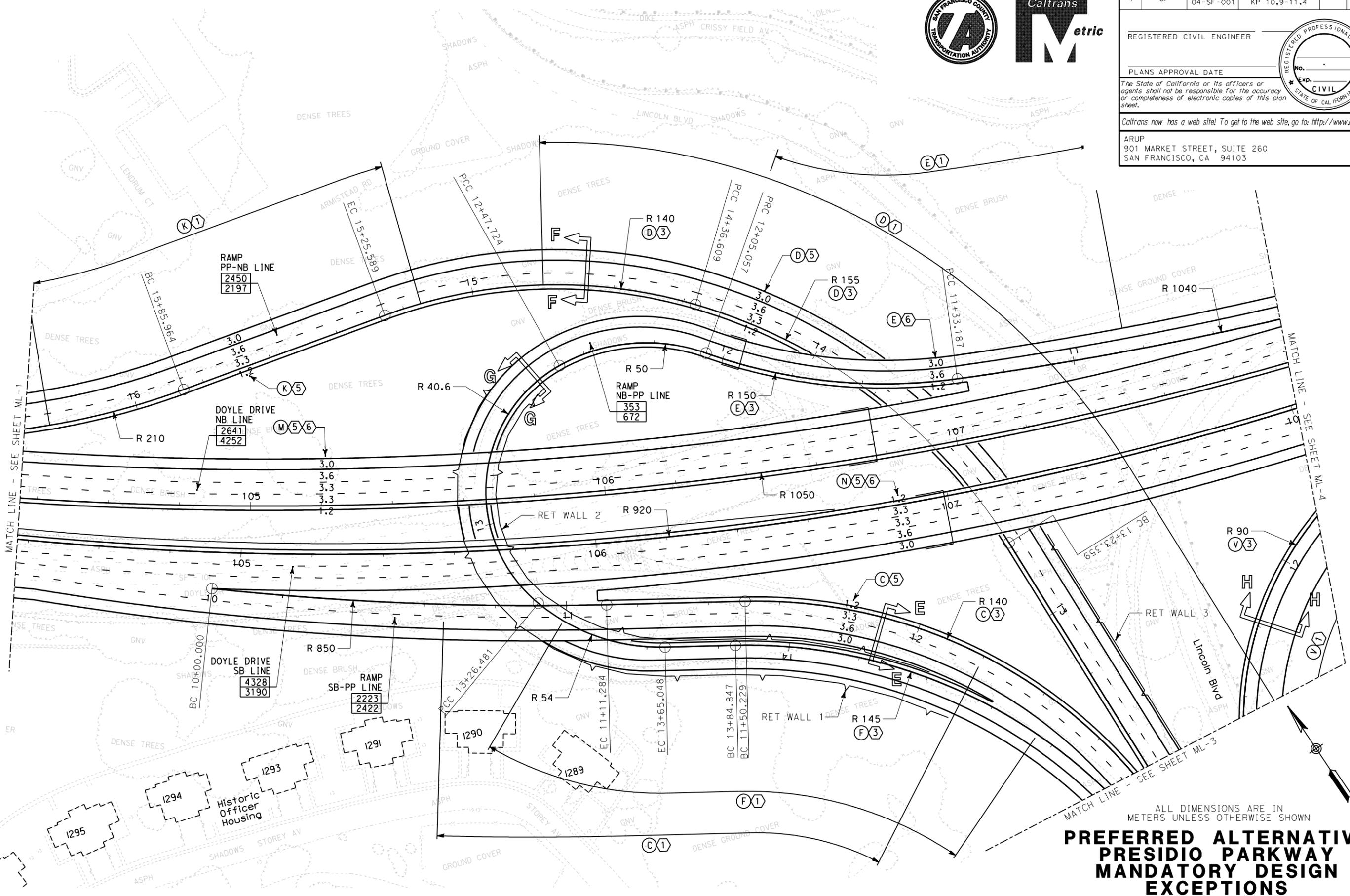
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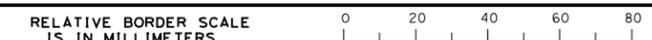


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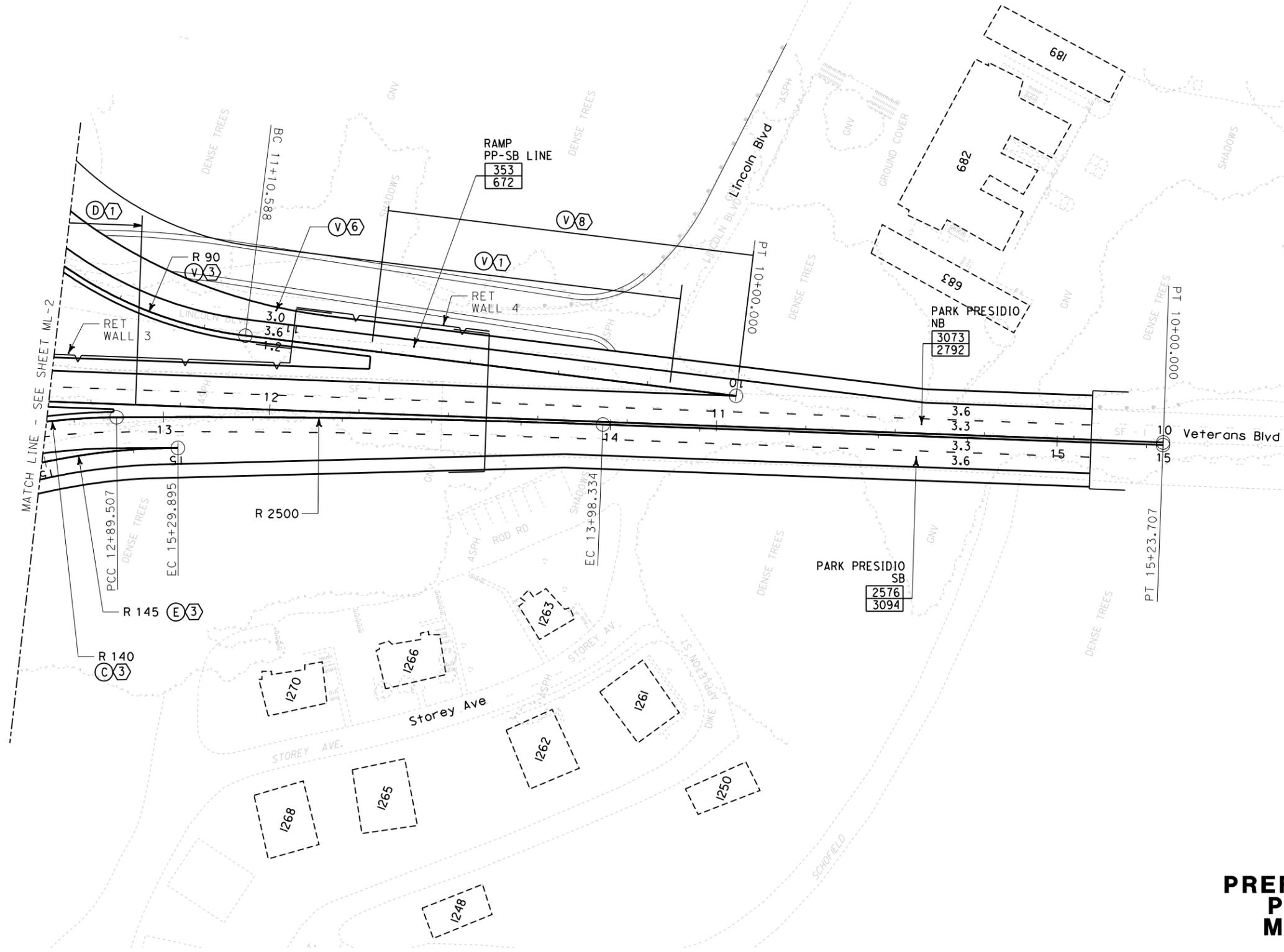
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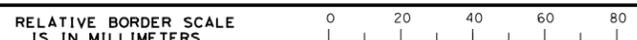


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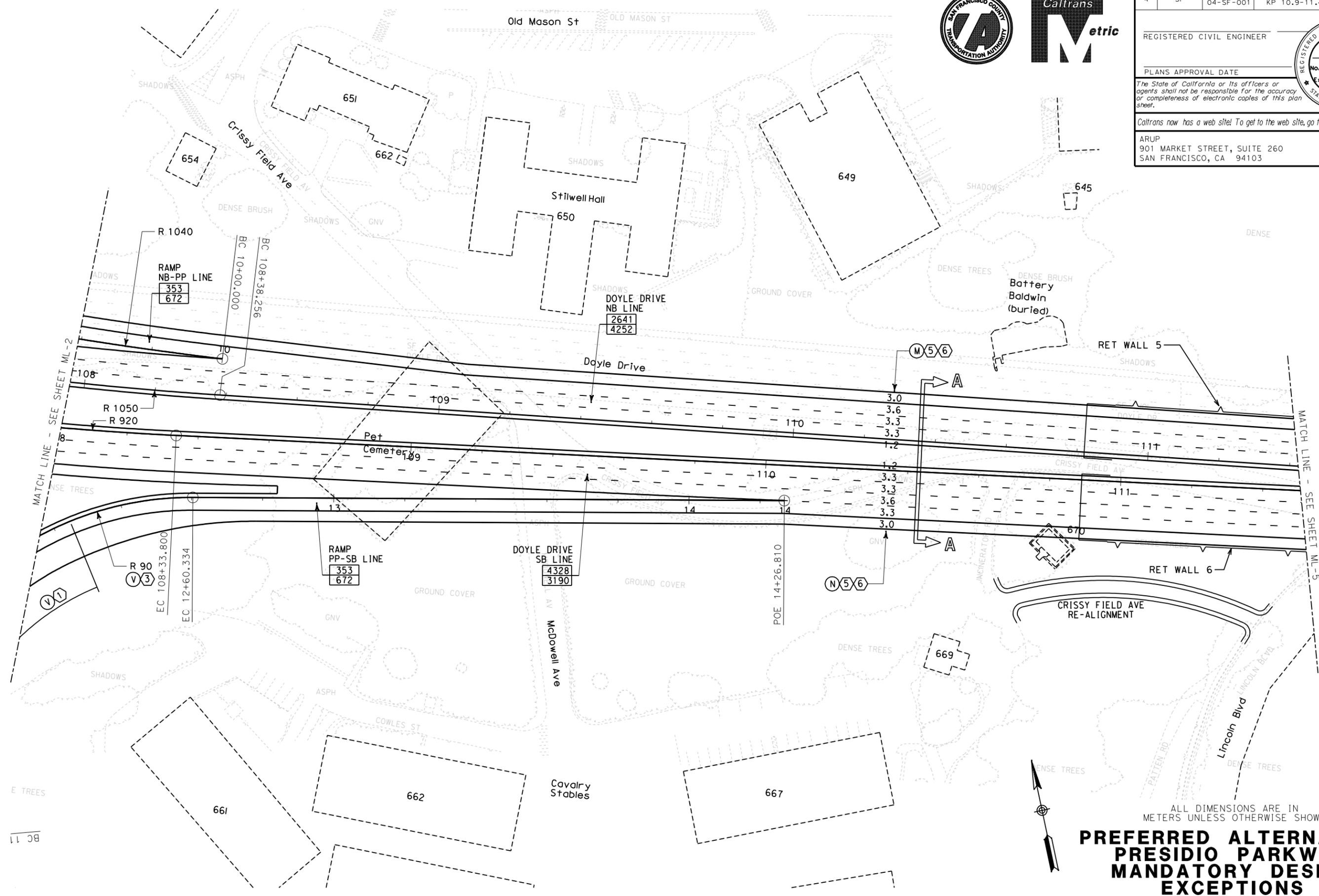
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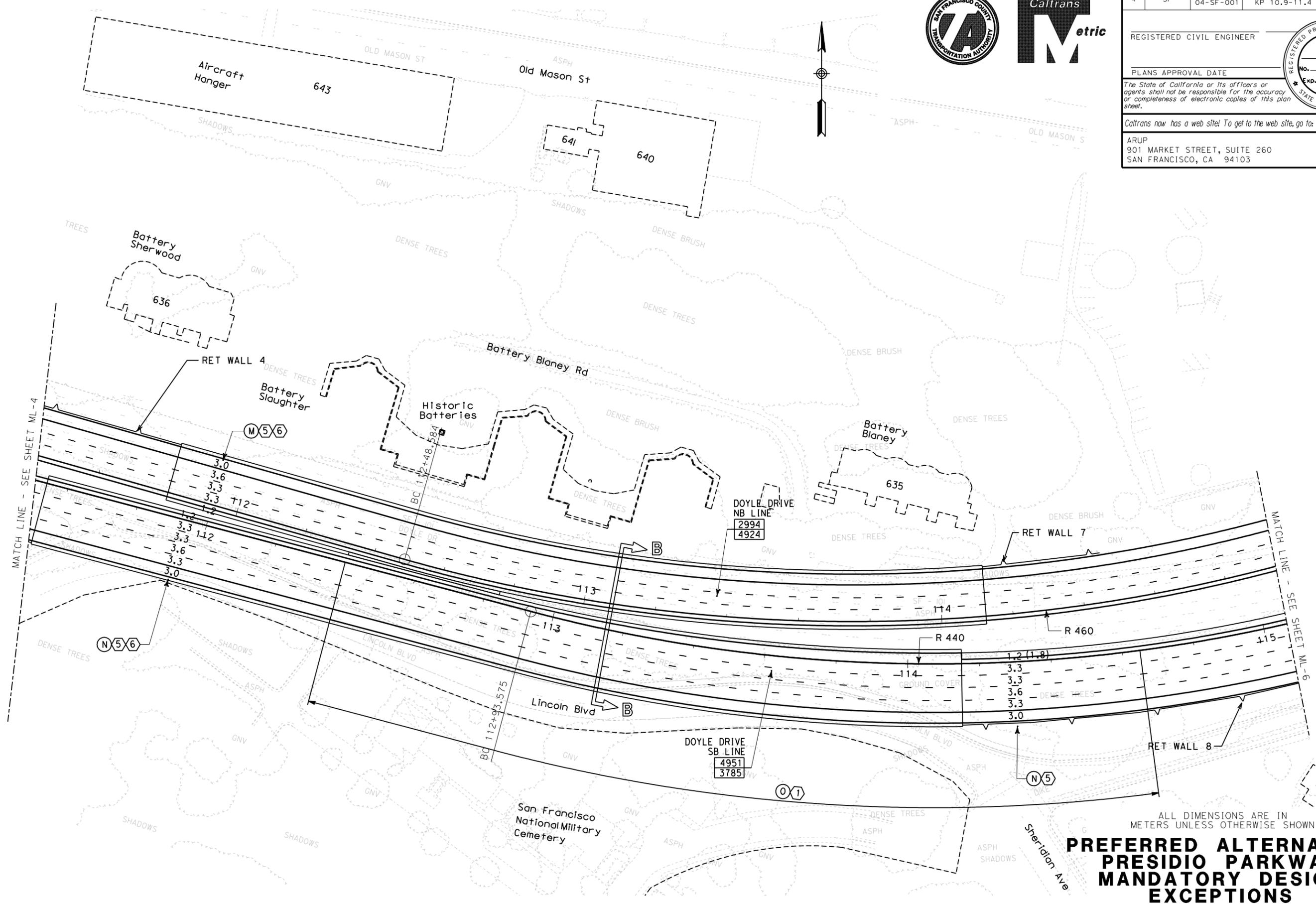
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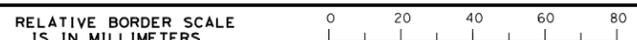
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 REVISIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000



| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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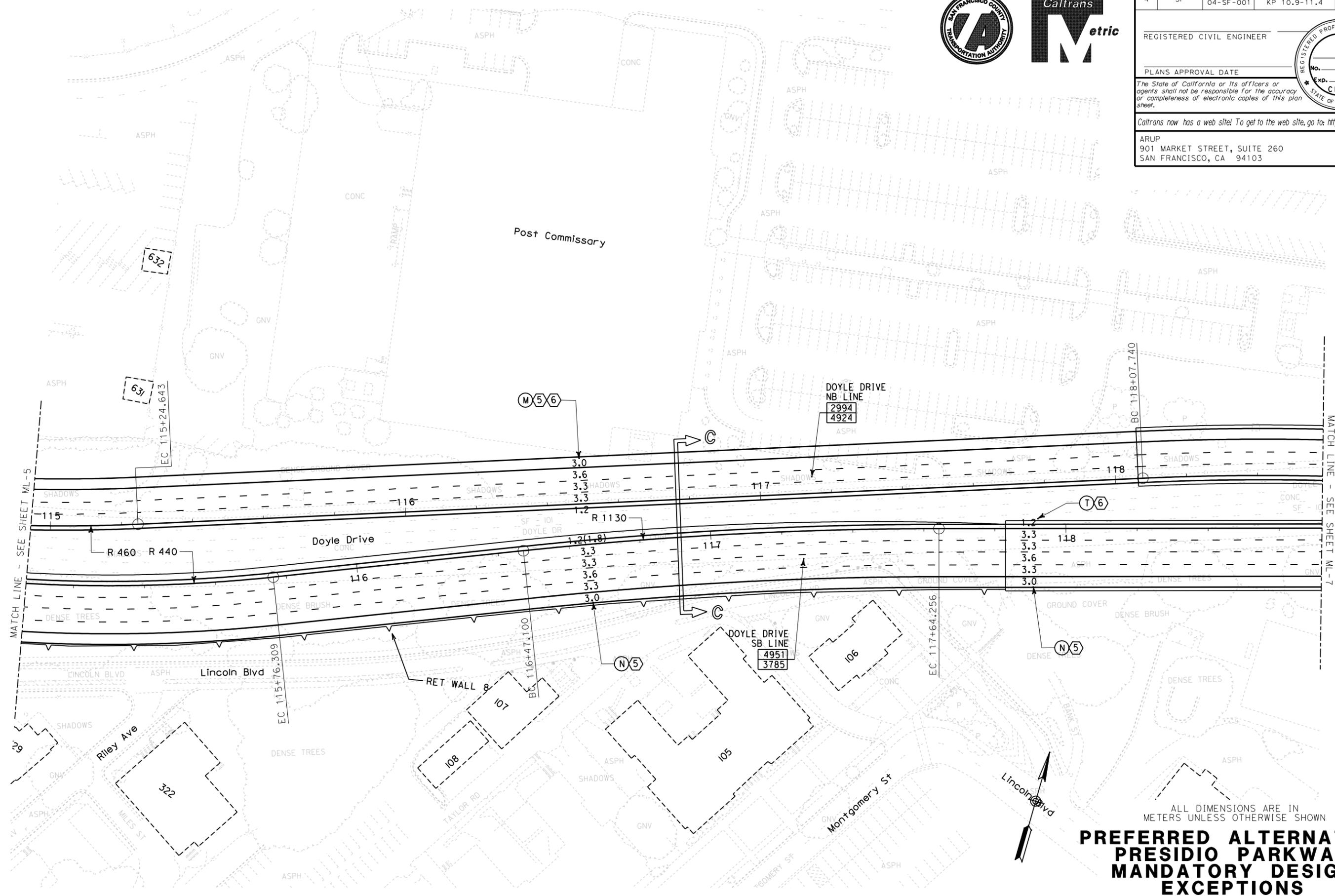
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

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**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 MANDATORY DESIGN
 EXCEPTIONS**

SCALE 1:500

ML-6



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

DESIGN OVERSIGHT
 CALCULATED/DESIGNED BY: E. LAM
 CHECKED BY: J. KARN

REVISOR
 DATE
 REVISED BY
 DATE
 REVISED BY
 DATE

REVISIONS
 NO. DATE BY

POB 10+00.00



| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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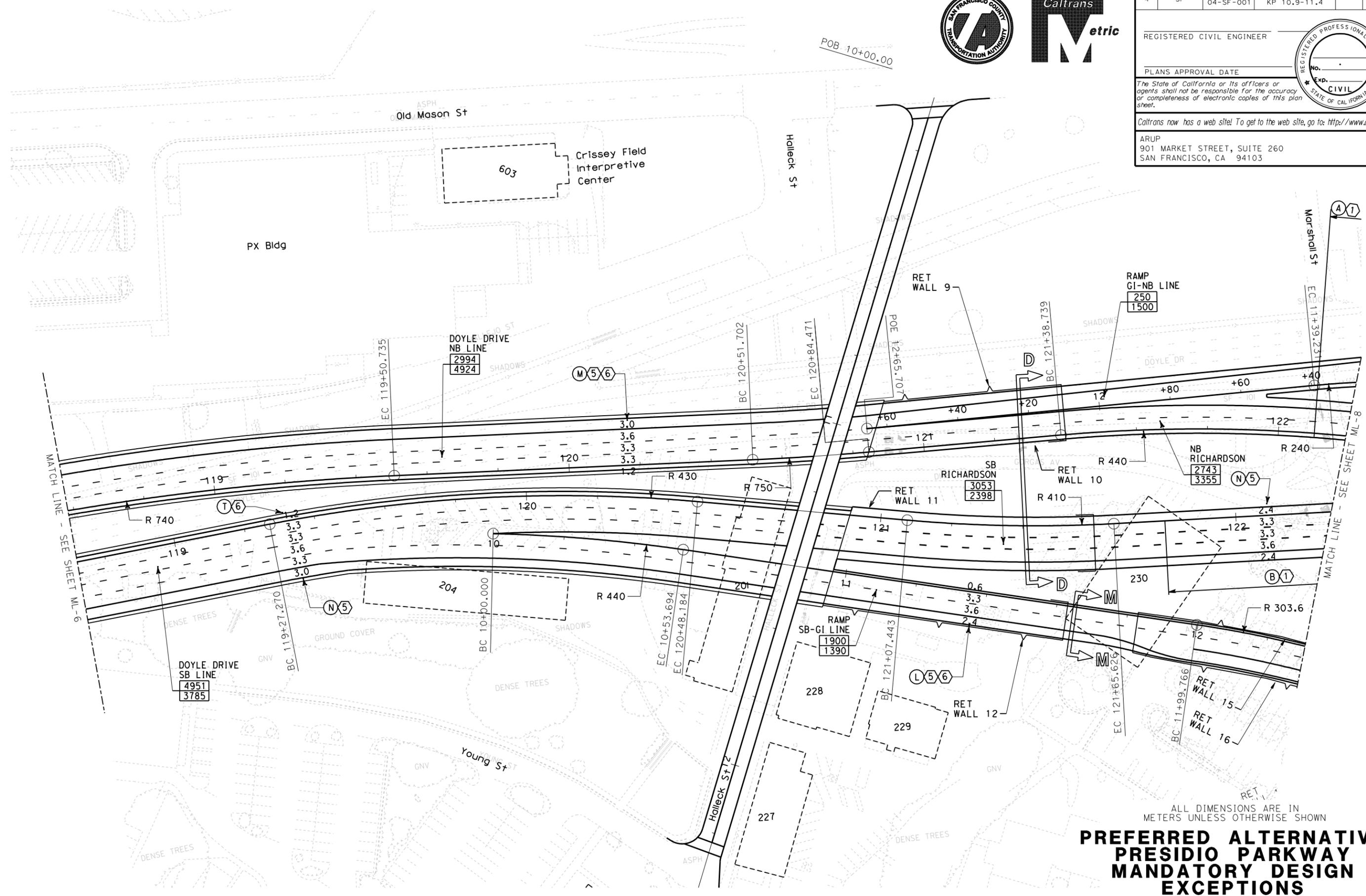
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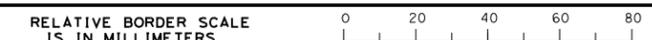


ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 MANDATORY DESIGN
 EXCEPTIONS**

SCALE 1:500

ML-7



LAST REVISION
 00-00-00 DATE PLOTTED => 6/20/2007
 TIME PLOTTED => 5:05:03 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

DESIGN OVERSIGHT
 CALCULATED/DESIGNED BY: E. LAM
 CHECKED BY: J. KARN

REVISOR: REVISED BY: DATE: 06/07
 DATE REVISIONS: 06/07 DATE REVISIONS



| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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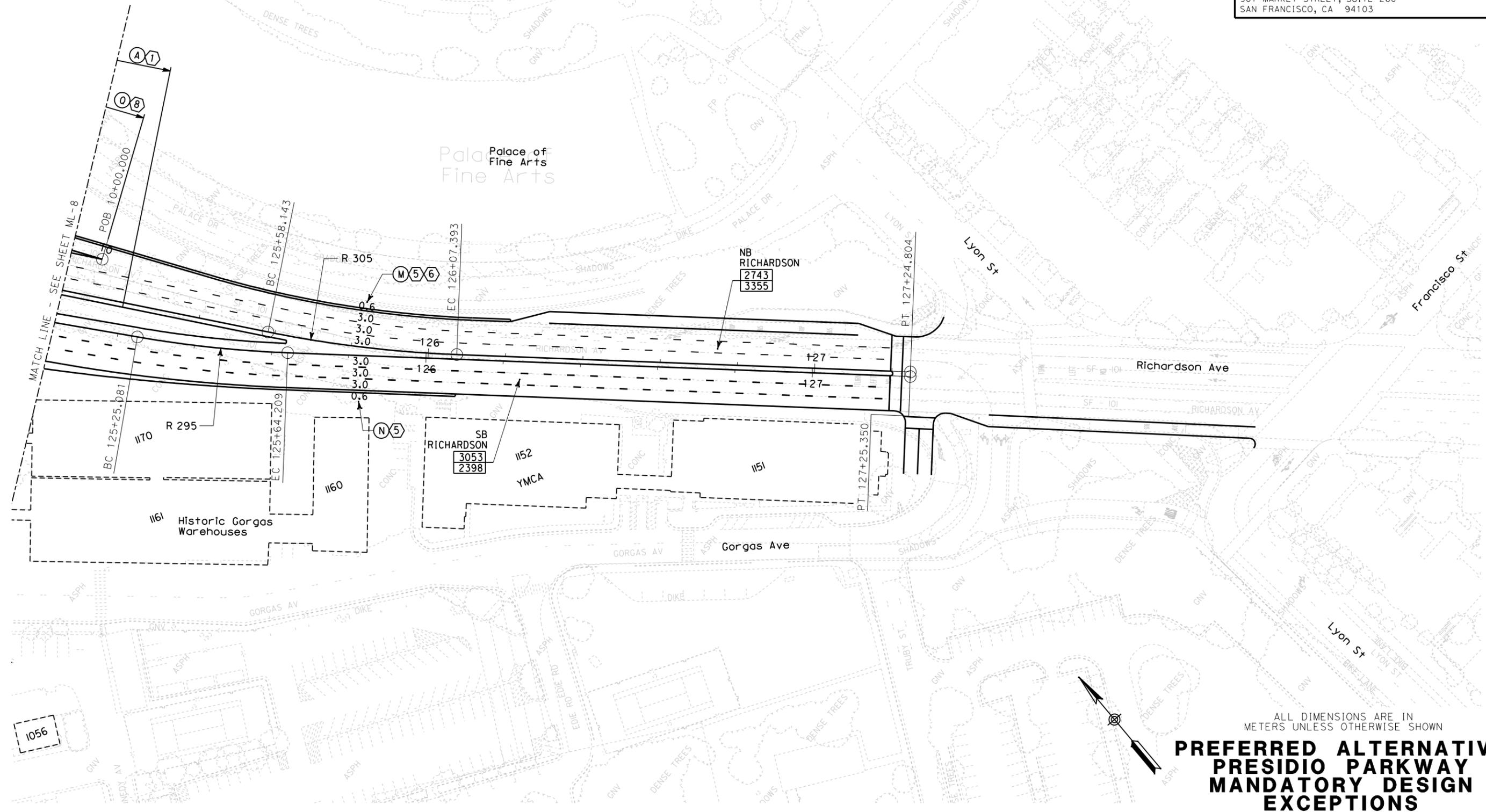
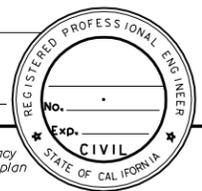
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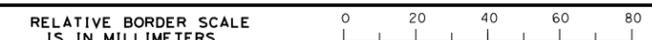
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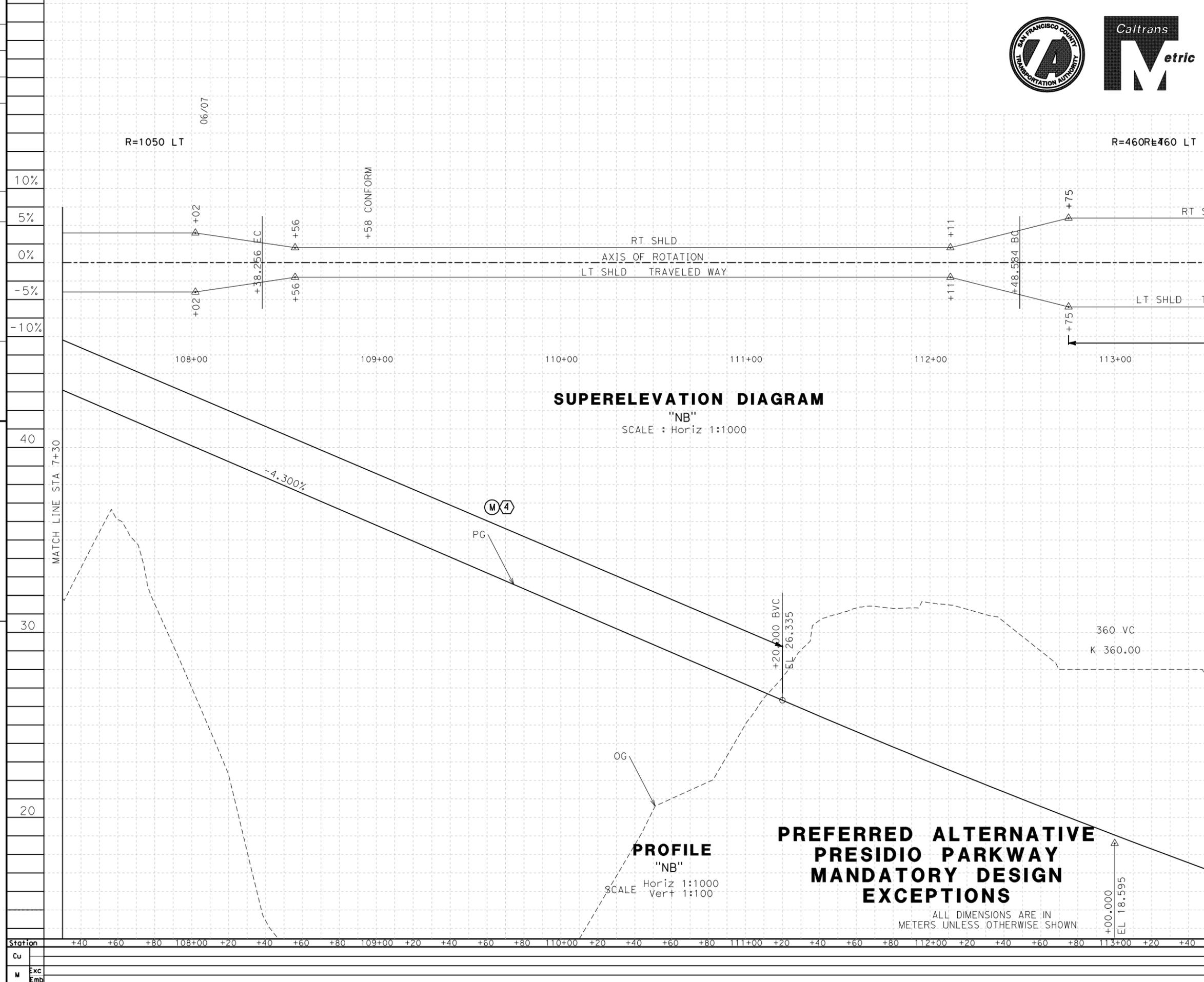
**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 MANDATORY DESIGN
 EXCEPTIONS**

SCALE 1:500 **ML-9**



LAST REVISION: 00-00-00
 DATE PLOTTED => 6/20/2007
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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MATCH LINE STA 114+40

MP-2



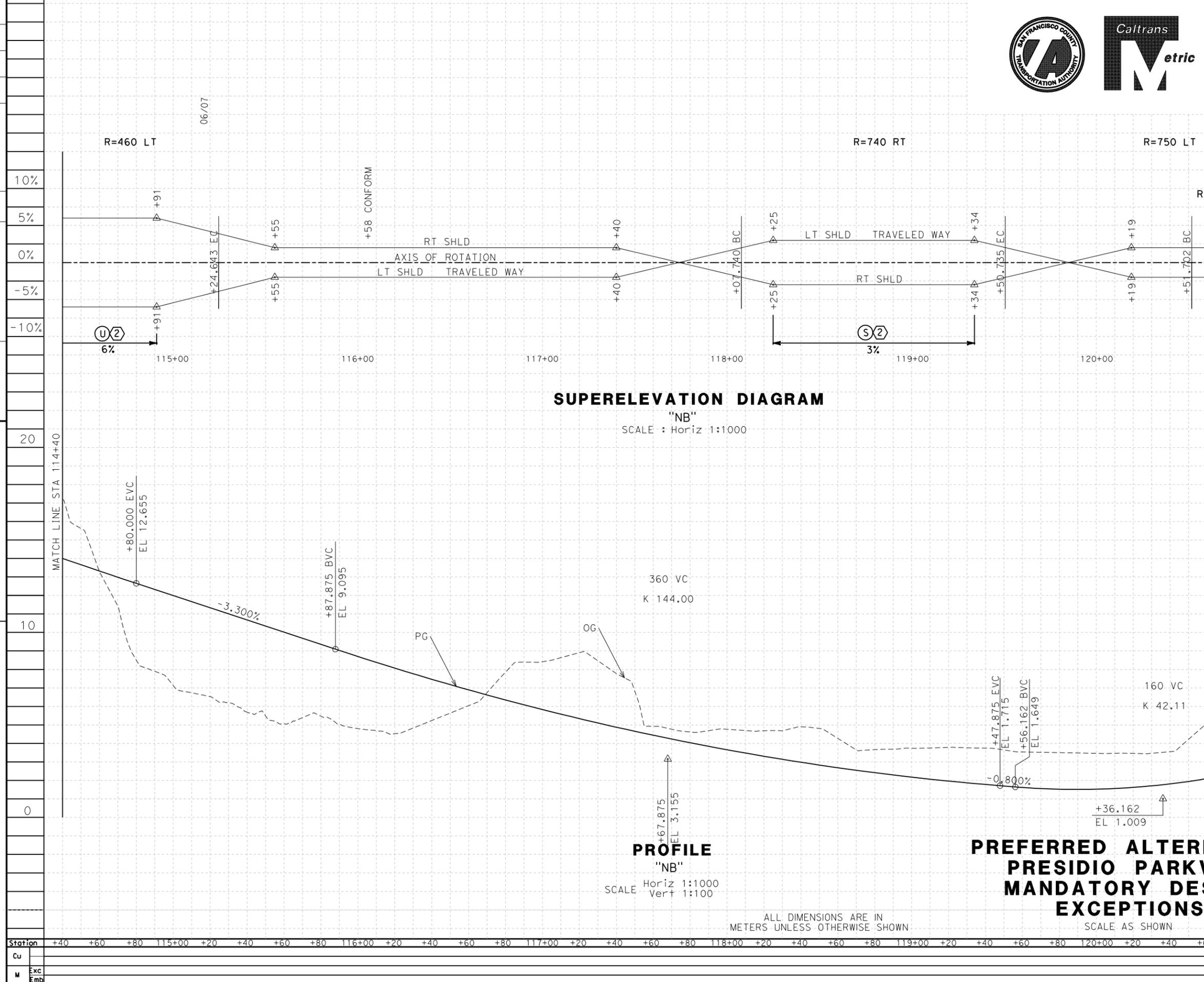
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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
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| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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CU 00000 EA 00000

MP-3



| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST PROJECT | SHEET No | TOTAL SHEETS |
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REGISTERED CIVIL ENGINEER

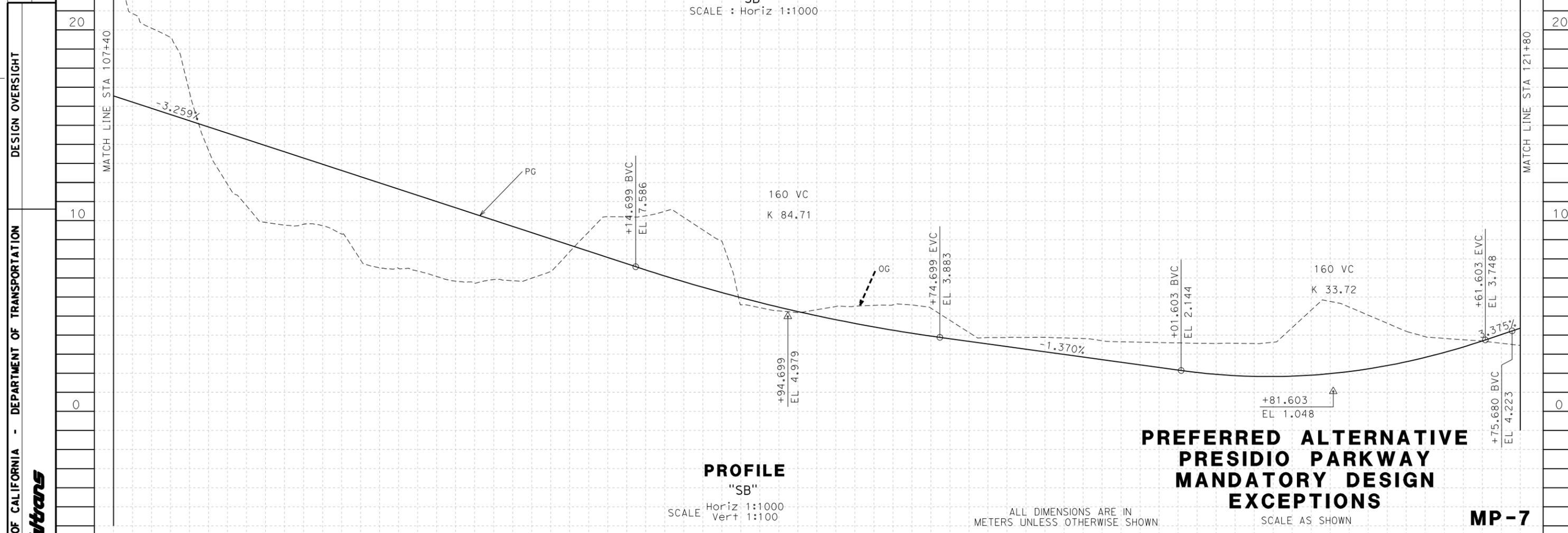
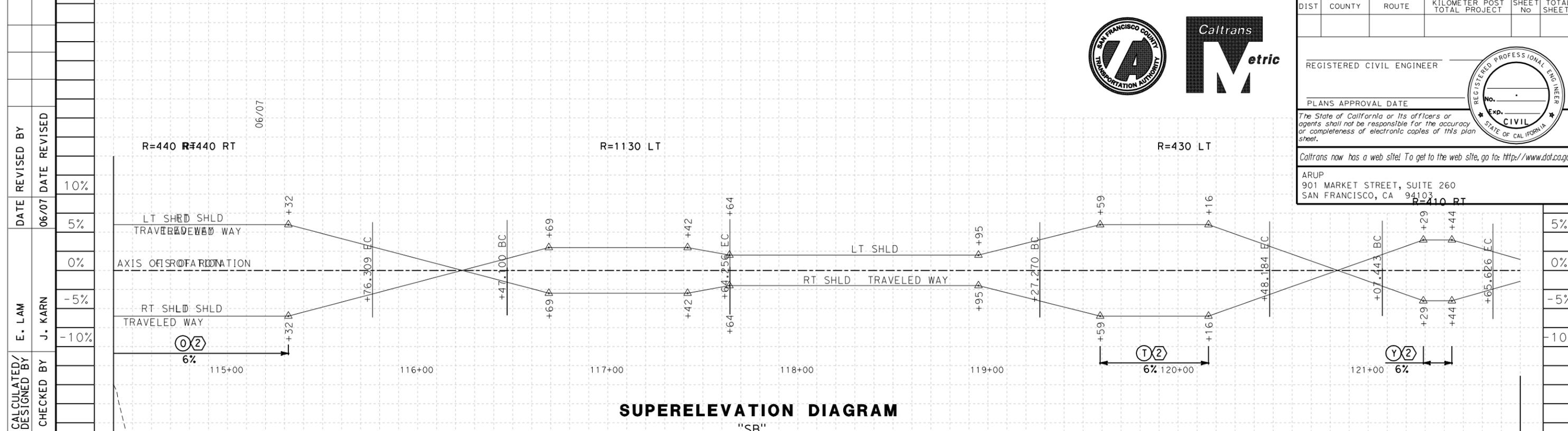
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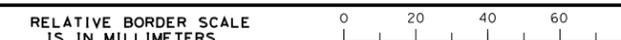
REGISTERED PROFESSIONAL ENGINEER
No. _____
Exp. _____
CIVIL
STATE OF CALIFORNIA



| DATE | REVISION | BY | REASON |
|-------|----------|---------|--------|
| 06/07 | 10% | J. KARN | |
| 06/07 | 5% | J. KARN | |
| | 0% | | |
| | -5% | | |
| | -10% | | |

| DESIGN OVERSIGHT | DESIGNED BY | CHECKED BY |
|------------------|-------------|------------|
| | E. LAM | J. KARN |

| STATION | 107+40 | 115+00 | 116+00 | 117+00 | 118+00 | 119+00 | 120+00 | 121+80 |
|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| Cu | | | | | | | | |
| M | | | | | | | | |
| Exc | | | | | | | | |
| Emb | | | | | | | | |





| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

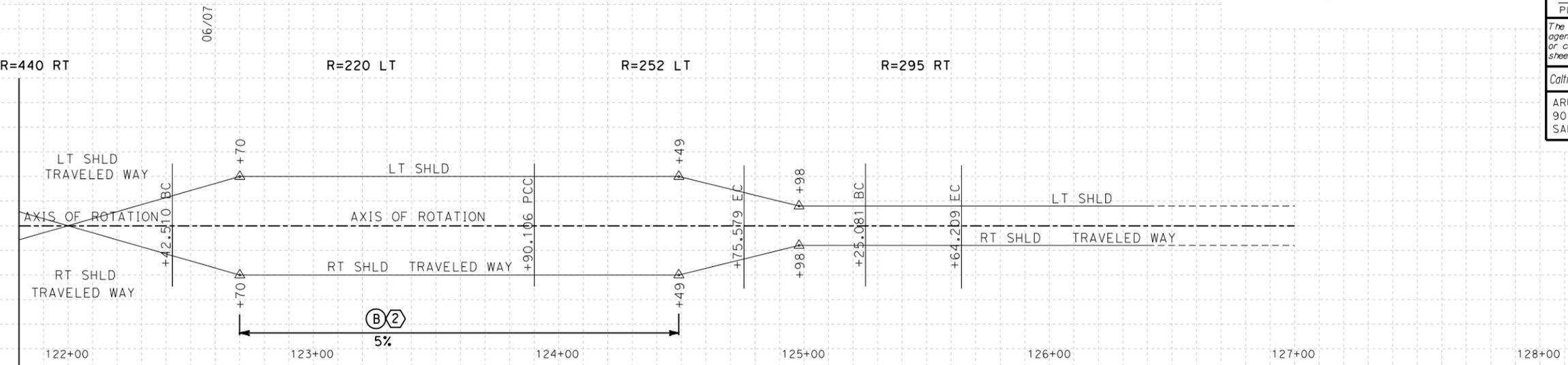
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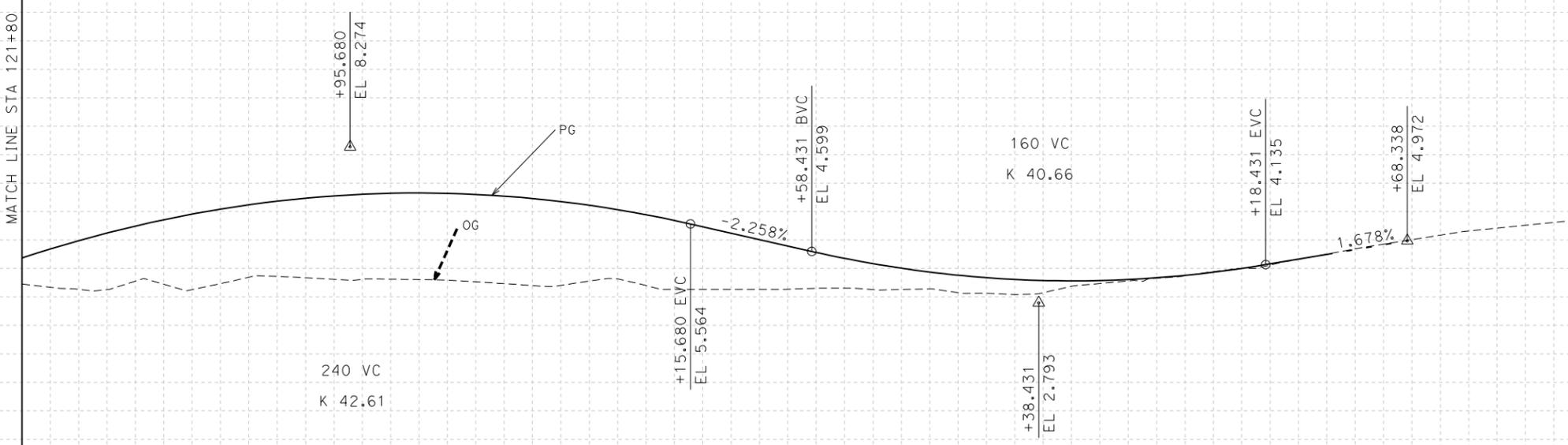


| DATE REVISION BY | DATE REVISION | PERCENT | REVISION |
|------------------|---------------|---------|----------|
| 06/07 | J. KARN | 10% | |
| 06/07 | J. KARN | 5% | |
| | | 0% | |
| | | -5% | |
| | | -10% | |



SUPERELEVATION DIAGRAM

"SB"
SCALE : Horiz 1:1000



PROFILE

"SB"
SCALE Horiz 1:1000
Vert 1:100

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**PREFERRED ALTERNATIVE
PRESIDIO PARKWAY
MANDATORY DESIGN
EXCEPTIONS**

SCALE AS SHOWN **MP-8**

| Station | +80 | 122+00 | +20 | +40 | +60 | +80 | 123+00 | +20 | +40 | +60 | +80 | 124+00 | +20 | +40 | +60 | +80 | 125+00 | +20 | +40 | +60 | +80 | 126+00 | +20 | +40 | +60 | +80 | 127+00 | +20 | +40 | +60 | +80 | 128+00 | |
|---------|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|--|
| Cu | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exc | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Emb | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



USERNAME => \$USER
DGN FILE => \$REQUEST

CU 00000

EA 00000

LAST REVISION
00-00-00 DATE PLOTTED => \$DATE
TIME PLOTTED => \$TIME



| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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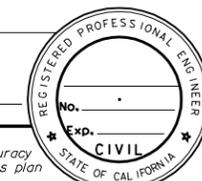
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PLANS APPROVAL DATE

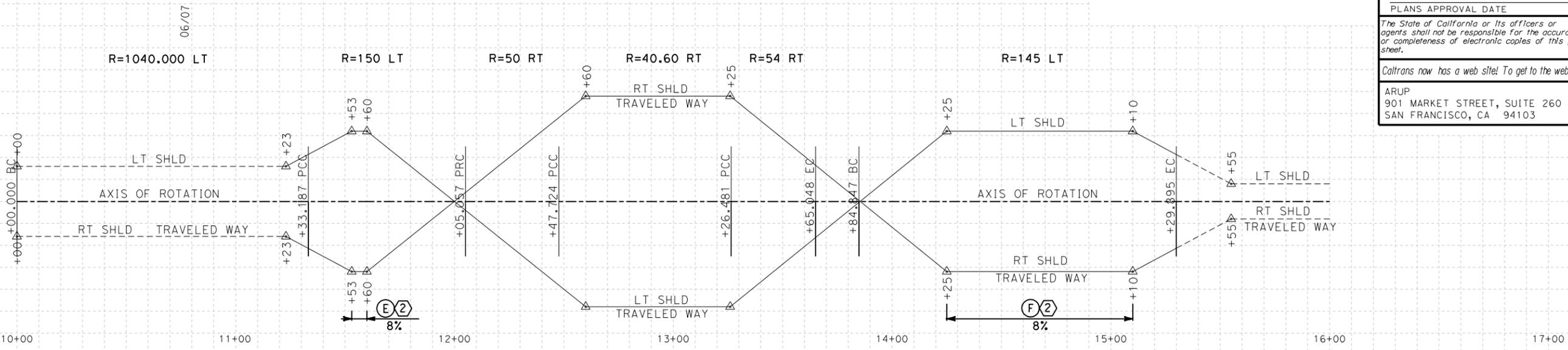
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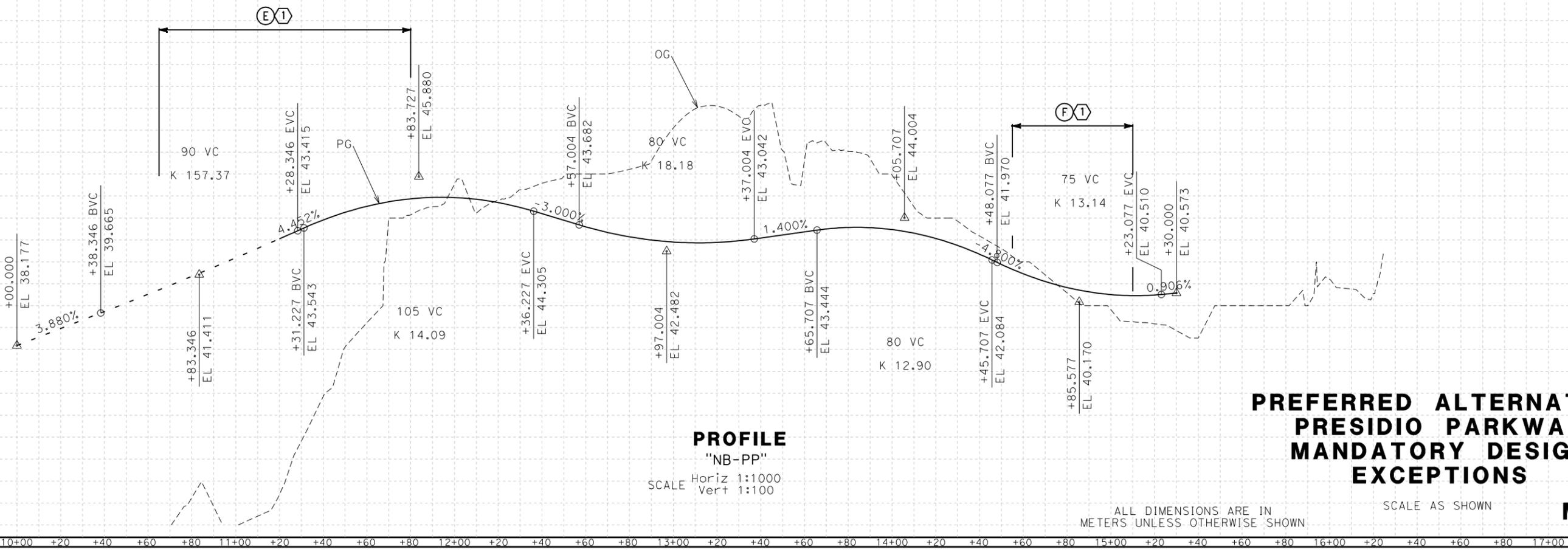


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| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | DESIGN OVERSIGHT | CALCULATED/DESIGNED BY | E. LAM | DATE REVISED BY | 06/07 |
| Caltrans | | CHECKED BY | J. KARN | DATE REVISED | 10% |
| | | | | | 5% |
| | | | | | 0% |
| | | | | | -5% |
| | | | | | -10% |



SUPERELEVATION DIAGRAM

"NB-PP"
SCALE : Horiz 1:1000



PROFILE

"NB-PP"
SCALE Horiz 1:1000
Vert 1:100

**PREFERRED ALTERNATIVE
PRESIDIO PARKWAY
MANDATORY DESIGN
EXCEPTIONS**

SCALE AS SHOWN

MP-9

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| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|-------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|
| Station | 10+00 | +20 | +40 | +60 | +80 | +11+00 | +20 | +40 | +60 | +80 | +12+00 | +20 | +40 | +60 | +80 | +13+00 | +20 | +40 | +60 | +80 | +14+00 | +20 | +40 | +60 | +80 | +15+00 | +20 | +40 | +60 | +80 | +16+00 | +20 | +40 | +60 | +80 | +17+00 |
|---------|-------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|-----|-----|-----|-----|--------|



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DGN FILE => \$REQUEST

CU 00000

EA 00000

LAST REVISION
00-00-00
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TIME PLOTTED => \$TIME



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| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
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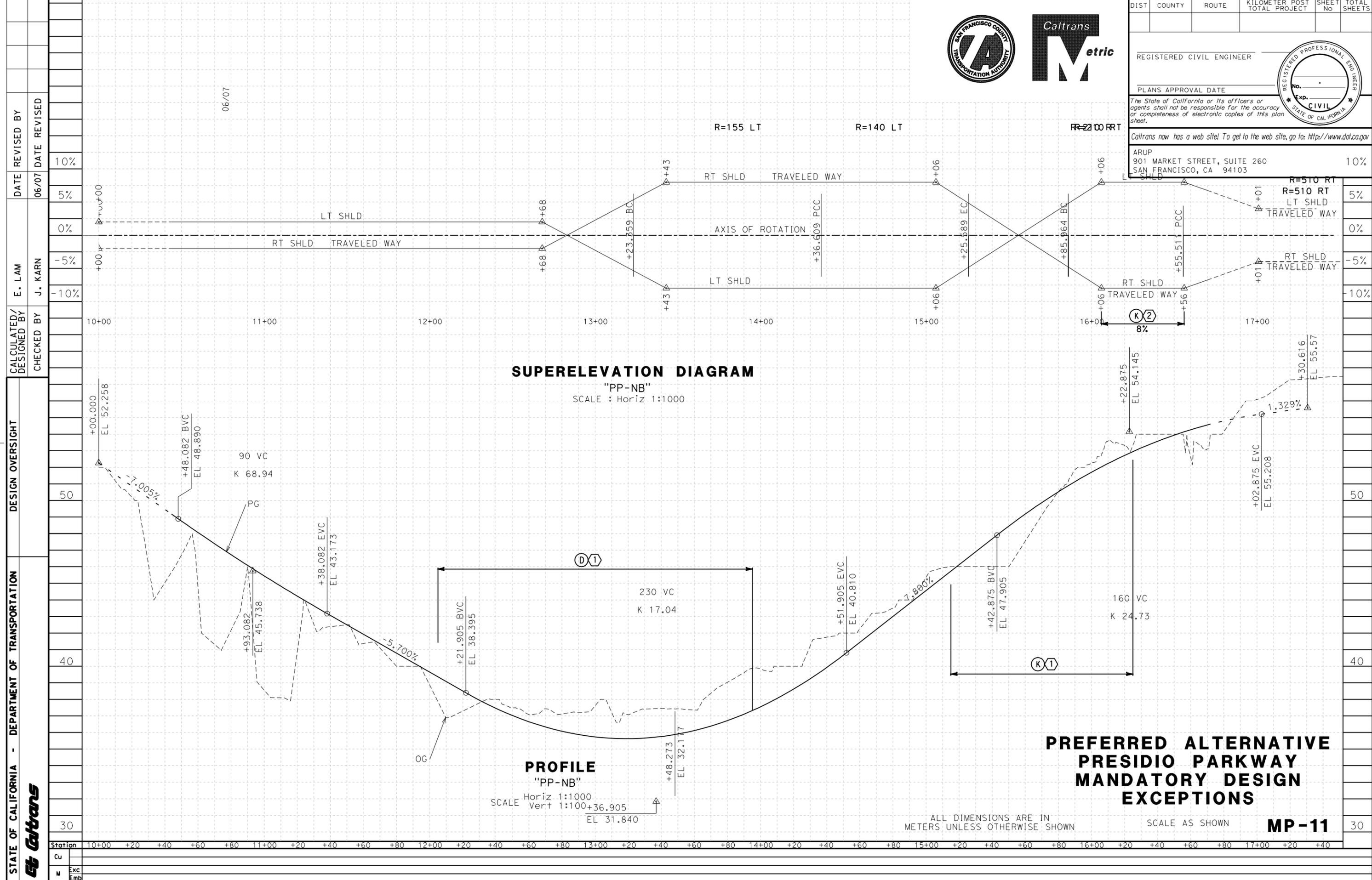
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PLANS APPROVAL DATE

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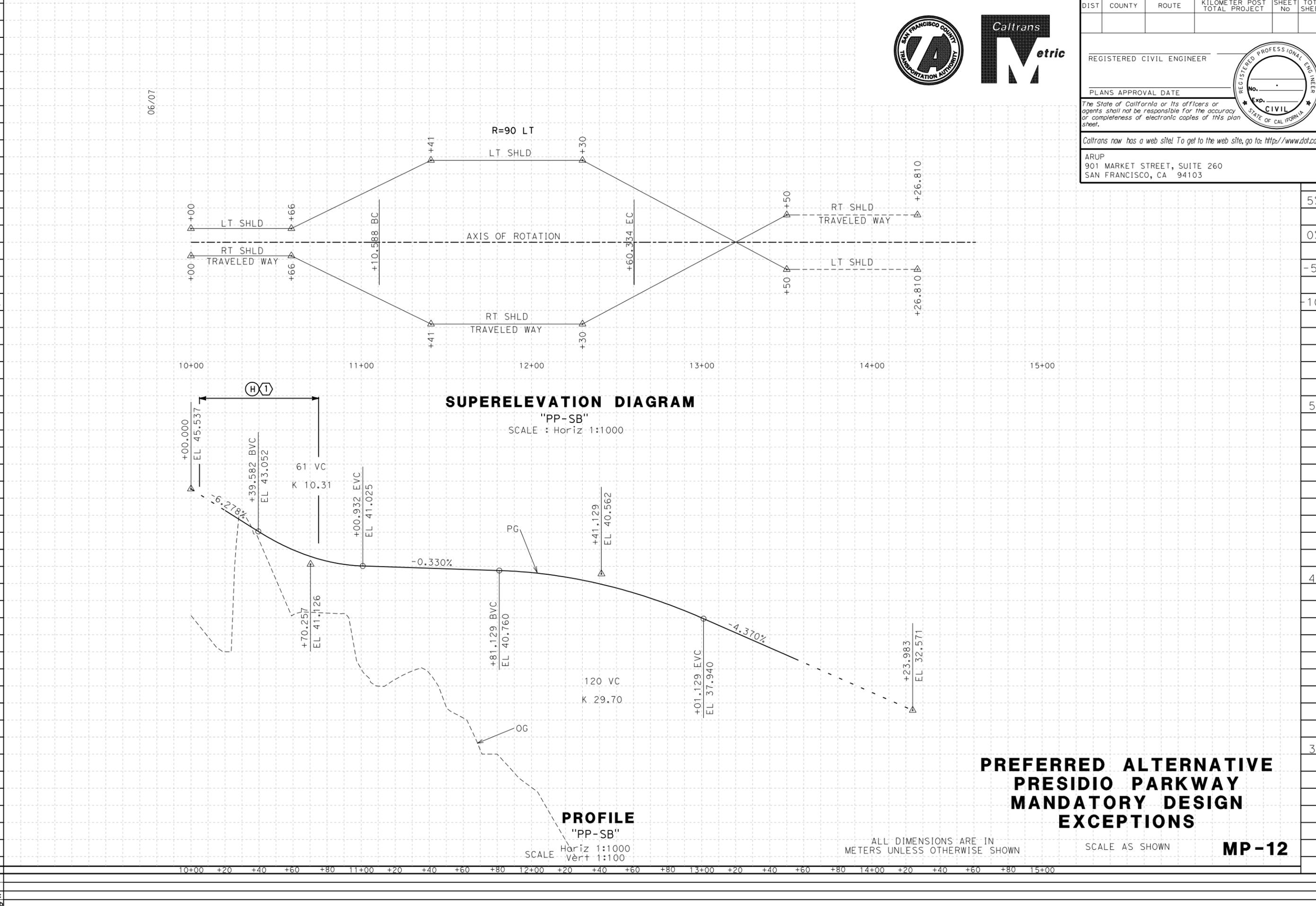
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| DATE REVISION BY | DATE REVISION BY |
| 06/07 | 06/07 |
| 10% | 10% |
| 5% | 5% |
| 0% | 0% |
| -5% | -5% |
| -10% | -10% |
| CALCULATED/DESIGNED BY | CHECKED BY |
| E. LAM | J. KARN |



| | | | | | | | |
|--|------------------|------------------------|---------|-------|---------|------|----------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | DESIGN OVERSIGHT | CALCULATED/DESIGNED BY | E. LAM | DATE | REVISOR | DATE | REVISION |
| 00-00-00 | 30 | CHECKED BY | J. KARN | 06/07 | 10% | | |
| 00-00-00 | 40 | | | 06/07 | 5% | | |
| 00-00-00 | 50 | | | | 0% | | |
| 00-00-00 | | | | | -5% | | |
| 00-00-00 | | | | | -10% | | |



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|--|--------|-------|-------------------------|--------------------|----------|--------------|
| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
| | | | | | | |
| REGISTERED CIVIL ENGINEER | | | | | | |
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 MANDATORY DESIGN
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SCALE AS SHOWN

MP-12



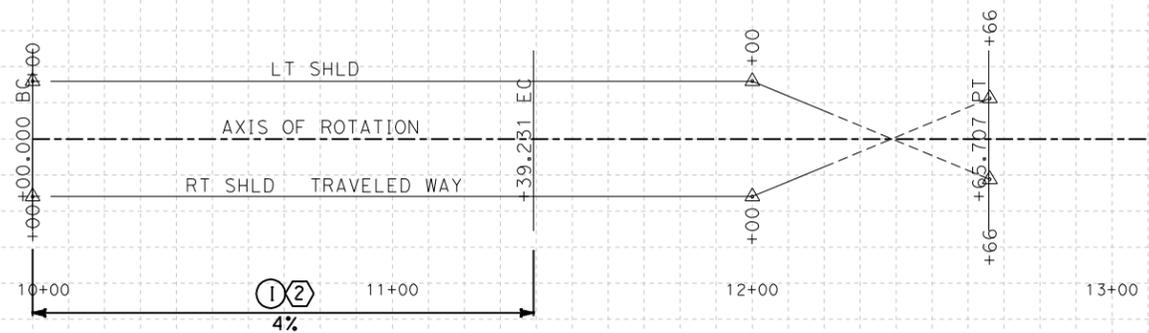
LAST REVISION
 00-00-00 DATE PLOTTED => \$DATE
 TIME PLOTTED => \$TIME

| | | | | | | |
|---|------------------|------------------------|-------|---------|------|----------|
| STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION | DESIGN OVERSIGHT | CALCULATED/DESIGNED BY | DATE | REVISOR | DATE | REVISION |
|  | | E. LAM | 06/07 | J. KARN | 10% | |
| | | J. KARN | 06/07 | J. KARN | 5% | |
| | | | | | 0% | |
| | | | | | -5% | |
| | | | | | -10% | |
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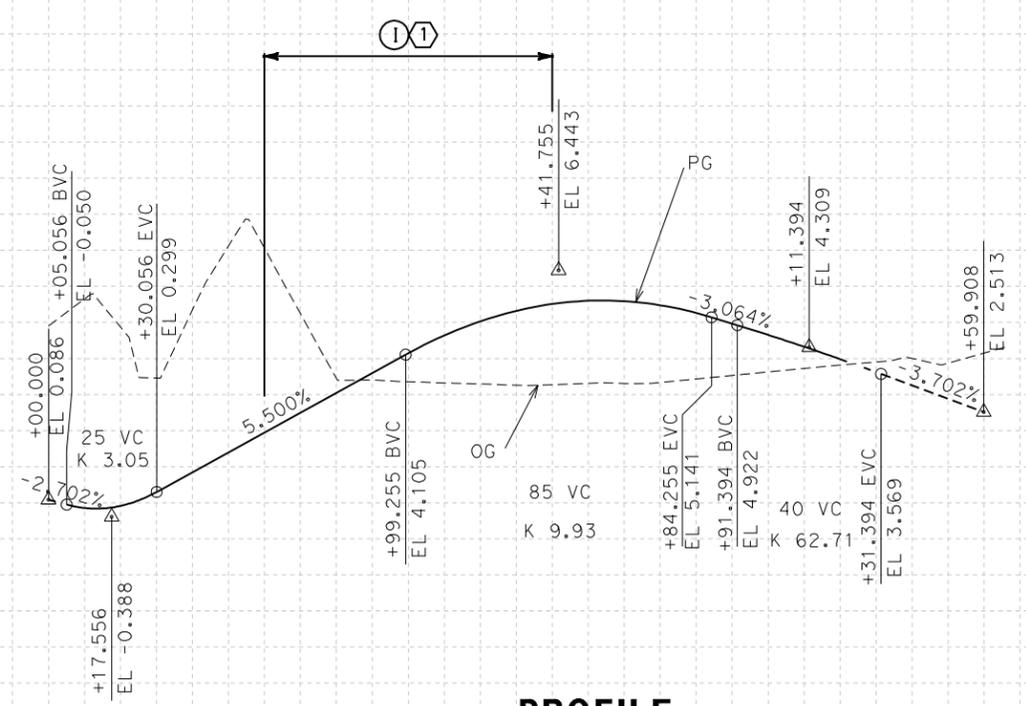
06/07



| | | | | | | |
|---|--------|-------|-------------------------|--------------------|----------|--------------|
| DIST | COUNTY | ROUTE | KILOMETER TOTAL PROJECT | POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
| | | | | | | |
| REGISTERED CIVIL ENGINEER | | | | | | |
| PLANS APPROVAL DATE | | | | | | |
| <small>The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.</small> | | | | | | |
| <small>Caltrans now has a web site! To get to the web site, go to: http://www.dot.ca.gov</small> | | | | | | |
| ARUP 901 MARKET STREET, SUITE 260 SAN FRANCISCO, CA 94103 | | | | | | |



SUPERELEVATION DIAGRAM
 "G1-NB" LINE
 SCALE: Horiz 1:1000



PROFILE
 "G1-NB" LINE
 SCALE: Horiz 1:1000, Vert 1:100

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 MANDATORY DESIGN
 EXCEPTIONS**

SCALE AS SHOWN

MP-14

| | | | | | | | | | | | | | | | | |
|---------|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-------|
| Station | 10+00 | +20 | +40 | +60 | +80 | 11+00 | +20 | +40 | +60 | +80 | 12+00 | +20 | +40 | +60 | +80 | 13+00 |
|---------|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-------|-----|-----|-----|-----|-------|

| | |
|----|-----|
| Cu | |
| M | Exc |
| | Emb |



USERNAME => \$USER
 DGN FILE => \$REQUEST

CU 00000

EA 00000

LAST REVISION
 00-00-00 DATE PLOTTED => \$DATE
 TIME PLOTTED => \$TIME

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT

DESIGN OVERSIGHT

CALCULATED/DESIGNED BY
 CHECKED BY
 E. LAM
 J. KARN

REVISOR
 DATE
 06/07



| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
|------|--------|------------------------|------------------------------|----------|--------------|
| 4 | SF | 04-SF-101 04-SF-001 | KP 12.8-15.7 KP 10.9-11.4 | | |

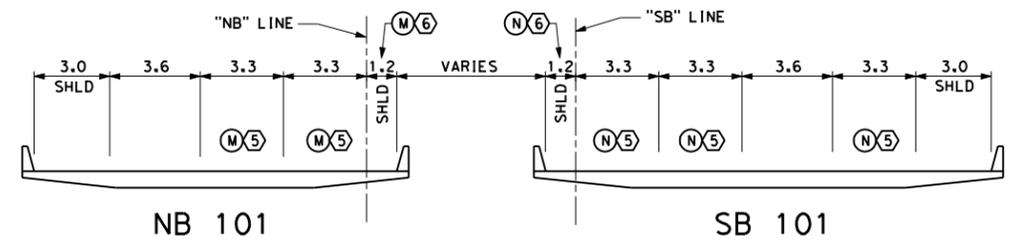
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

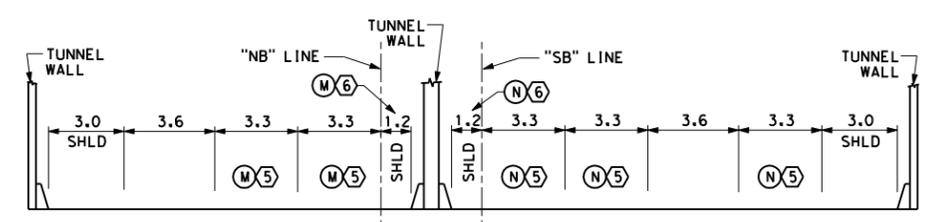
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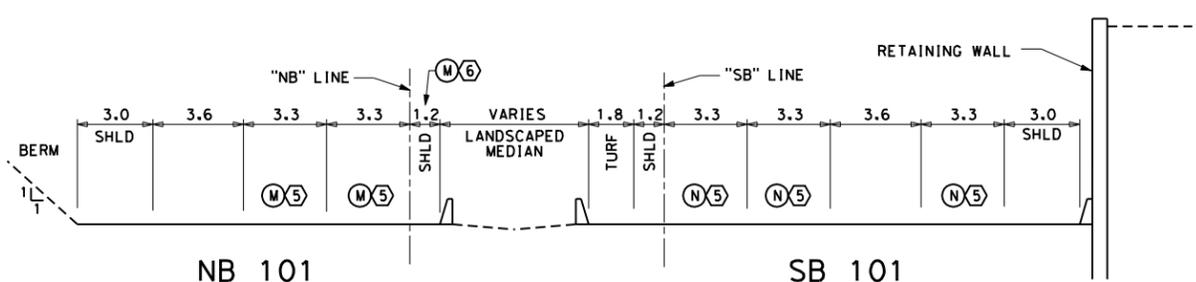
ARUP
 901 MARKET STREET, SUITE 260
 SAN FRANCISCO, CA 94103



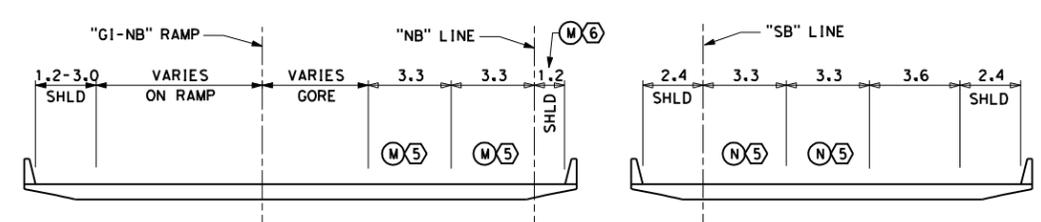
SECTION A-A
 DOYLE DRIVE - HIGH VIADUCT



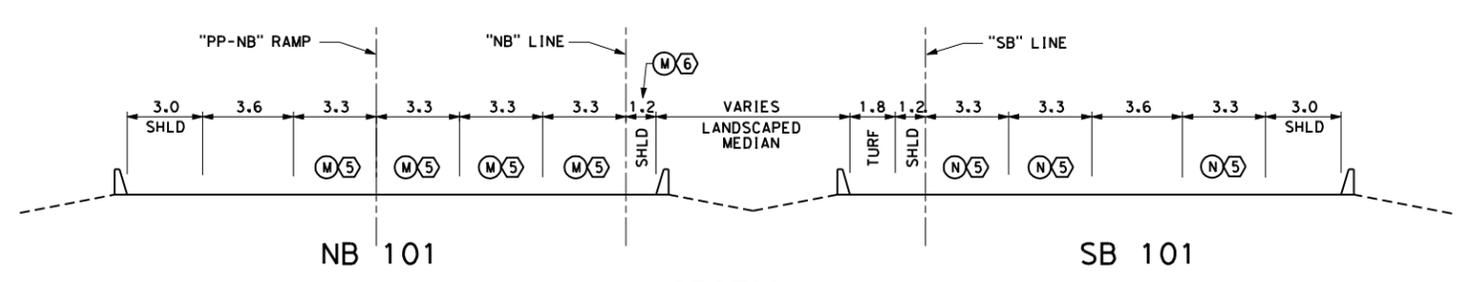
SECTION B-B
 DOYLE DRIVE - BATTERY TUNNEL



SECTION C-C
 DOYLE DRIVE



SECTION D-D
 DOYLE DRIVE - TENNESSEE HOLLOW CAUSEWAY



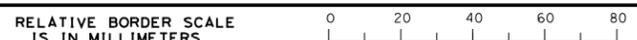
SECTION L-L
 DOYLE DRIVE

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 TYPICAL SECTIONS**

NOT TO SCALE

MX-1



LAST REVISION
 00-00-00
 DATE PLOTTED => 6/20/2007
 TIME PLOTTED => 5:06:00 PM

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans PROJECT DEVELOPMENT
 DESIGN OVERSIGHT
 CALCULATED/DESIGNED BY: E. LAM
 CHECKED BY: J. KARN
 DATE: 06/07
 REVISED BY: DATE: 06/07
 REVISED DATE: 06/07



| DIST | COUNTY | ROUTE | KILOMETER POST TOTAL PROJECT | SHEET No | TOTAL SHEETS |
|------|--------|------------------------|------------------------------|----------|--------------|
| 4 | SF | 04-SF-101 04-SF-001 | KP 12.8-15.7 KP 10.9-11.4 | | |

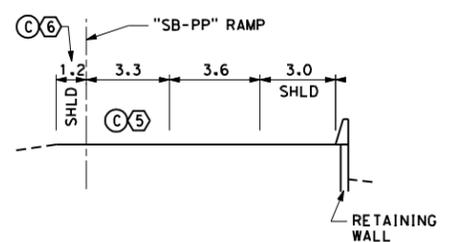
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE

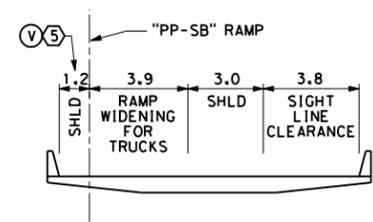
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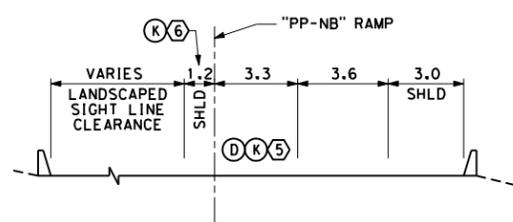
ARUP
 901 MARKET STREET, SUITE 260
 SAN FRANCISCO, CA 94103



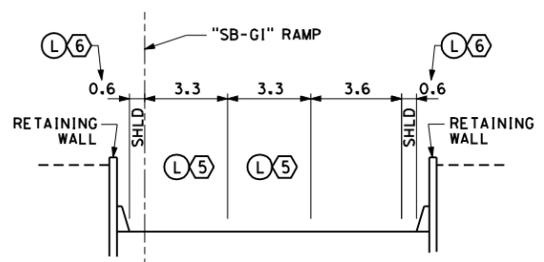
SECTION E-E
 SB DOYLE DRIVE TO
 SB PARK PRESIDIO



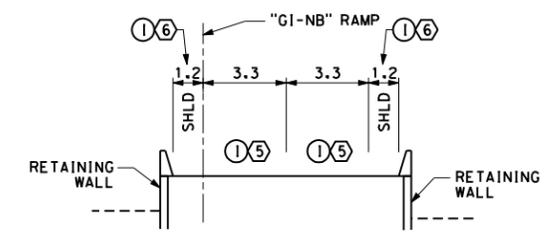
SECTION H-H
 NB PARK PRESIDIO TO
 SB DOYLE DRIVE



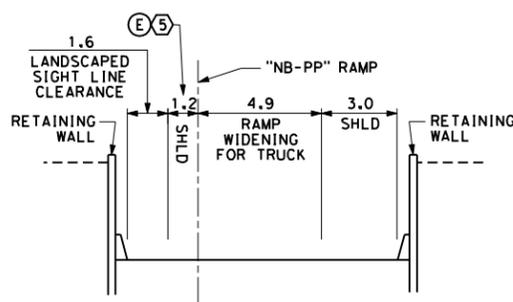
SECTION F-F
 NB PARK PRESIDIO TO
 NB DOYLE DRIVE



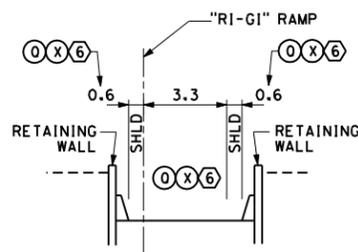
SECTION I-I
 SB DOYLE DRIVE TO
 GIRARD ROAD



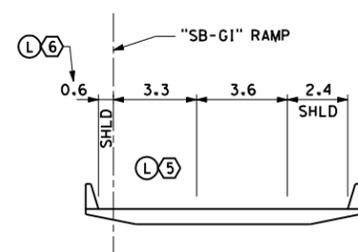
SECTION K-K
 GIRARD ROAD TO
 NB DOYLE DRIVE



SECTION G-G
 NB DOYLE DRIVE TO
 SB PARK PRESIDIO



SECTION J-J
 RICHARDSON AVE TO
 GIRARD ROAD



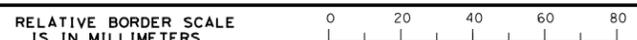
SECTION M-M
 SB DOYLE DRIVE TO
 GIRARD ROAD

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

**PREFERRED ALTERNATIVE
 PRESIDIO PARKWAY
 TYPICAL SECTIONS**

NOT TO SCALE

MX-2



DATE PLOTTED => 6/20/2007
 TIME PLOTTED => 5:06:03 PM