Attachment G
Exceptions to Design Standards

Fact Sheet Exceptions to Mandatory Design Standards

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1. PROPOSED PROJECT

A. Project Description:

The project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange (see Attachment 1). The project limits consist of I-80 from the Douglas Blvd interchange to the Rocklin Rd interchange (PM 1.9 – 6.1) and SR 65 from the I-80 separation to the Pleasant Grove Blvd interchange (PM R4.8 – R7.3). The project area also includes various local roads specifically, portions of Galleria Blvd/Stanford Ranch Rd, Pleasant Grove Blvd, Eureka Rd/Atlantic St, East Roseville Parkway, and Taylor Rd.

The project would increase capacity at the interchange with the following improvement:

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median HOV direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80.
- Widen the southbound SR 65 connector to westbound I-80 to three lanes.
- Widen the southbound SR 65 connector to eastbound I-80 to two lanes.
- Widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Widen I-80 mainline to add additional lanes and auxiliary lanes.
- Widen Taylor Rd to four lanes.

B. Existing Highway:

The existing I-80/SR 65 freeway-to-freeway interchange was constructed in 1985.

I-80 is the principal east-west route in northern California, providing access across the Sierra Nevada for major good movement into the Sacramento and San Francisco Bay areas. The interstates accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region.

The existing I-80 mainline facility between Douglas Blvd and separation with SR 65 is a ten-lane freeway. East of the SR 65 separation, I-80 changes to 6 lanes. An existing bottleneck, on SR 65 at the merge between the EB I-80 to NB SR 65 and WB I-80 to NB SR 65 lanes causes traffic to queue back onto I-80 mainline in both directions.

SR 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to

shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities.

In the northbound direction, SR 65 begins at the I-80 separation as a three-lane facility joining the two eastbound I-80 to northbound SR 65 connector ramp lanes with the single lane westbound I-80 to northbound SR 65 connector ramp. The outside lane immediately ends along the East Roseville Viaduct and continues with two lanes through the Galleria Boulevard/Stanford Ranch Road interchange. A partial auxiliary lane begins prior to the Pleasant Grove Boulevard interchange and ends at the northbound off-ramp. Northbound SR 65 continues as a two lane facility with auxiliary lanes past the Pleasant Grove interchanges towards Lincoln.

In the southbound direction, SR 65 has two lanes and auxiliary lanes from Lincoln through the Pleasant Grove Boulevard interchange. A third southbound lane develops under the Galleria Boulevard/Stanford Ranch Road interchange prior to the southbound Galleria Boulevard on-ramp. The three lanes continue across the East Roseville Viaduct and split into four lanes, two serving the southbound SR 65 to westbound I-80 connector ramp, and two serving the southbound SR 65 to eastbound I-80 connector ramp.

C. Safety Improvements:

Project does not include any additional and/or specific safety improvements. Non-standard features of existing facilities to be modified, where feasible are upgraded to standards.

D. Total Project Cost

The estimated project cost for these improvements is $ 351,100,000. Below is the summary of project cost:

Roadway Items	$ 151.6 million
Structure Items	$ 194.0 million
Right-of-Way & Utility	$ 5.5 million
Total	**$ 351.1 million**

2. FEATURES REQUIRING AN EXCEPTION

A. Design Exception Feature #1

Non-standard Feature: Standards for Superelevation

Location A: Eureka EB on-ramp, "E2" station 69+53.56 to 72+50.32, the proposed 200' curve will have superelevation rate of 6%. (See Attachment 2)

The standard superelevation required for 200' curve is 12%.

Location B: Eureka EB Loop on-ramp, "E1" station 59+55.81 to 61+01.82, the proposed 81' curve will have superelevation rate of 5%. (See Attachment 3)

The standard superelevation required for 81' curve is 12%.

Location C: Taylor EB Loop off-ramp, "T1" station 107+53.03 to 109+01.46, the proposed 100' curve will have superelevation rate of 5%. (See Attachment 4)

The standard superelevation required for 100' curve is 12%.

Location D: Taylor WB on-ramp, "T2" station 8+91.54 to 11+81.10, the proposed 850' curve will have superelevation rate of 6%. (See Attachment 5)

The standard superelevation required for 850' curve is 10%.

Location E: SR 65 SB to I-80 EB Connector, "SE" station 105+95.49 to 110+58.44, the proposed 860' curve will have superelevation rate of 4%. (See Attachment 6)

The standard superelevation required for 860' curve is 10%.

Location F: SR 65 SB to I-80 WB Connector, "SW" station 27+91.06 to 30+98.79, the proposed 930' curve will have superelevation rate of 4%. (See Attachment 7)

The standard superelevation required for 930' curve is 10%.

Location G: HOV Direct Connector, "HOV" station 131+21.31 to 131+94.99, the proposed 880' curve will have superelevation rate of 4%. (See Attachment 8)

The standard superelevation required for 880' curve is 10%.

Standard for Which Exception Is Requested:

HDM Topic 202 - Superelevation, Index 202.2 - Standard for Superelevation, Table 202.2

"Based on an emax selected by the designer for one of the conditions, superelevation rates from Table 202.2 shall be used within the given range of curve radii. If less than standard superelevation rates are approved (see index

82.1), Figure 202.2 shall be used to determine superelevation based on the curve radius and maximum comfortable speed."

Table 202.2 – Standard Superelevation rates

For Ramps – curve radii under 625' is 12% and between 850' to 1,099' is 10%.

Reason for Requesting Exception:

Location A: The reason for the design exception for location A is due to the existing Eureka Rd/Taylor Rd intersection and Eureka Rd 2% cross slope to the west. A higher superelevation rate would require an alignment with a longer tangent to accommodate superelevation runoff, which would shift the alignment further to the south and closer to the intersection. A 12% superelevation rate will also create a grade break of greater than 10% at the gore.

The proposed design with a non-standard feature will still meet the 25 mph design speed at the ramp terminus based on comfortable speed. The maximum comfortable speed based on the proposed design with 6% superelevation rate is 26 mph.

Conformance to standard would require relocating the Eureka Rd/Taylor Rd intersection to the south, realigning the EB off-ramp, impacting an environmental sensitive area, and acquiring new right of way.

Additional cost to make standard is $7.5 million.

Location B: The reason for the design exception for location B is due to the ADA requirement for pedestrian crossing with a gradient no greater than 5%. A higher superelevation rate would require an alignment with a longer tangent to accommodate pedestrian crossing where the slope is less than 5%, which would shift the alignment further to the south and impact Eureka Rd/Taylor Rd intersection.

Conformance to standard would require relocating the Eureka Rd/Taylor Rd intersection to the south, realigning the EB off-ramp, impacting an environmental sensitive area, and acquiring new right of way.

Additional cost to make standard is $7.5 million.

Location C: The reason for the design exception for location C is due to the ADA requirement for pedestrian crossing with a gradient no greater than 5%. A higher superelevation rate would require an alignment with a longer tangent to accommodate pedestrian crossing where the slope is less than 5%, which would shift the alignment further to the south and impact Residence Inn hotel.

Conformance to standard would require acquiring right of way where an existing hotel is located.

Additional cost to make standard is $9.0 million.

Location D: The reason for the design exception for location D is due to the mainline I-80 sloping to the opposite direction and a 10% superelevation rate would create a grade break of greater than 10% at the gore. A higher superelevation rate would require an alignment with a longer tangent and a physical gore area shifted further west to accommodate superelevation runoff and avoid a grade break across the gore of greater than 10%. It would also shorten the weaving length available the Atlantic Street off-ramp. Due to the location being immediately adjacent and parallel to UPRR on the north side, all improvement to conform to full standard would have to be to the south side of I-80.

The proposed design with a non-standard feature will still meet the 50 mph design speed at inlet nose based on comfortable speed. The maximum comfortable speed based on the proposed design with 6% superelevation rate is 52 mph.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

Location E: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 49 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100’ length of existing viaduct will need to be replaced along with reconstruction 300’ of roadway to conform.

Additional cost to make standard is $53 million.

Location F: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 51 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced along with reconstruction 300' of roadway to conform.

Additional cost to make standard is $53 million.

Location G: The reason for the design exception for location B is to match the 4% slope of East Roseville Viaduct. The Viaduct has a minimum clearance required over UPRR.

The proposed design with a non-standard feature will still meet the 45 mph design speed based on comfortable speed. The maximum comfortable speed based on the proposed design with 4% superelevation rate is 49 mph.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced along with reconstruction 300' of roadway to conform.

Additional cost to make standard is $53 million.

B. Design Exception Feature #2

Non-standard Feature: Lane Width

Location A: The width of all general purpose lane EXCEPT the outside lane of eastbound I-80 will be 11 feet between station "ME1" 61+78 and station "ME1" 102+57, a total length of 4,079 feet. (See Attachment 9)

Location B: The width of HOV lane of westbound I-80 will be 11 feet between station "MW1 85+25 and station "MW1" 101+56 for total length of 1,631 feet. All general purpose lane of westbound I-80 will be 11 feet between station "MW1" 65+64 and station "MW1" 105+15, a total length of 3,951 feet. (See Attachment 9)

Location C: The width of collector-distributor lane will be 11 feet from station "CD1" 82+36 and station "E2" 83+68 to station"CD3" 92+60, a total length of 960 feet. (See Attachment 9)

Location D: The width of Taylor Rd WB on-ramp lane will be 11 feet from station "T2" 5+72 to station"T2" 11+81, a total length of 609 feet. (See Attachment 9)

Standard for Which Exception Is Requested:
HDM Topic 301 – Traveled Way Standards, Index 301.1 – Lane Width

"The minimum lane width on two-lane and multilane highways, ramps, collector roads, and other appurtenant roadways shall be 12 feet, ..."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

C. Design Exception Feature #3

Non-standard Feature: Shoulder Width

Location A: The width of the left shoulder of eastbound I-80 will vary from 3.2 feet to 10 feet between station "ME1" 71+56 and station "ME1" 94+78, a total length of 2,322 feet. (See Attachment 10)

Location B: The width of the left shoulder of westbound I-80 will vary from 2.5 feet to 10 feet between station "MW1" 65+64 and station "MW1" 91+58, a total length of 2,594 feet. (See Attachment 10)

Location C: The width of the right shoulder of westbound I-80 will vary from 8 feet to 10 feet from station "MW1" 77+55 to station "MW1" 86+75 and vary from 2 feet to 8 feet from station "MW1" 88+83 to station "MW1" 94+75, a total length of 1,512 feet. (See Attachment 11)

Location D: The width of the right shoulder of connector distributor road will vary from 8 feet to 10 feet between station "CD1" 83+02 and station "CD3" 91+97, a total length of 890 feet. (See Attachment 11)

Standard for Which Exception Is Requested:
HDM Topic 302 – Highway Shoulder Standards, Index 302.1 - Width

"The shoulder widths given in Table 302.1 shall be the minimum continuous usable width of paved shoulder on highways."

Table 302.1 – Standards for Paved Shoulder Width

For Freeways & Expressways – 6 or more lanes, Paved Shoulder Width Left is 10 feet
6 or more lanes, Paved Shoulder Width Right is 10 feet
Collector-Distributor, Paved Shoulder Width Right is 10 feet

Reason for Requesting Exception:

The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

D. Design Exception Feature #4

Non-standard Feature: Horizontal Clearance

Location A: The horizontal clearance to inside shoulder barrier of eastbound I-80 will vary from 3.2 feet to 10 feet between station "ME1" 71+56 and station "ME1" 94+78, a total length of 2,322 feet. (See Attachment 12)

Location B: The horizontal clearance to inside shoulder barrier on westbound I-80 will vary from 2.5 feet to 10 feet between station "MW1" 65+64 and station "MW1" 91+58, a total length of 2,594 feet. (See Attachment 12)

Location C: The horizontal clearance to outside shoulder barrier on westbound I-80 will vary from 8 feet to 10 feet from station "MW1" 77+55 to station "MW1" 86+75 and vary from 2 feet to 8 feet from station "MW1" 88+83 to station "MW1" 94+75, a total length of 1,512 feet. (See Attachment 13)

Location D: The horizontal clearance to outside shoulder barrier on connector distributor road will vary from 7 feet to 10 feet between station "CD1" 83+02 and station "CD3" 91+97, a total length of 890 feet. (See Attachment 13)

Standard for Which Exception Is Requested:
HDM Topic 309 - Clearances, Index 309.1(3)(a) & (b) - Horizontal Clearances for Highways, Minimum Clearances

"The minimum horizontal clearance to all objects, such as bridge rails and safety-shaped concrete barriers, as well as sand-filled barrels, metal beam guardrail, etc., on all freeway and expressway facilities, including auxiliary lanes, ramps, and collector roads, shall be equal to the standard shoulder width of the highway facility as stated in Table 302.1. A minimum clearance of 4 feet shall be provided where the standard shoulder width is less than 4 feet."

"The minimum horizontal clearance to walls, such as abutment walls, retaining walls in cut locations, and noise barriers on all facilities, including auxiliary lanes, ramps and collector roads, shall not be less than 10 feet per Table 302.1."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

E. Design Exception Feature #5

Non-standard Feature: Stopping Sight Distance
The proposed stopping sight distance for the westbound HOV lane will be 595 feet from station "MW1" 87+85 to "MW1" 97+75. The corresponding speed for the 595 feet stopping sight distance is 60 mph. (See Attachment 14)

The 60 mph stopping sight distance provided matches the stopping sight distance of the existing facility for this location.

Standard for Which Exception Is Requested:
HDM Topic 201 – Sight Distance, Index 201.1 - General

"Table 201.1 shows the minimum standards for stopping sight distance related to design speed for motorists."

"The stopping sight for 65 mph design speed is 660 feet."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and several businesses on the south side of I-80. The existing support piers and south abutment of the Roseville Parkway Overcrossing also restrict widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

E. Design Exception Feature #6

Non-standard Feature: Median Standards
The median will vary from 16 feet to 22 feet, between station "MW1" 65+64 to 93+13, a total length of 2749 feet. (See Attachment 15)

Standard for Which Exception Is Requested:
HDM Topic 305 - Median Standard, Index 305.1 (3)(a) - Freeways and Expressways

"In areas where restrictive conditions prevail, the minimum median width shall be 22 feet."

Reason for Requesting Exception:
The reason for this design exception is due to the location being immediately adjacent and parallel to UPRR on the north side and few businesses on the south side of I-80. The existing Roseville Parkway Overcrossing also create a pinch point to do a widening.

Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

F. Design Exception Feature #7

Non-standard Feature: Interchange Spacing

Below is the list of non-standard spacing between interchanges (See Attachment 16):

- Eureka Rd/Atlantic St I/C to Taylor Rd I/C: 0.6 mile
- Eureka Rd/Atlantic St I/C to I-80/SR 65 I/C: 1.1 mile
- Taylor Rd I/C to I-80/SR 65 I/C: 0.5 mile
- Galleria Blvd/Stanford Ranch Rd I/C to I-80/SR 65 I/C: 1.0 mile

Standard for Which Exception Is Requested:

HDM Topic 501 - General, Index 501.3 - Spacing

"The minimum interchange spacing shall be one mile in urban areas, two mile in rural areas, and two miles between freeway-to-freeway interchanges and local street interchanges."

Reason for Requesting Exception:

The proposed spacing between these interchanges are the same as the current condition.

Conformance to standard would require the following:

- Close Taylor Rd Interchange
- Close Eureka Rd/Atlantic St Interchange
- Close Galleria Blvd/Stanford Ranch Rd Interchange
- Additional intersection and roadway improvements to the adjacent local streets to accommodate additional traffic due to closure of interchanges

Additional cost to make standard is greater than $75 million.

G. Design Exception Feature #8

Non-standard Feature: Weaving Length

Location A: The weaving length between Taylor Rd WB on-ramp and Atlantic St WB off-ramp is 1720 feet. (See Attachment 17)

Location B: The weaving length between SR 65 SB to I-80 WB Connector and Atlantic St WB off-ramp is 2750 feet. (See Attachment 17)

Location C: The weaving length between Eureka EB on-ramp and Taylor Rd EB off-ramp is 1300 feet. (See Attachment 17)

Location D: The weaving length between I-80 WB to SR 65 NB Connector and Stanford Ranch Rd NB off-ramp is 2815 feet. (See Attachment 18)

Location E: The weaving length between Galleria Blvd SB on-ramp and SR 65 SB to I-80 WB Connector is 2145 feet. (See Attachment 18)

Standard for Which Exception Is Requested:
HDM Topic 504 - Interchange Design Standard, Index 504.7 - Weaving Section

"The minimum weaving length, measured as shown on Figures 504.2A and 504.2B shall be 2,000 feet in urban areas, 5,000 feet in rural areas, and 5,000 feet between freeway-to-freeway interchanges and other interchanges."

Reason for Requesting Exception:
The proposed weaving length between locations mentioned above are approximately the same as the current condition.

Conformance to standard would require the following:

- Close Taylor Rd Interchange
- Close Eureka Rd/Atlantic St Interchange
- Close Galleria Blvd/Stanford Ranch Rd Interchange
- Additional intersection and roadway improvements to the adjacent local streets to accommodate additional traffic due to closure of interchanges

Additional cost to make standard is greater than $75 million.

H. Design Exception Feature #9

Non-standard Feature: Local Street Interchanges
Taylor Rd interchange is a partial interchange with an isolated off-ramp. (See Attachment 19)

Standard for Which Exception Is Requested:
HDM Topic 502 – Interchange Types, Index 502.2 – Local Street Interchanges

“Isolated off-ramps or partial interchanges shall not be used because of the potential for wrong-way movements.”

Reason for Requesting Exception:

The project proposes to keep the existing WB on-ramps in the same location and reconstruct the EB loop off-ramp to exit from the proposed connector-distributor road.

Conformance to standard would require closing the existing Taylor Rd Interchange and relocating the interchange access to the adjacent interchanges or expanding the interchange to a full interchange with braided ramps. Taylor Rd, Eureka Rd and Atlantic St along with intersections will need to be improved to accommodate additional traffic.

Additional cost to make standard is greater than $50 million.

3. TRAFFIC DATA

Existing and design year (2040) average daily traffic (AADT) and peak-hour volumes are summarized in Table 1:

Table 1
Summary of Annual Average Daily Traffic

Freeway Segment	Existing		2040	
	AADT	Peak Hr	AADT	DHV
Interstate 80				
EB Douglas Blvd to Eureka Rd	77500	6518	102100	9140
EB Eureka Rd to Taylor Rd	79350	6705	108900	7460
EB Taylor Rd to SR 65	75000	6196		
EB SR 65 to Rocklin Rd	54800	4591	68650	6110
WB Rocklin Rd to SR 65	54800	4129	68650	5140
WB SR 65 to Taylor Rd	75000	5812	106500	8030
WB Taylor Rd to Atlantic St	79350	6326	108900	8720
State Route 65				
NB I-80 to Stanford Ranch Rd	53050	4359	77800	8000
NB Stanford Ranch Rd to Pleasant Grove Blvd	52200	4138	77400	7470
SB Pleasant Grove Blvd to Galleria Blvd	52200	4079	77400	6470
SB Galleria Blvd to I-80	53050	3975	77800	6750
Ramp/Connector Segment	**Existing**		**2040**	
	AADT	**Peak Hr**	**AADT**	**DHV**
Interstate 80				
EB Eureka Rd Off-ramp	10940	1094	13600	1360
EB Eureka Rd Loop On-ramp	2290	229	3100	310
EB Eureka Rd on-ramp	8990	899	15200	1520
EB Taylor Rd loop Off-ramp	5090	509	5800	580
EB I-80 to NB SR 65 loop Connector	31870	3187	47500	4750
WB I-80 to NB SR 65 Connector	11720	1172	20700	2070
WB Taylor Rd On-ramp	5140	514	7300	730
WB Atlantic St Off-ramp	3730	373	5800	580
WB Atlantic St Loop Off-ramp	8260	826	12000	1200
WB Atlantic St On-ramp	9830	983	12300	1230
State Route 65				
NB Stanford Ranch Rd Off-ramp	11460	1146	16500	1650
NB Stanford Ranch Rd On-ramp	9250	925	11200	1120
SB Pleasant Grove Blvd On-ramp	5840	584	11100	1110
SB Galleria Blvd Off-ramp	8000	800	15600	1560
SB Galleria Blvd On-ramp	9820	982	18400	1840
SB SR 65 to EB I-80 Connector	15820	1582	25900	2590
SB SR 65 to WB I-80 Connector	28310	2831	36500	3650

Data provided by Fehr & Peers

4. ACCIDENT ANALYSIS

The actual accident rates for I 80 for the 3-year period (July 1, 2009 to June 30, 2012) from PM 1.90 to 6.10 and SR 65 from PM 4.86 to 7.30 were compared to the statewide average accident rates for similar facilities. Following are accident data from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) – Transportation System Network (TSN) Table B summarized in Table 2.

Table 2
Actual and Average Accident Rates from 7/1/2009 to 6/30/2012

Direction/ Location	Number of Accidents				Accident Rates					
					Actual			Average		
	Total	F*	I**	F+I***	F*	F+I***	Total	F*	F+I***	Total
WB & EB I-80 Mainline (PM 1.90 to 6.10)	658	5	228	233	0.008	0.37	**1.05**	0.004	0.28	0.91
NB & SB SR 65 Mainline (PM 4.86 to 7.30)	165	2	55	57	0.007	0.21	0.61	0.006	0.33	1.03
I-80 WB to SR 65 NB (PM 4.32)	9	1	5	6	0.069	0.41	**0.62**	0.005	0.13	0.38
I-80 EB to SR 65 NB (PM 4.22)	32	0	10	10	0	0.31	**0.98**	0.004	0.20	0.68
I-80 WB from SR 65 SB (PM 3.95)	18	0	5	5	0	0.19	**0.70**	0.003	0.11	0.32
I-80 EB from SR 65 SB (PM 4.50)	2	0	2	2	0	0.16	0.16	0.003	0.14	0.41

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities
** Injuries
*** Fatalities plus injuries

Bold and underlined font indicates actual rates are higher than average

Mainline I 80

A total of 658 accidents were reported within the proposed project limits in both directions of I-80, including 5 fatalities and 228 injuries. As shown in Table 2, the actual accident rate on I 80 is 1.05, which is higher than the statewide average of 0.91 for a similar type facility. The accident rates for fatal and injury accidents are also higher than comparable state averages.

During the three-year period, the types of accidents that occurred on I 80 were as follows: 408 rear-ends (62.0%); 132 sideswipes (20.1%); 79 hit objects (12.0%); 13 broadsides (2.0%); 10 overturns (1.5%); 8 other factors (1.2%) and 6 auto-pedestrian (0.9%).

The majority of the accidents took place in the left, right or interior lanes, with only 11.5% of the accidents occurring in the left or right shoulder areas or the recovery areas beyond the shoulders, where the propose design feature #3 in this Fact Sheet is located. Rear-end accidents account for 62.0% of all the accidents, which are generally congestion-related. The next most frequent accident types are side-swipe and hit object (32.1%). The other accident types are collectively less than 10% of all accidents.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

Mainline SR 65

A total of 165 accidents were reported within the proposed project limits in both directions of SR 65, including 2 fatalities and 55 injuries. As shown in Table 2, the actual accident rate on SR 65 is 0.61, which is lower than the statewide average of 1.03 for a similar type facility. The accident rates for fatal and injury accidents are also lower than comparable state averages.

The most frequent accident type is a rear end accident which account for 69.1% of all the accidents, which is typical of congested related. The next most frequent accident types are side-swipe and hit object.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

80/65 Connectors

A total of 60 accidents were reported at 4 different connector locations. There are 3 locations that have accident rates higher than the statewide average for a similar type of facility, as shown in Table 2. In addition, the proposed improvements are anticipated to provide improved operational conditions through addition of HOV lanes and reconfigurations of this freeway to freeway facilities, thereby helping to reduce the accident frequency at these locations.

The 3 locations that have actual accident rates higher than the statewide rate are as follows:

80 Westbound Connector from 65 Southbound (PM 3.95)

A total of 18 accidents were reported with no fatalities. The actual accident rate on the connector is 0.70, which is higher than the statewide average of 0.32 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects and sideswipe type of collisions. These accidents are consistent with short weaving distances and number of lanes and turning roadways of the existing facilities.

80 Eastbound Connector to 65 Northbound (PM 4.22)
A total of 32 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.98, which is higher than the statewide average of 0.68 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects, sideswipe, and head-on type of collisions. These accidents are consistent with number of lanes, turning roadways and configuration of the existing facilities.

80 Westbound Connector to 65 Northbound (PM 4.32)
A total of 9 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.62, which is higher than the statewide average of 0.38 for a similar type facility.

The types of accidents involved mostly passenger cars that were speeding, under the influence of alcohol and made improper turns, resulting in rear-end, hit objects and side swipe type of collisions. These accidents are consistent with number of lanes and turning roadways of the existing facilities.

The project proposed to add an additional lane to each of connector and a separate HOV lane connector from I-80 to SR 65 and SR 65 to I-80. It will also eliminate the existing loop connector from WB I-80 to NB SR 65. All these improvements are expected to improve traffic operations of this freeway-to-freeway interchange.

5. INCREMENTAL IMPROVEMENTS

None

6. FUTURE CONSTRUCTION

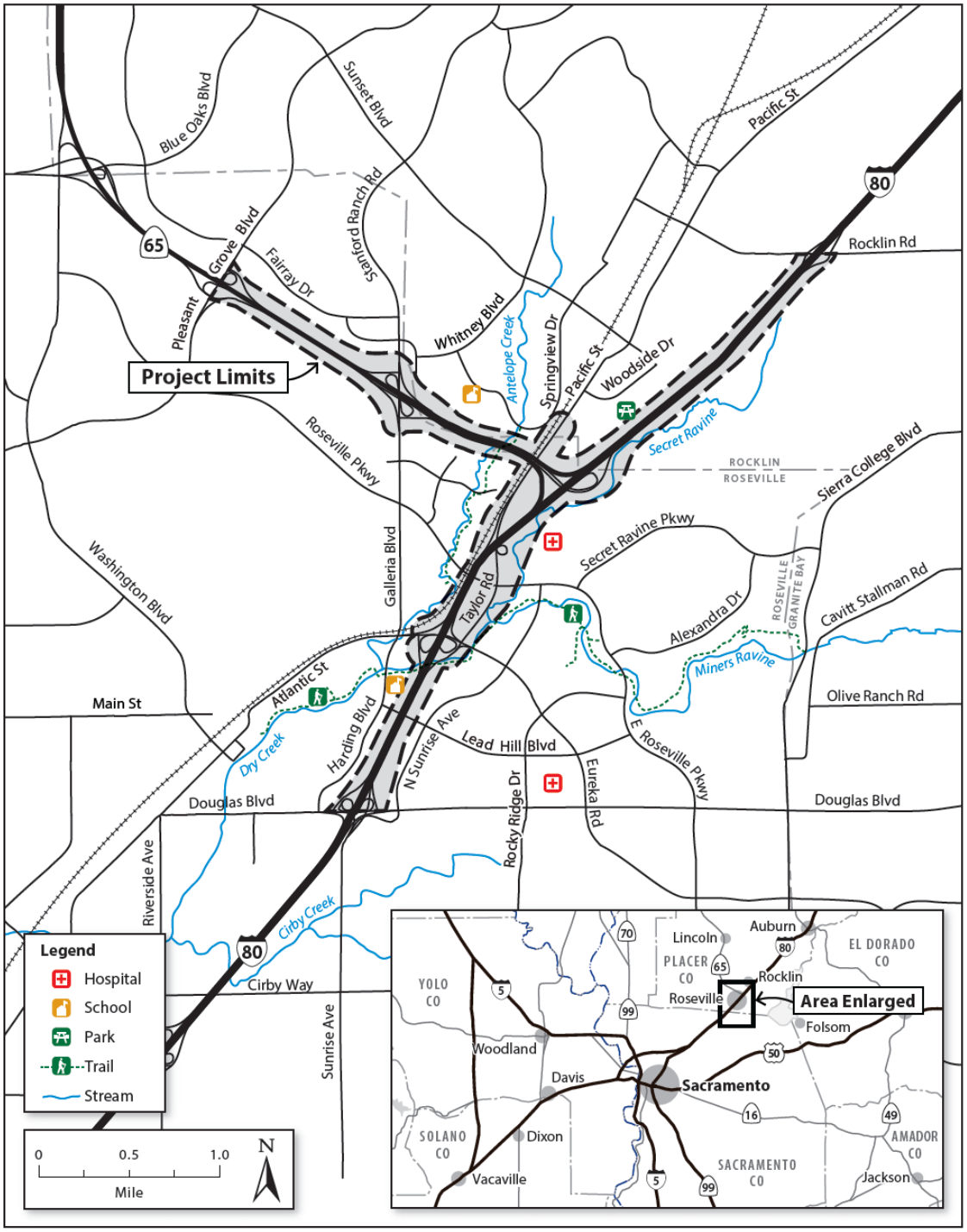
There is a proposed "SR 65 Capacity and Operations Improvement project" which is in the PA&ED phase. This project will widen SR 65 to the north adding general purpose, HOV lanes, and auxiliary lanes.

7. PROJECT REVIEWS, CONCURRENCE

These design exceptions have been reviewed and concurred by XXXXX, HQ Design Reviewer on April 201X.

8. ATTACHMENTS

1) Attachment 1 - Vicinity Map
2) Attachment 2 - Feature #1 Location A – Superelevation Rate
3) Attachment 3 - Feature #1 Location B – Superelevation Rate
4) Attachment 4 - Feature #1 Location C – Superelevation Rate
5) Attachment 5 - Feature #1 Location D – Superelevation Rate
6) Attachment 6 - Feature #1 Location E – Superelevation Rate
7) Attachment 7 - Feature #1 Location F – Superelevation Rate
8) Attachment 8 - Feature #1 Location G – Superelevation Rate
9) Attachment 9 - Feature #2 Location A, B, C, D – Lane Width
10) Attachment 10 - Feature #3 Location A, B – Shoulder Width
11) Attachment 11 - Feature #3 Location C, D – Shoulder Width
12) Attachment 12 - Feature #4 Location A, B – Horizontal Clearance
13) Attachment 13 - Feature #4 Location C, D – Horizontal Clearance
14) Attachment 14 - Feature #5 Stopping Sight Distance
15) Attachment 15 - Feature #6 Median Standards
16) Attachment 16 - Feature #7 Interchange Spacing
17) Attachment 17 - Feature #8 Location A, B, C – Weaving Length
18) Attachment 18 - Feature #8 Location D, E – Weaving Length
19) Attachment 19 - Feature #9 Partial Interchange



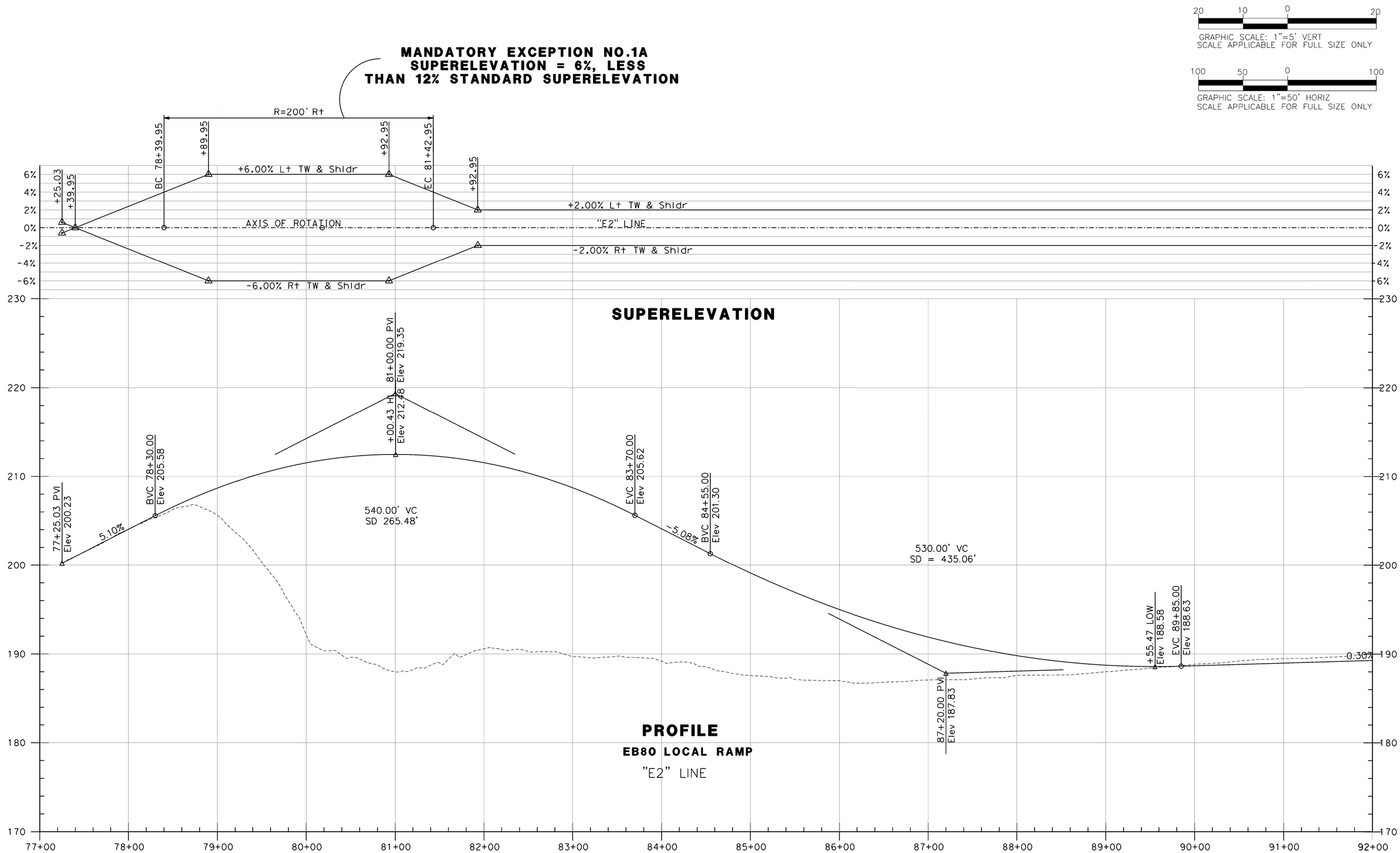
ATTACHMENT 2
VICINITY MAP

EB80 EUREKA SLIP ON-RAMP ("E2" LINE)

ALIGNMENT CURVE DATA				
No.⊕	R	Δ	T	L
3	200'	85°00'54"	183.31'	296.76'

ATTACHMENT 2

SHEET 1 OF 2

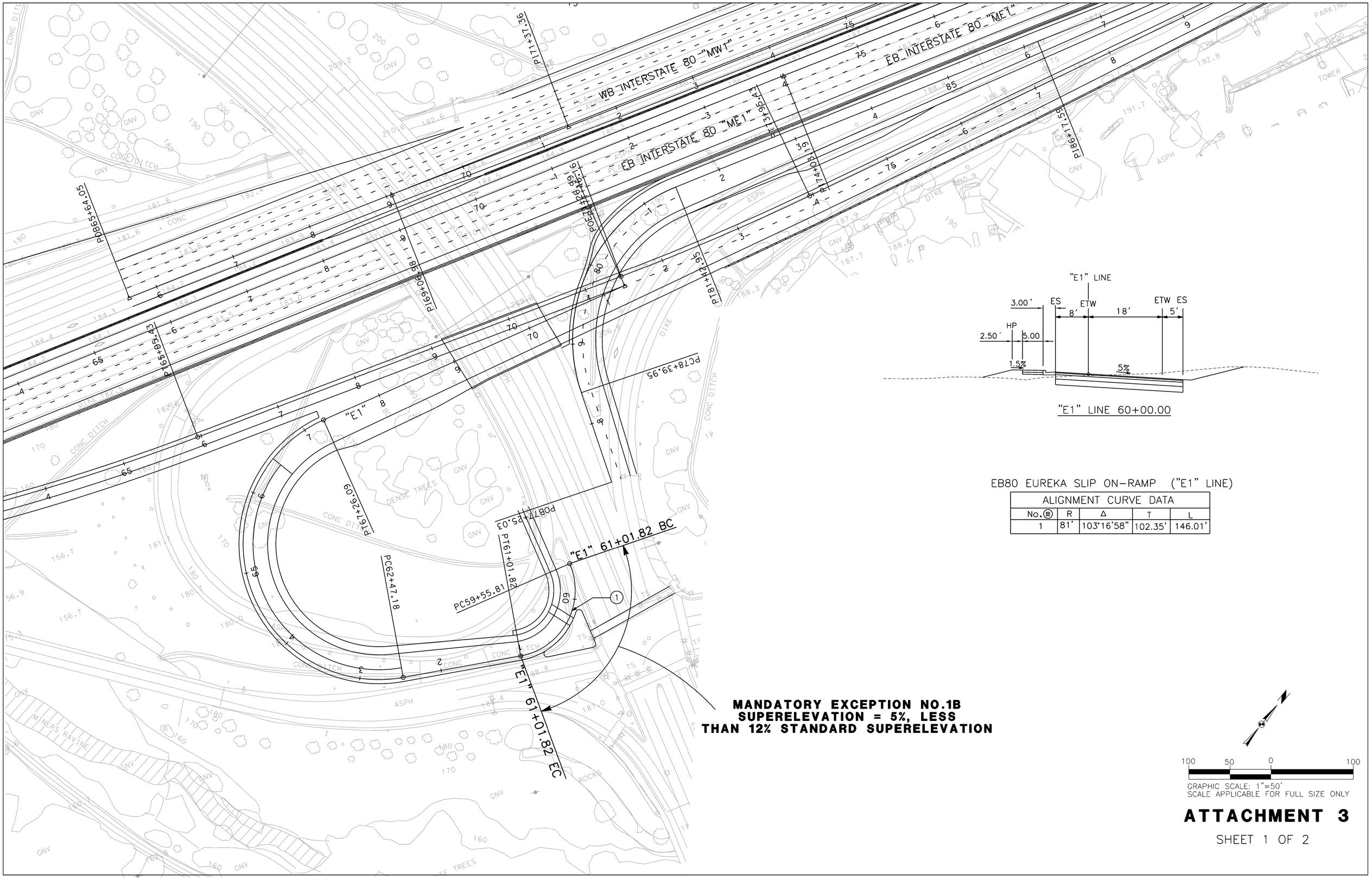


20 10 0 20
GRAPHIC SCALE: 1"=5' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 2

SHEET 2 OF 2

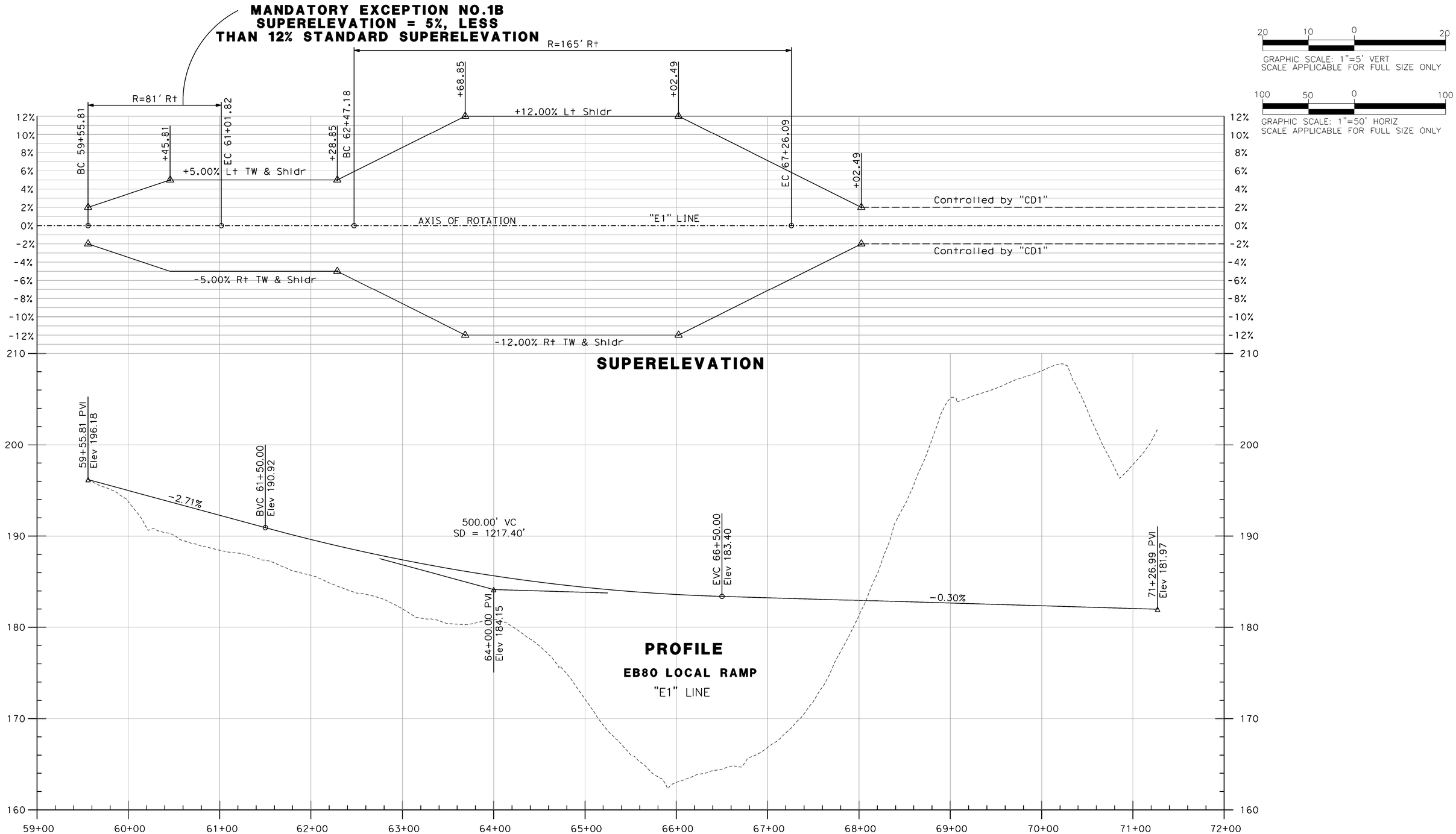


EB80 EUREKA SLIP ON-RAMP ("E1" LINE)

ALIGNMENT CURVE DATA				
No.(#)	R	Δ	T	L
1	81'	103°16'58"	102.35'	146.01'

ATTACHMENT 3

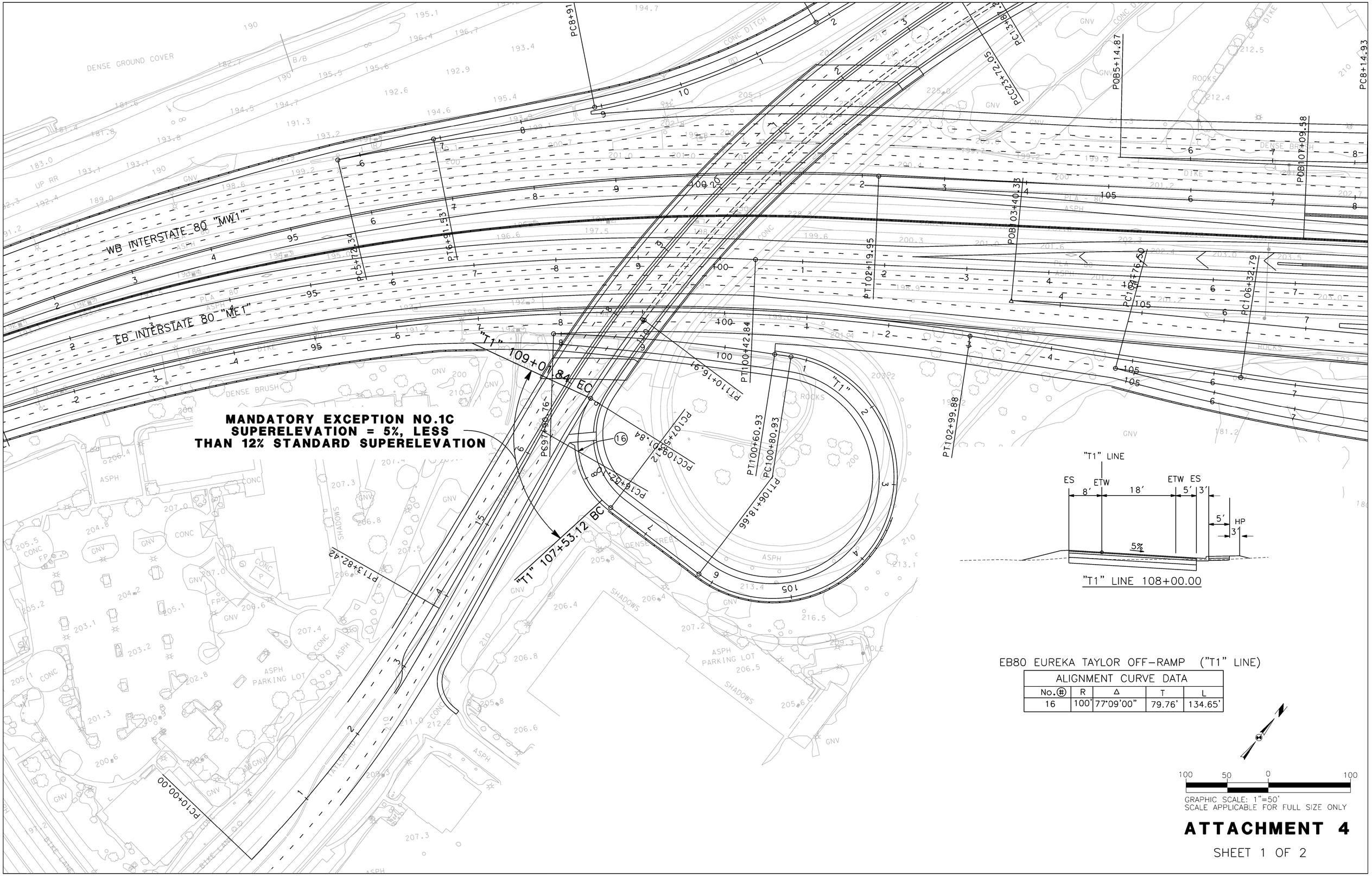
SHEET 1 OF 2



ATTACHMENT 3

SHEET 2 OF 2

MANDATORY EXCEPTION NO.1C
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION



EB80 EUREKA TAYLOR OFF-RAMP ("T1" LINE)

ALIGNMENT CURVE DATA				
No.(#)	R	Δ	T	L
16	100'	77°09'00"	79.76'	134.65'

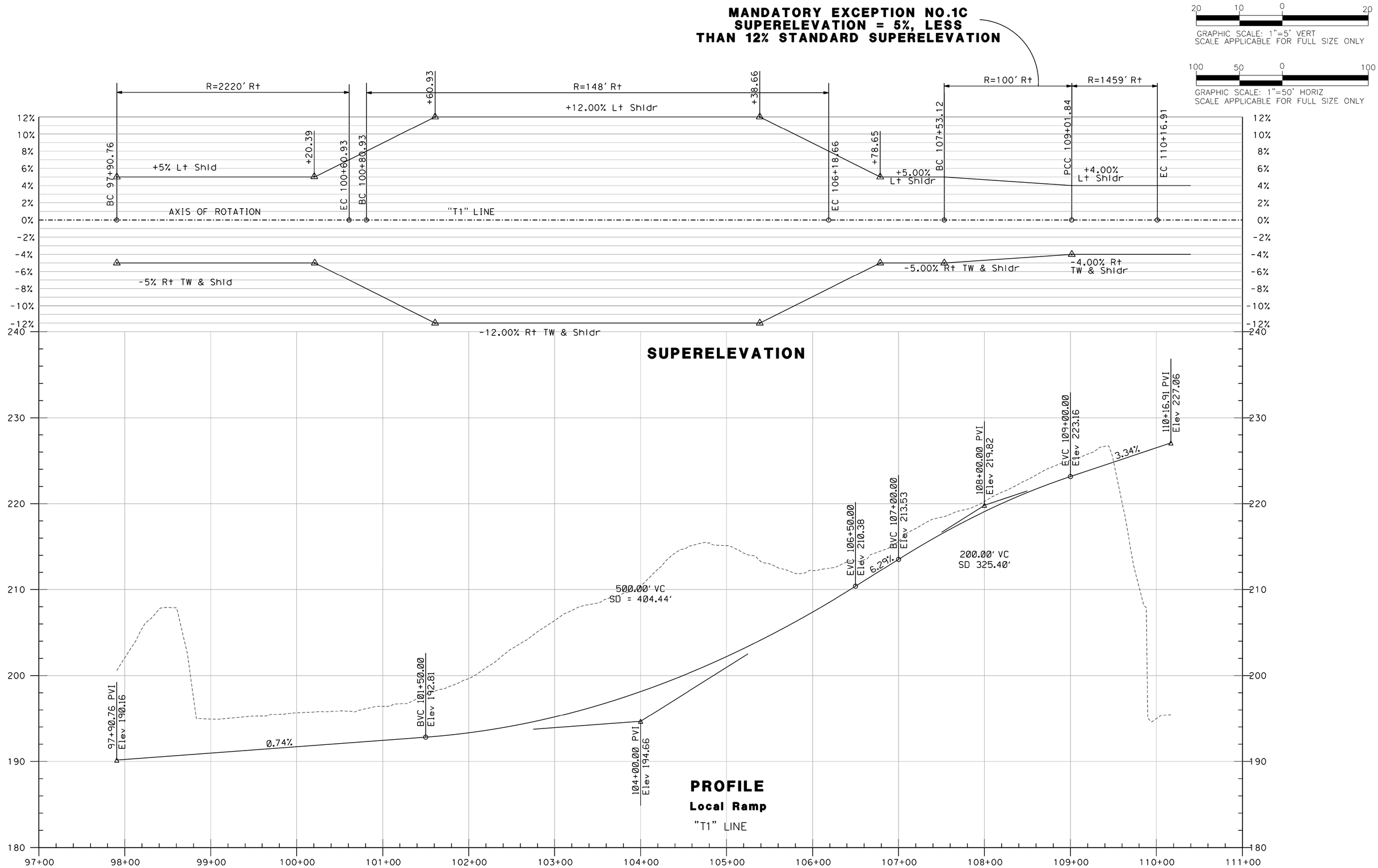
100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

SHEET 1 OF 2

MANDATORY EXCEPTION NO.1C
SUPERELEVATION = 5%, LESS
THAN 12% STANDARD SUPERELEVATION



ATTACHMENT 4

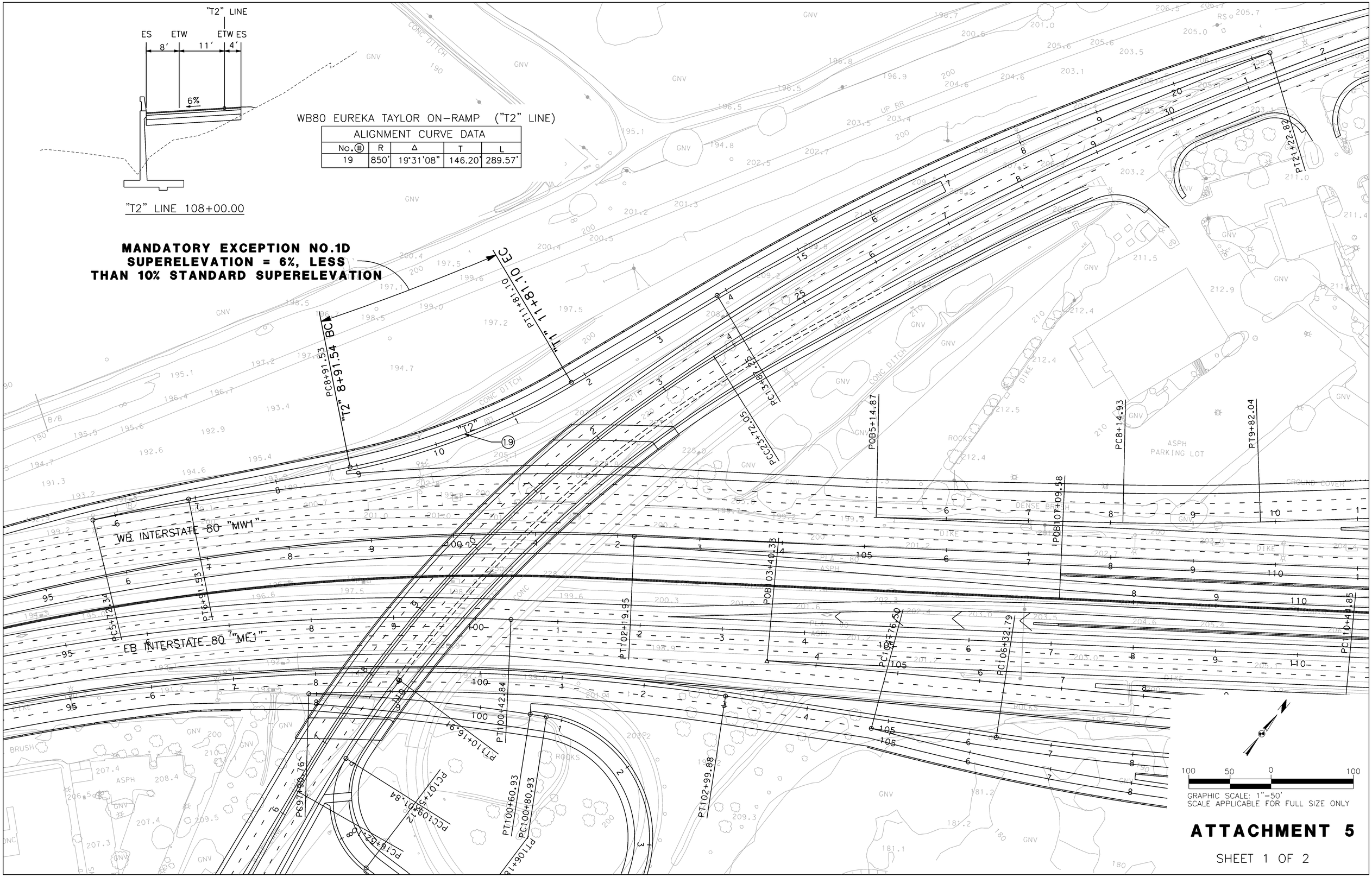
SHEET 2 OF 2

"T2" LINE 108+00.00

WB80 EUREKA TAYLOR ON-RAMP ("T2" LINE)

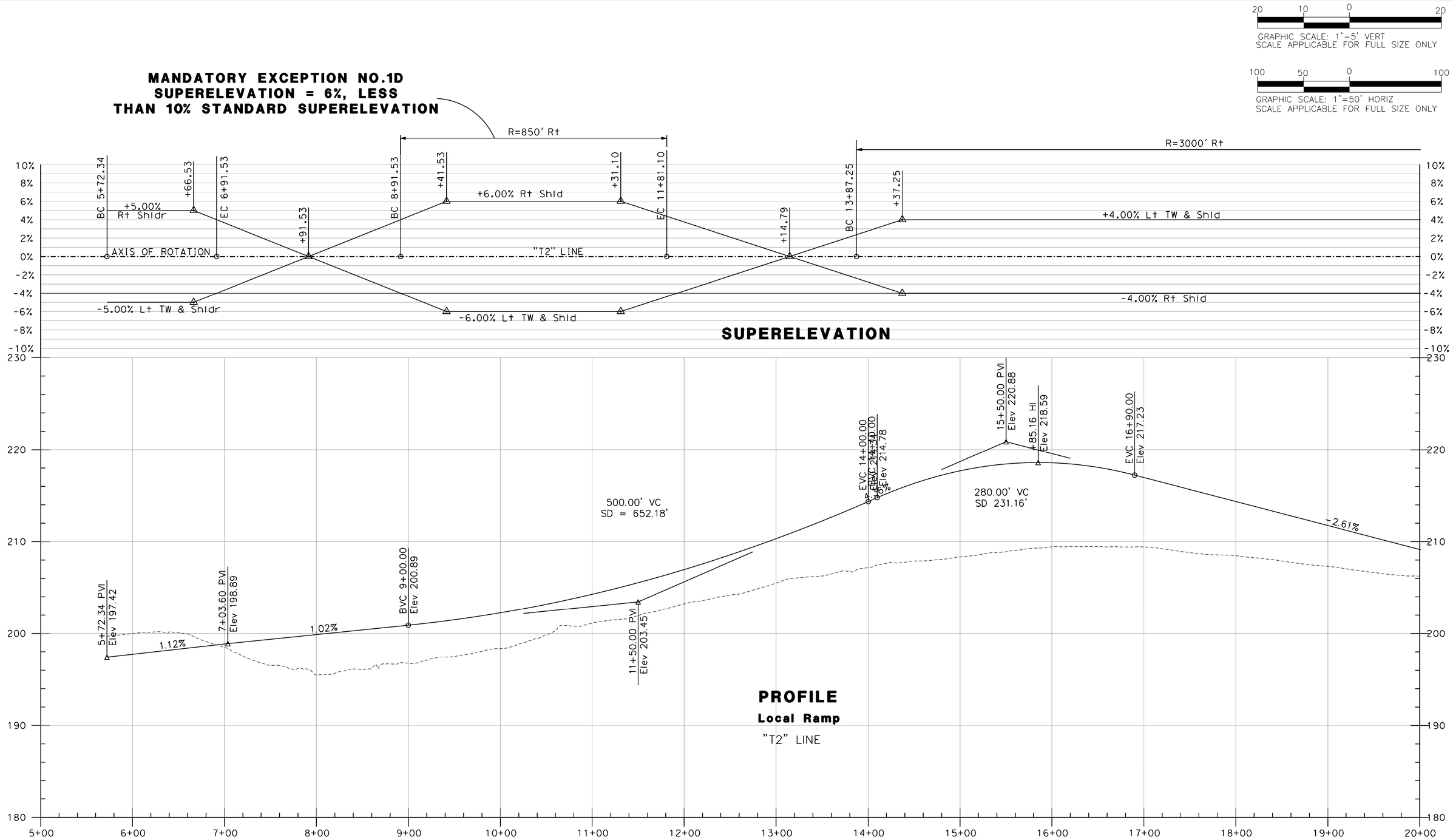
ALIGNMENT CURVE DATA				
No.(#)	R	Δ	T	L
19	850'	19°31'08"	146.20'	289.57'

MANDATORY EXCEPTION NO.1D
SUPERELEVATION = 6%, LESS
THAN 10% STANDARD SUPERELEVATION



ATTACHMENT 5

SHEET 1 OF 2



ATTACHMENT 5

SHEET 2 OF 2

MANDATORY EXCEPTION NO. 1E
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

"SE" 105+95.49 BC

"SE" 110+58.44

PT 110+58.44

PC 114+08.44

PC123+87.88

PC130+98.79

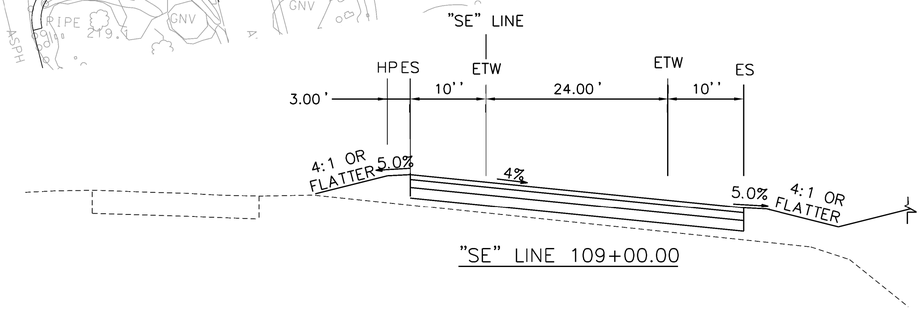
PC131+84.99

PT132+97.01

PC132+72.22

"SE"

34



"SE" LINE 109+00.00

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No (#)	R	Δ	T	L
34	860'	30°50'35"	237.23'	462.95'

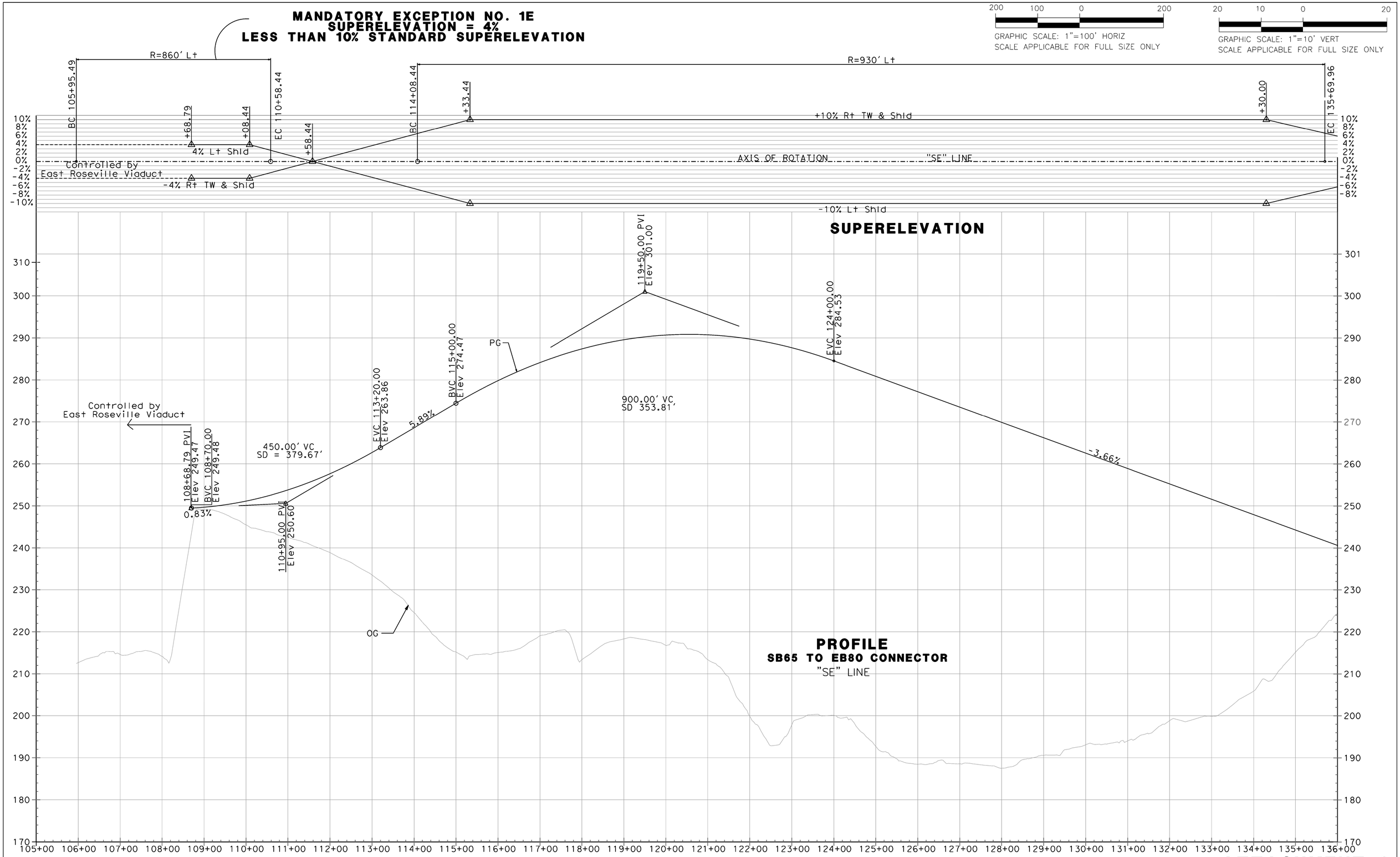
100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 6

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1E
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION



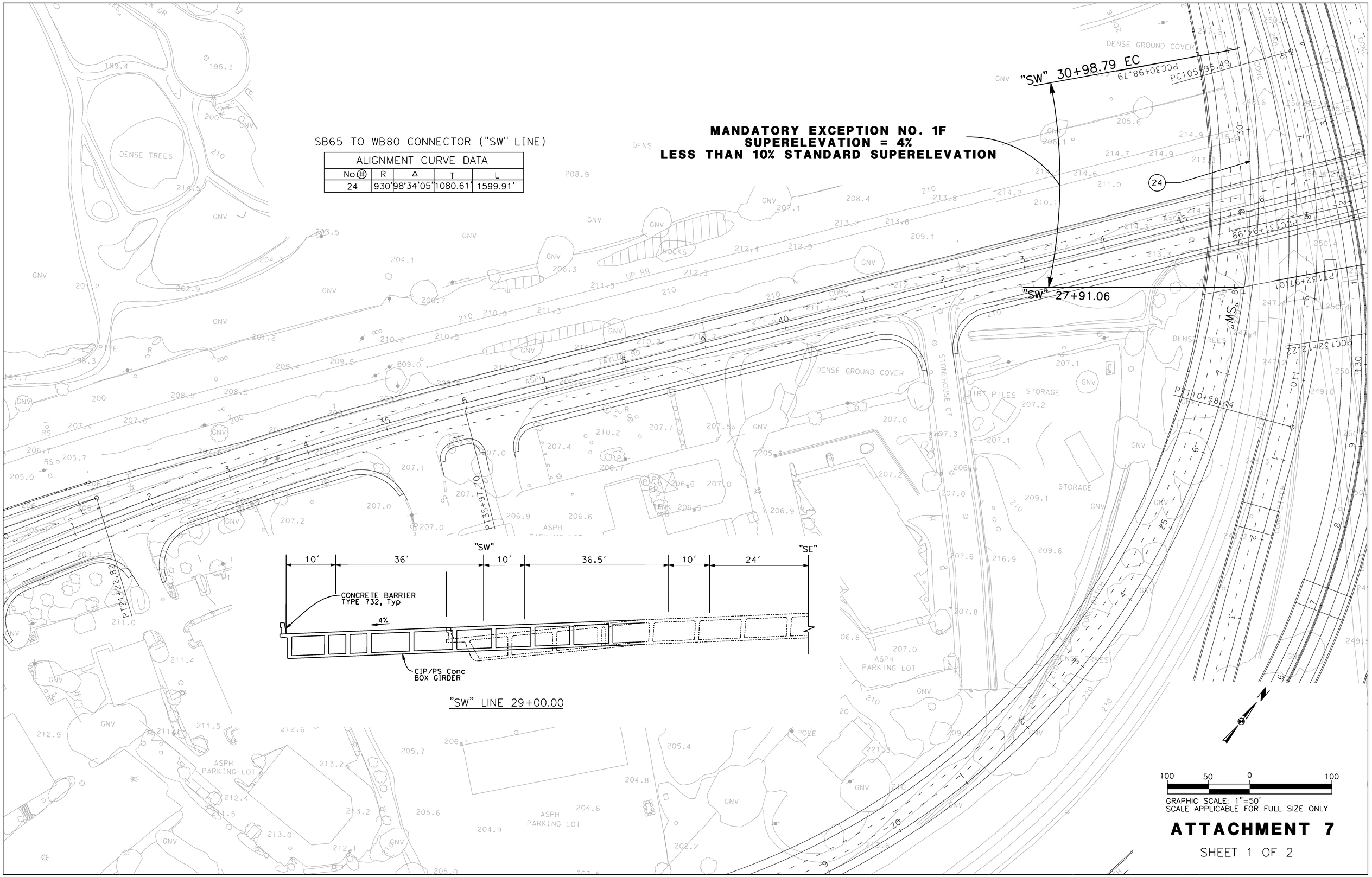
ATTACHMENT 6

SHEET 2 OF 2

SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No (#)	R	Δ	T	L
24	930'	98°34'05"	1080.61'	1599.91'

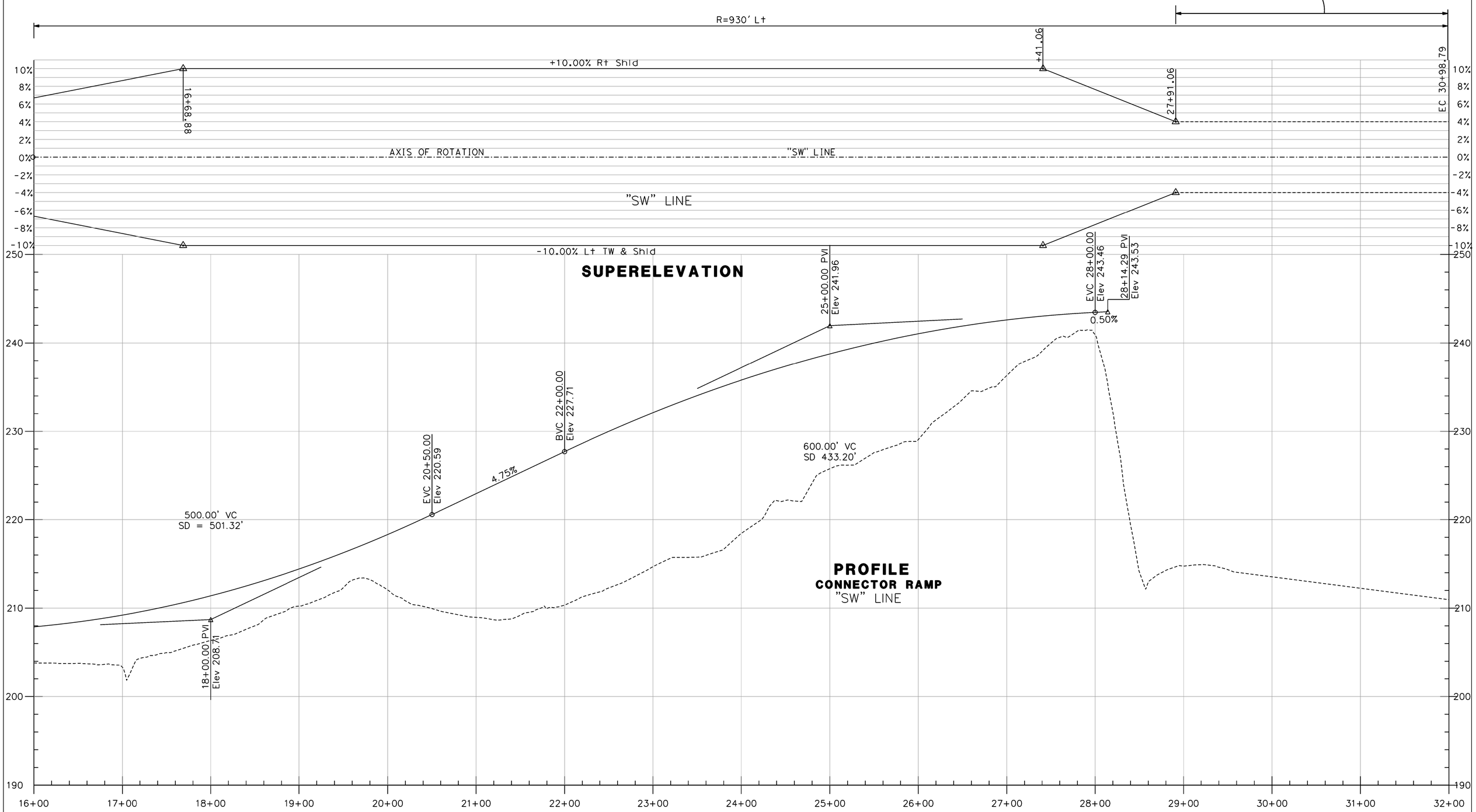
MANDATORY EXCEPTION NO. 1F
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION



ATTACHMENT 7

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1F
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION



GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 7

SHEET 2 OF 2

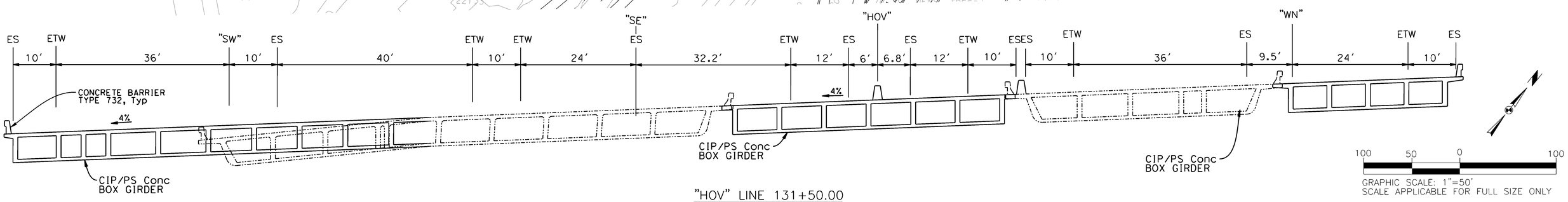
MANDATORY EXCEPTION NO. 1G
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

"HOV" 131+94.99

"HOV" 131+21.31

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No.(#)	R	Δ	T	L
31	180'	104°22'22"	1133.94'	1603.05'



"HOV" LINE 131+50.00

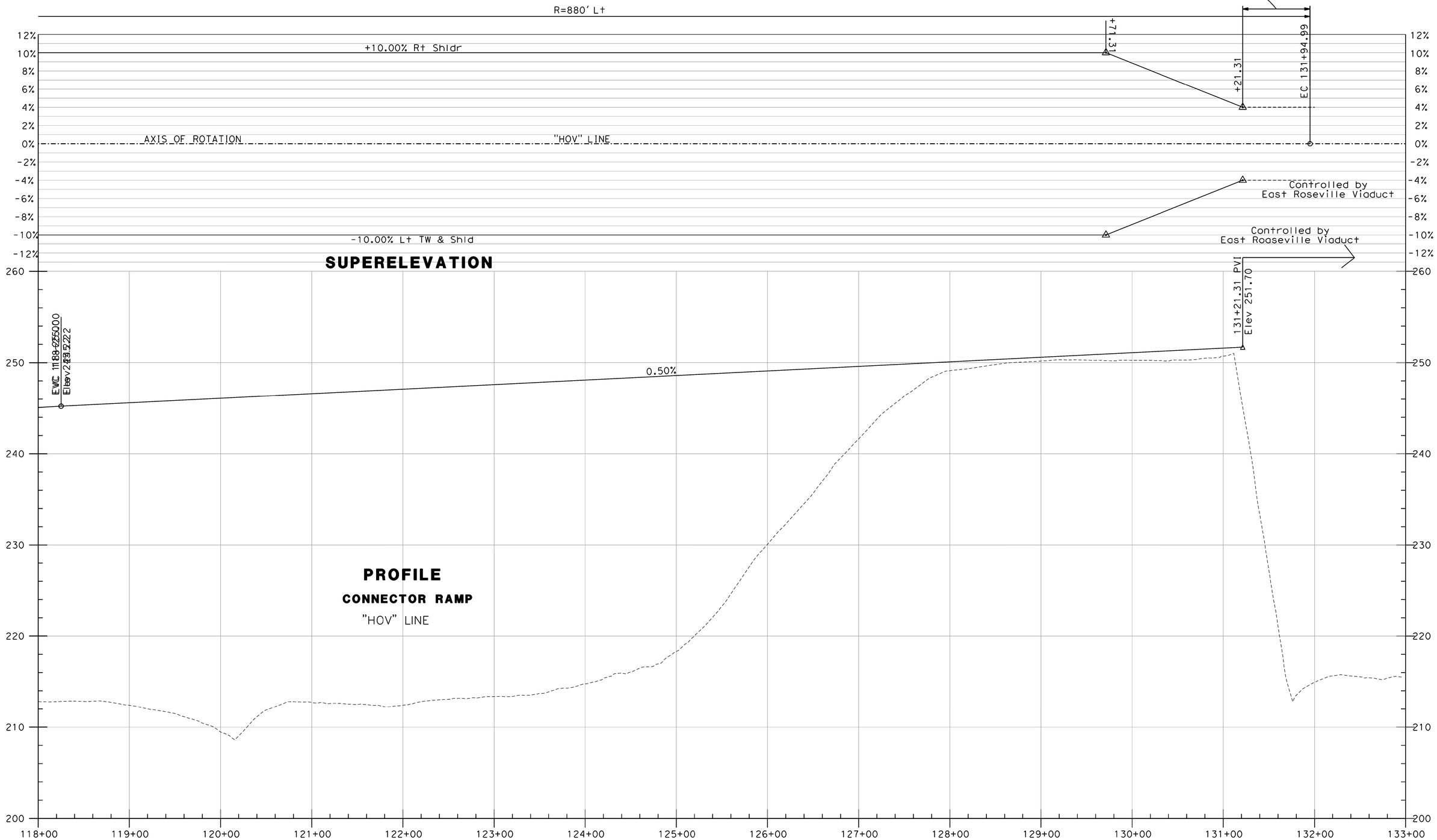
100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 8

SHEET 1 OF 2

MANDATORY EXCEPTION NO. 1G
SUPERELEVATION = 4%
LESS THAN 10% STANDARD SUPERELEVATION

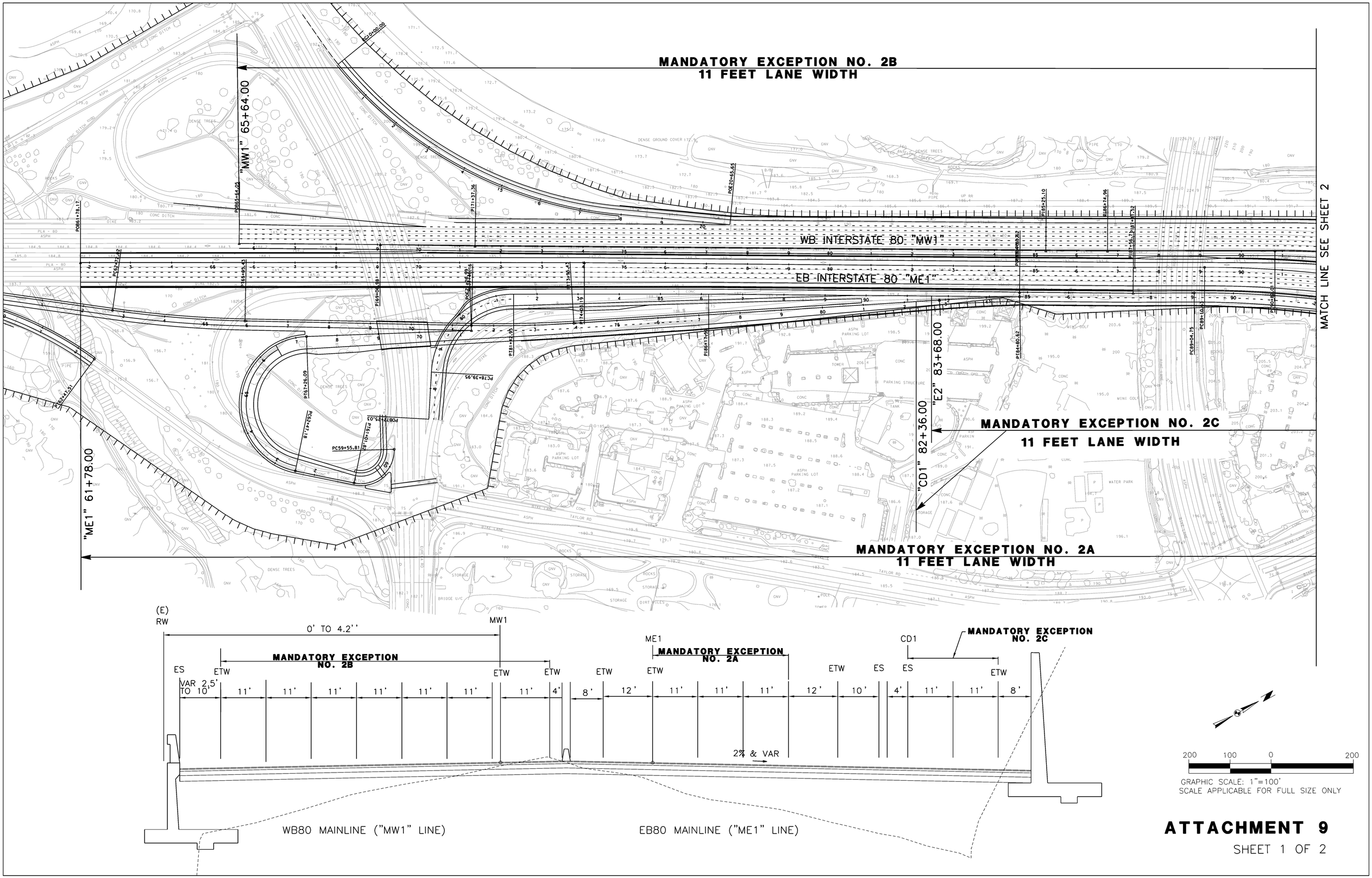


100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 8

SHEET 2 OF 2



ATTACHMENT 9

SHEET 1 OF 2

MATCH LINE SEE SHEET 1

MANDATORY EXCEPTION NO. 2B
11 FEET LANE WIDTH

MANDATORY EXCEPTION NO. 2D
11 FEET LANE WIDTH

"MW1" 104+53.00

WB INTERSTATE 80 "MW1"

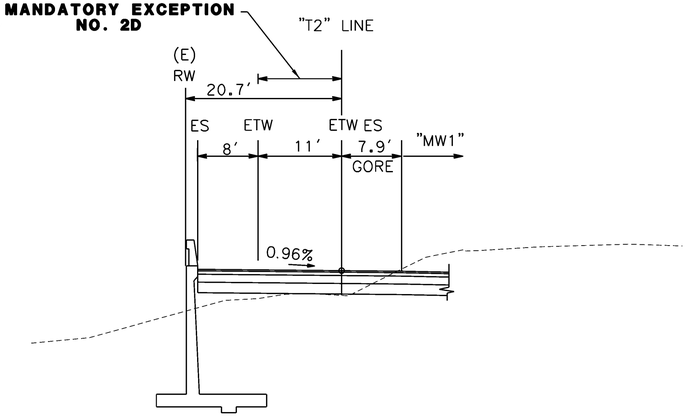
EB INTERSTATE 80 "ME1"

"CD3" 92+60.00

MANDATORY EXCEPTION NO. 2C
11 FEET LANE WIDTH

"ME1" 102+57.00

MANDATORY EXCEPTION NO. 2A
11 FEET LANE WIDTH



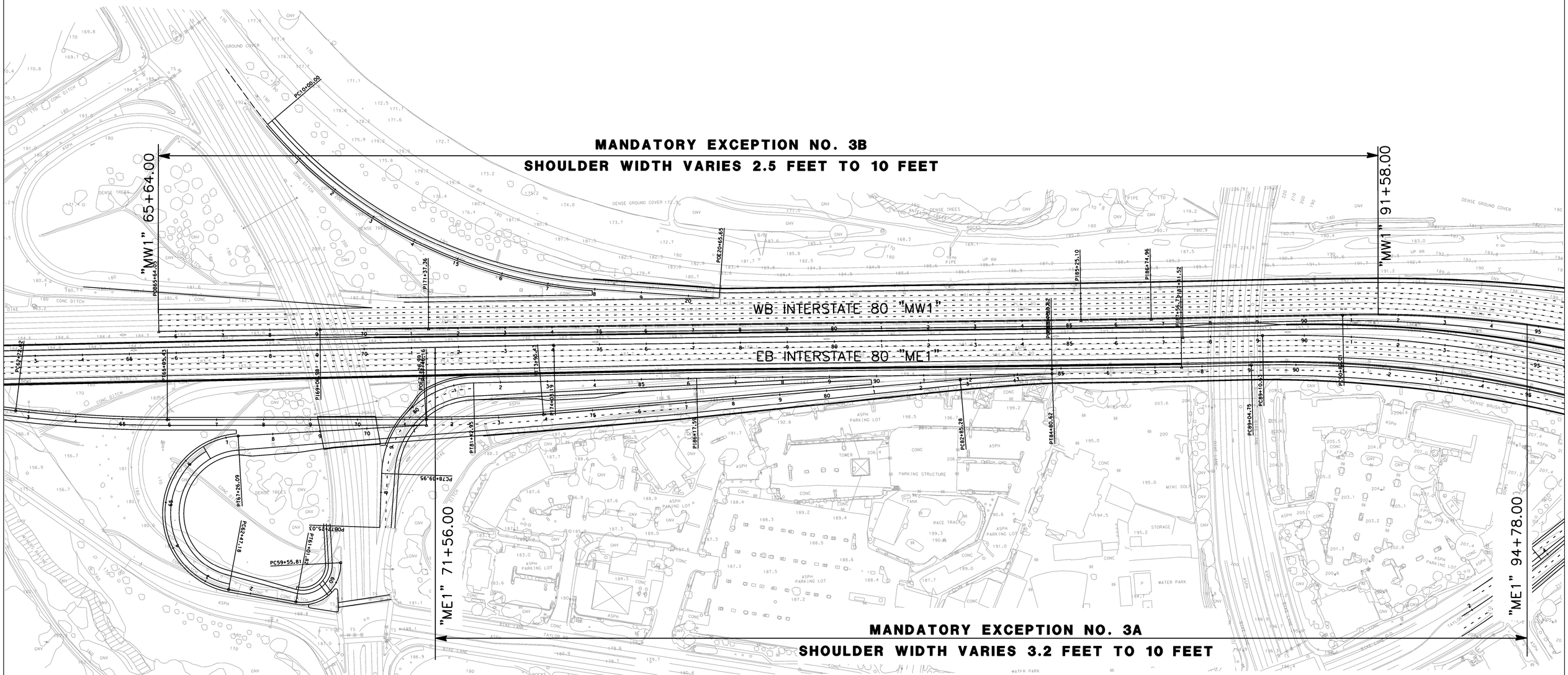
"T2" LINE 7+67.50

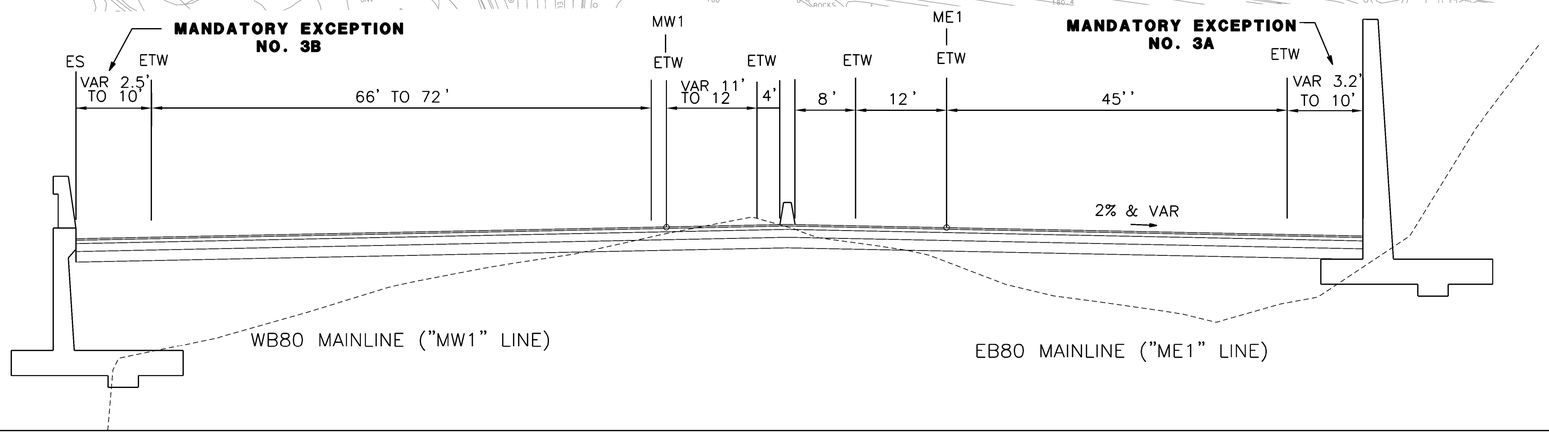
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 9

SHEET 2 OF 2



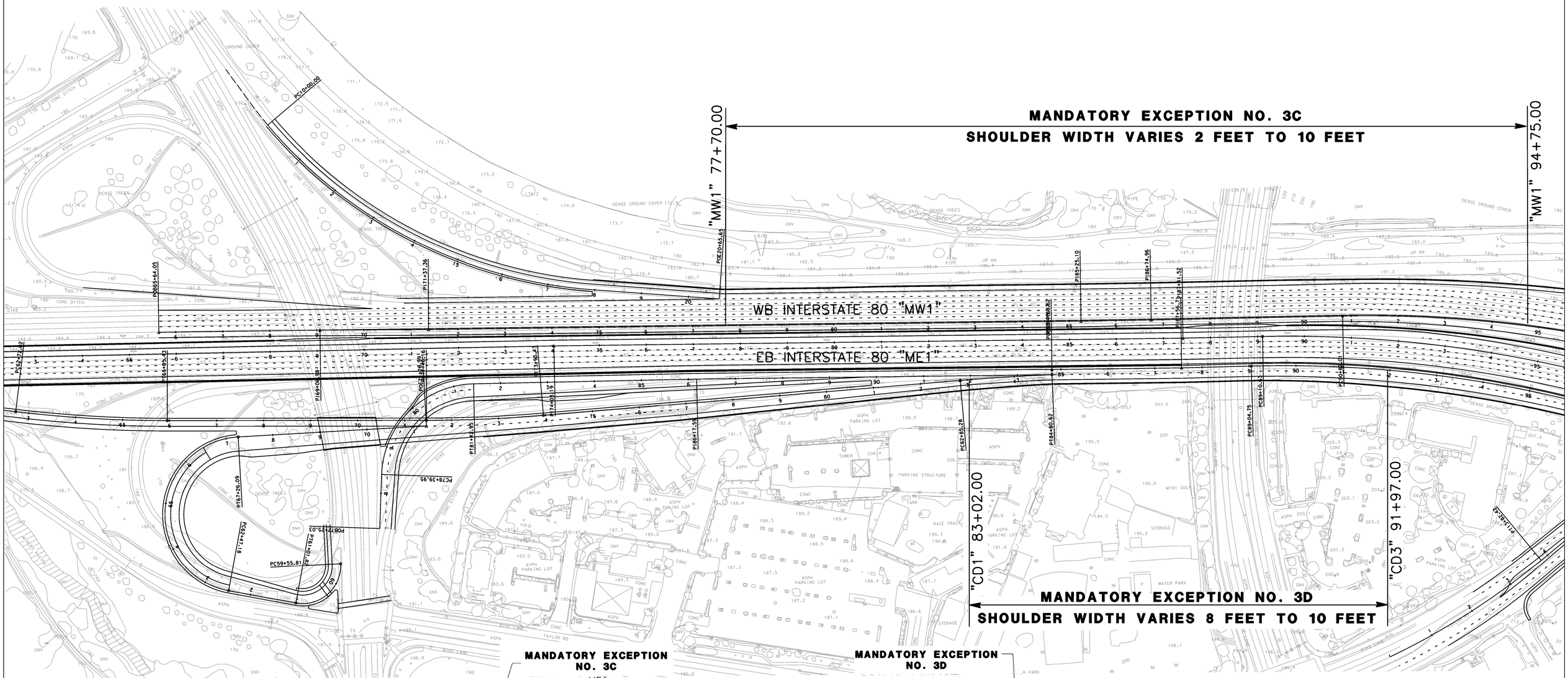


200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

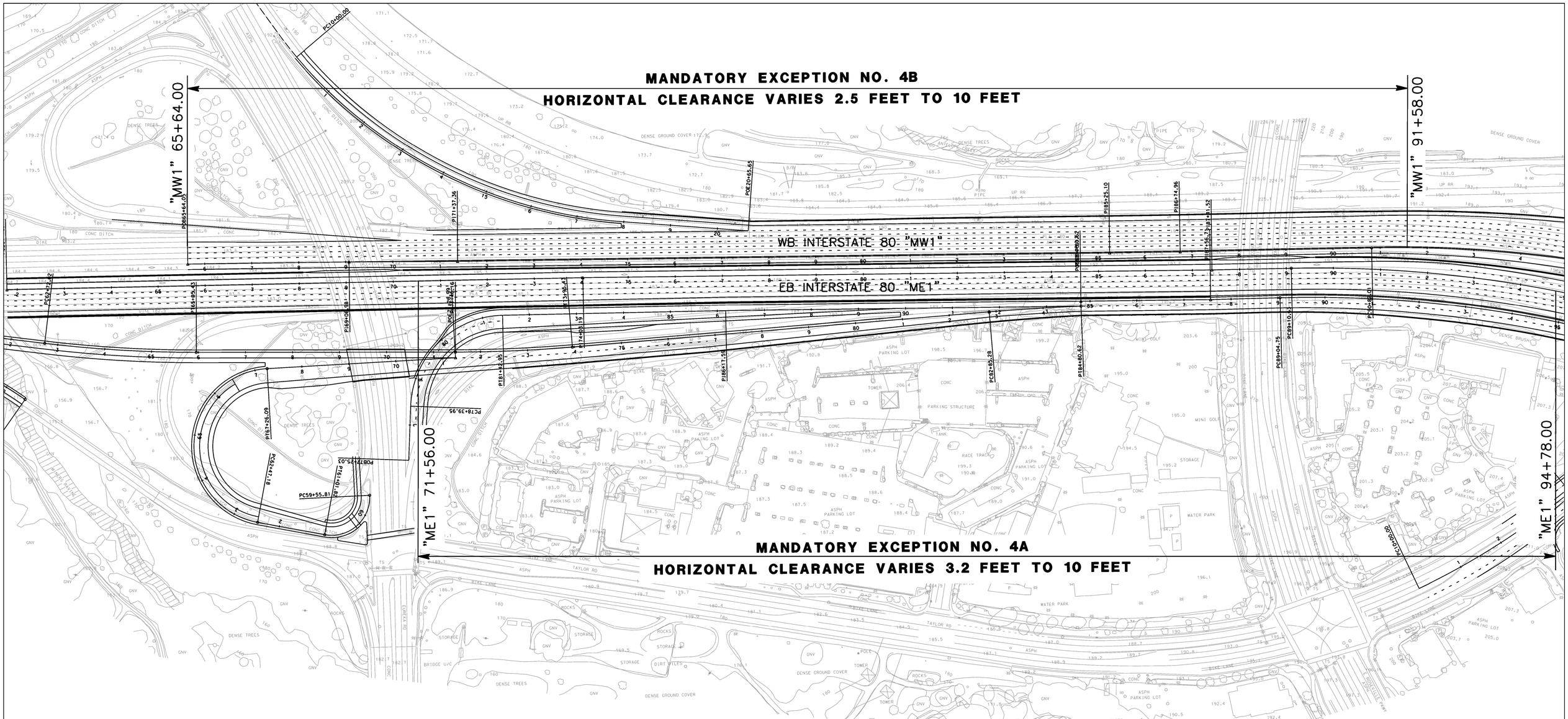
ATTACHMENT 10

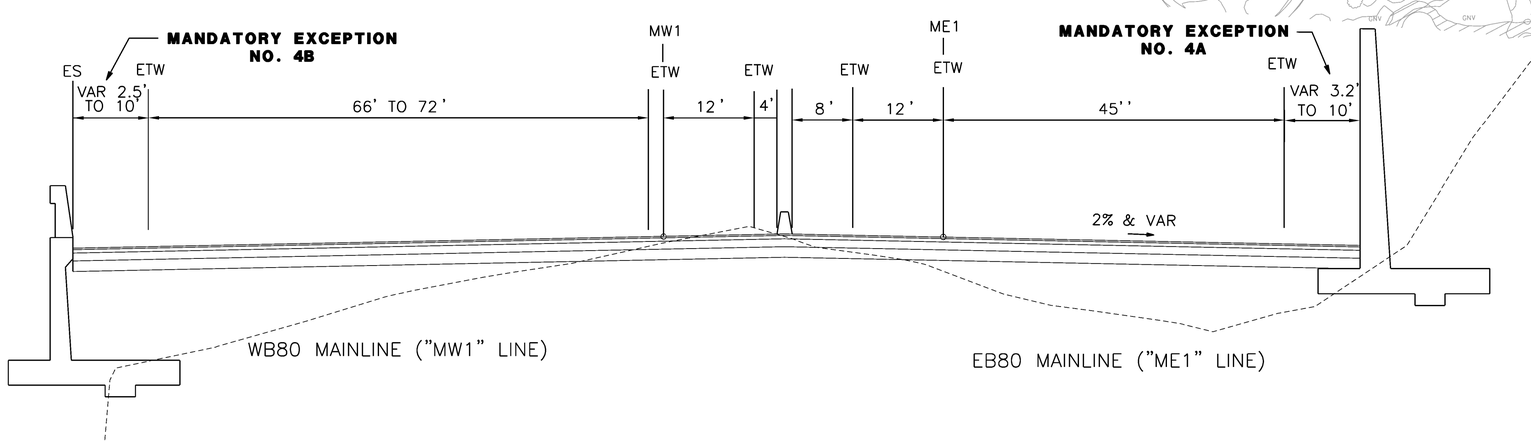
SHEET 1 OF 1



ATTACHMENT 11

SHEET 1 OF 1



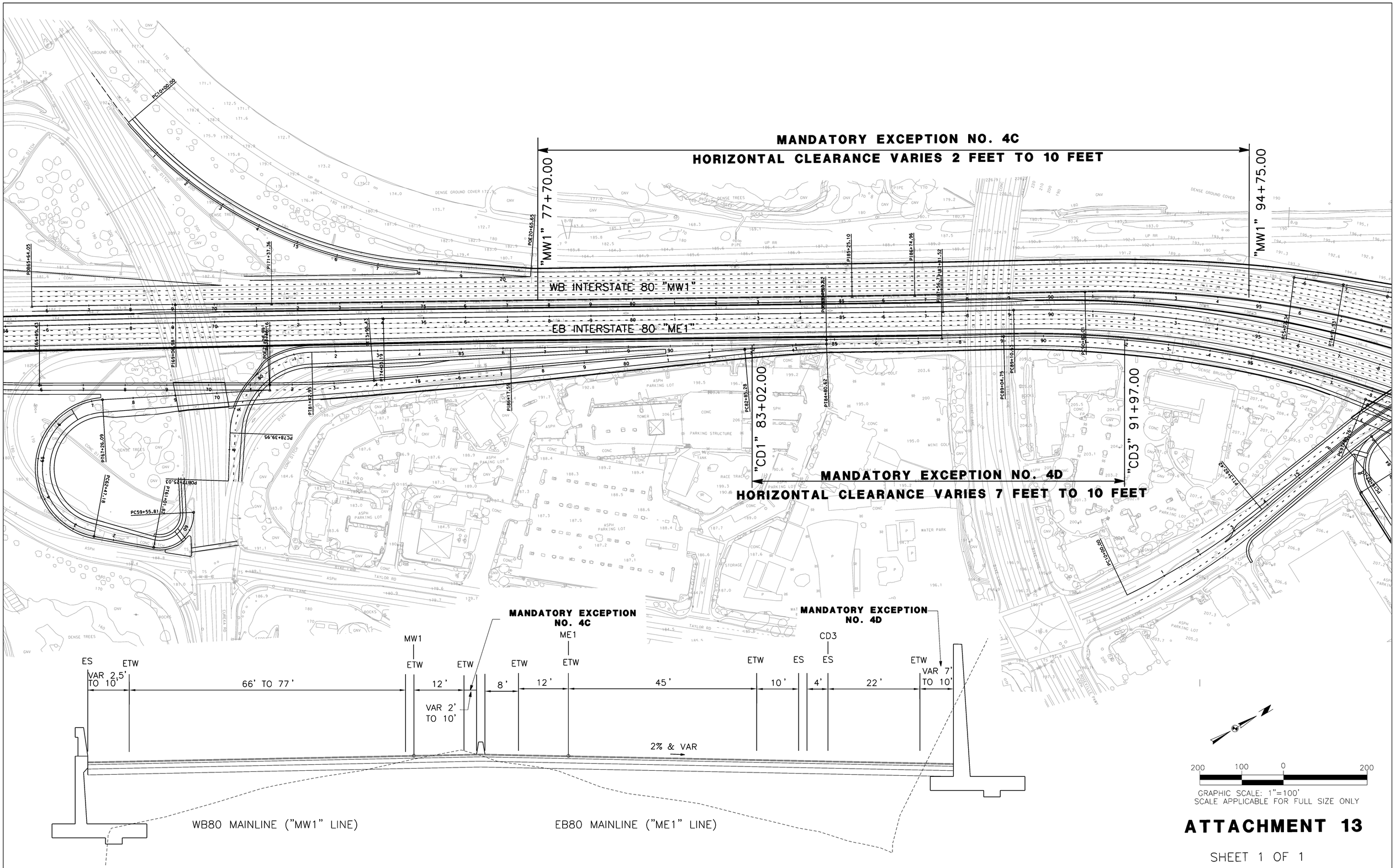


200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

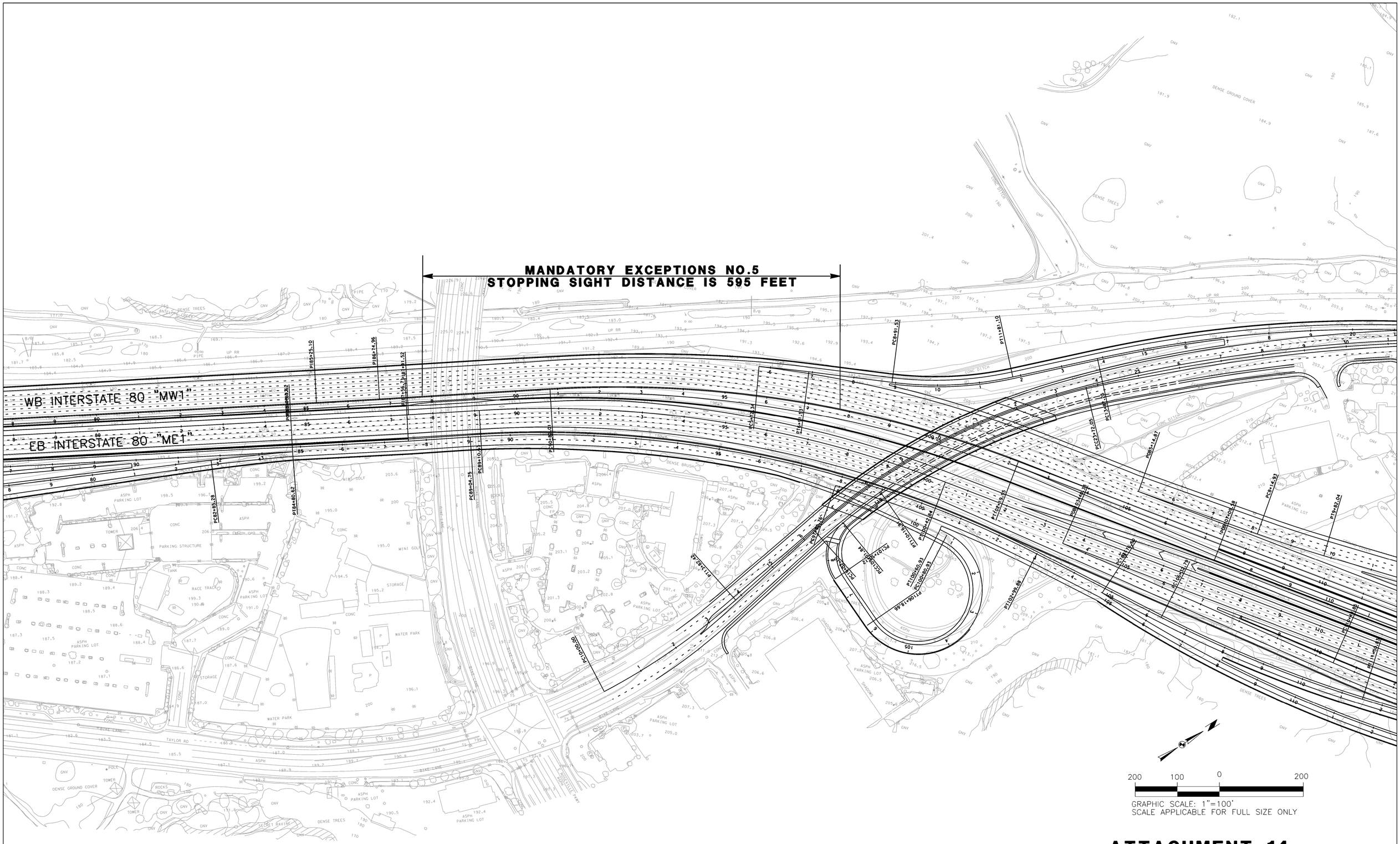
ATTACHMENT 12

SHEET 1 OF 1



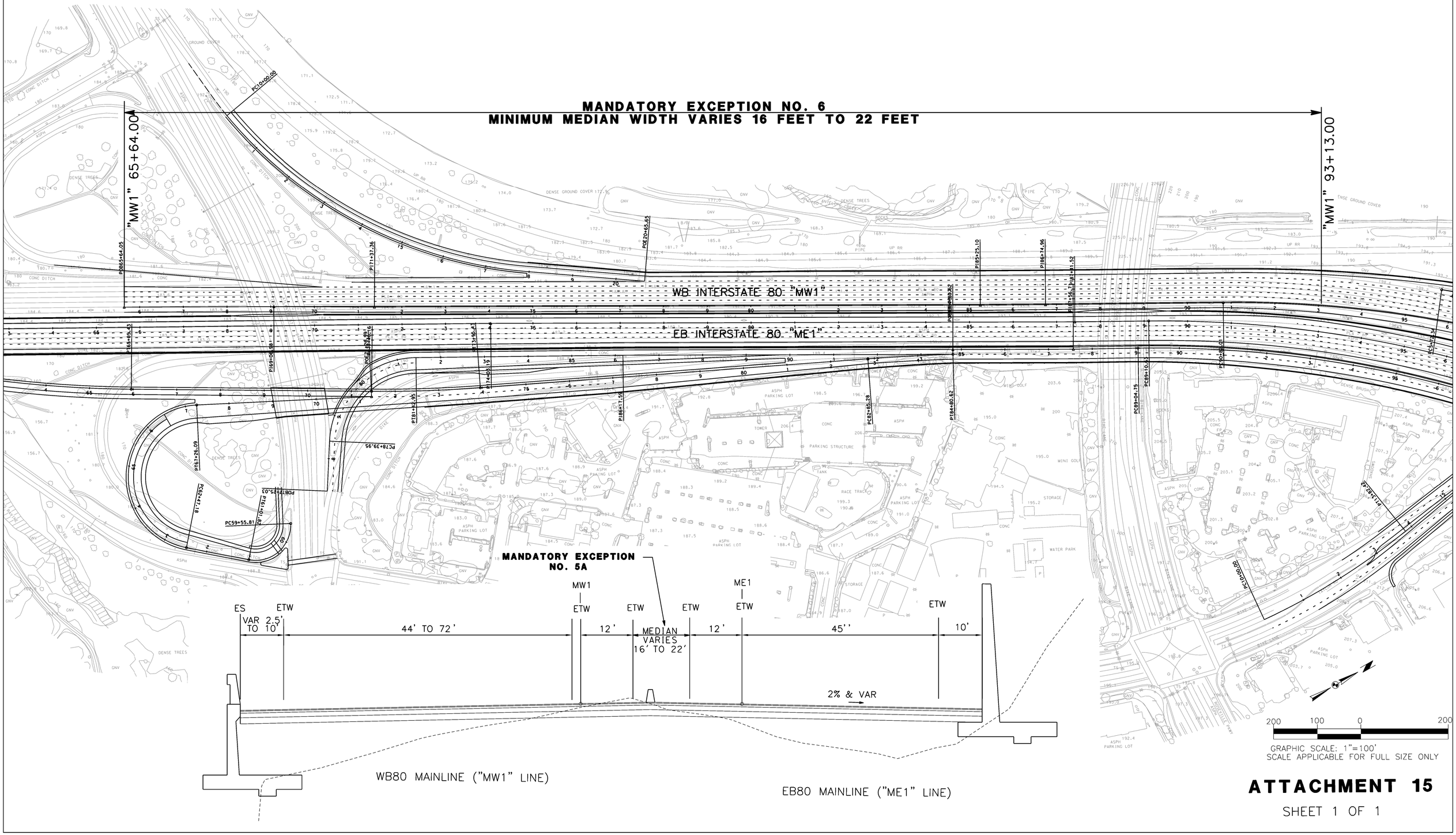
ATTACHMENT 13

SHEET 1 OF 1



ATTACHMENT 14

SHEET 1 OF 1

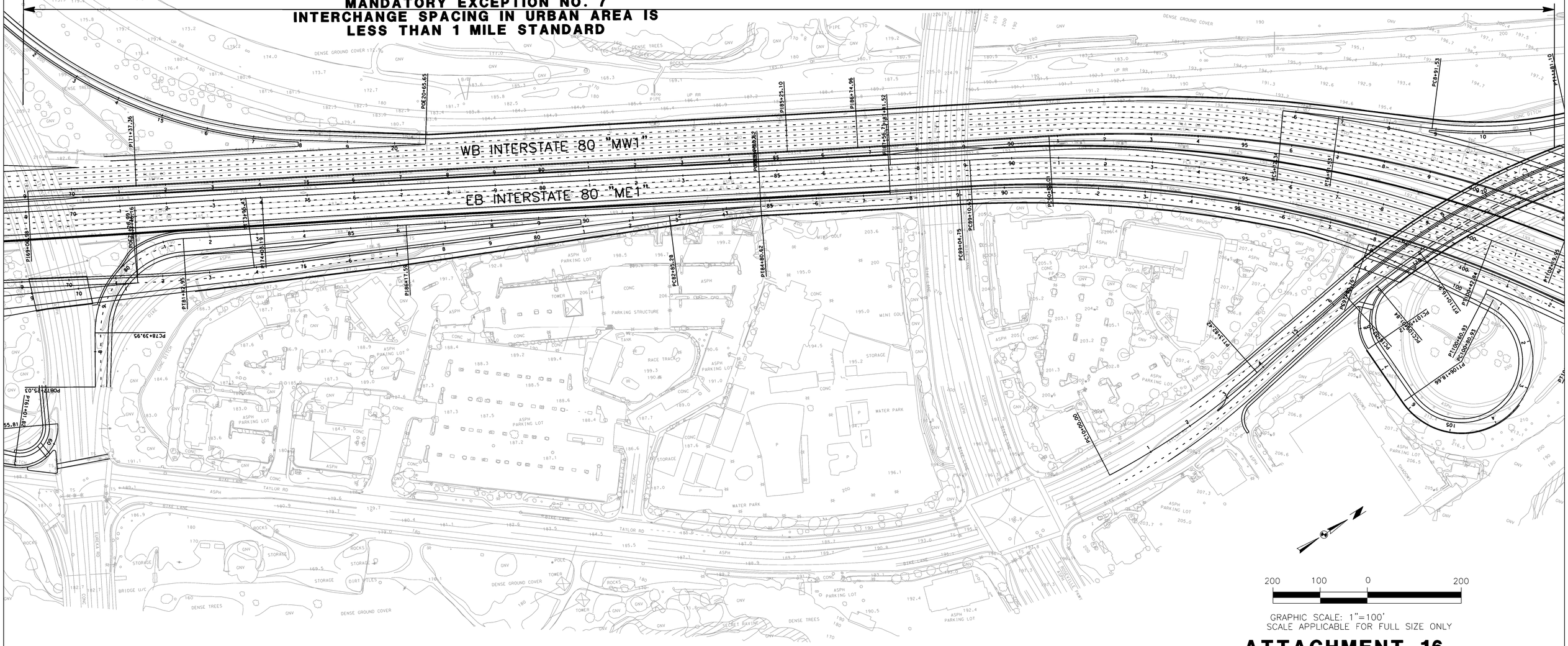


ATTACHMENT 15

SHEET 1 OF 1

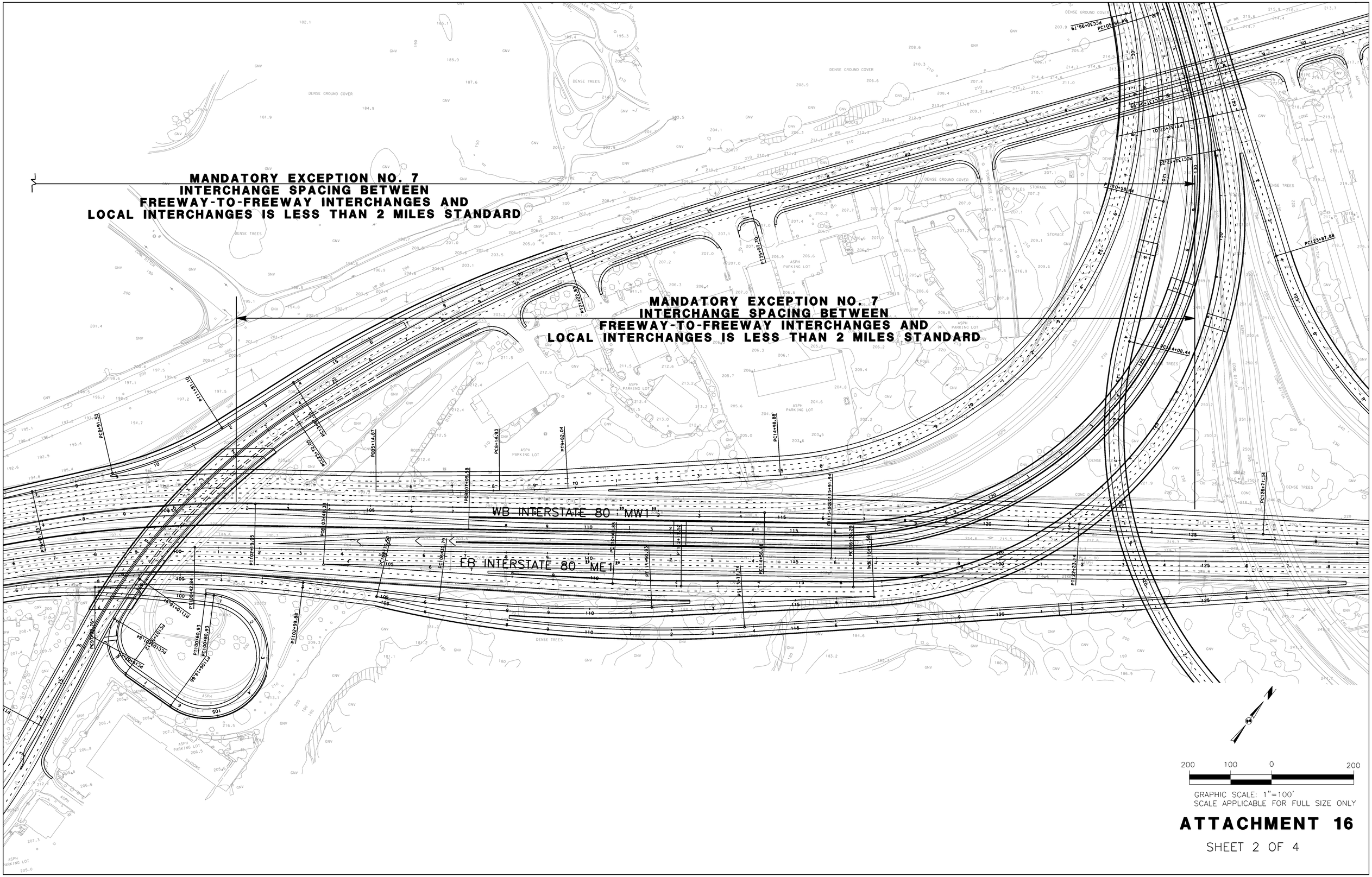
MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
OTHER INTERCHANGES IS LESS THAN 2 MILES STANDARDS

MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING IN URBAN AREA IS
LESS THAN 1 MILE STANDARD



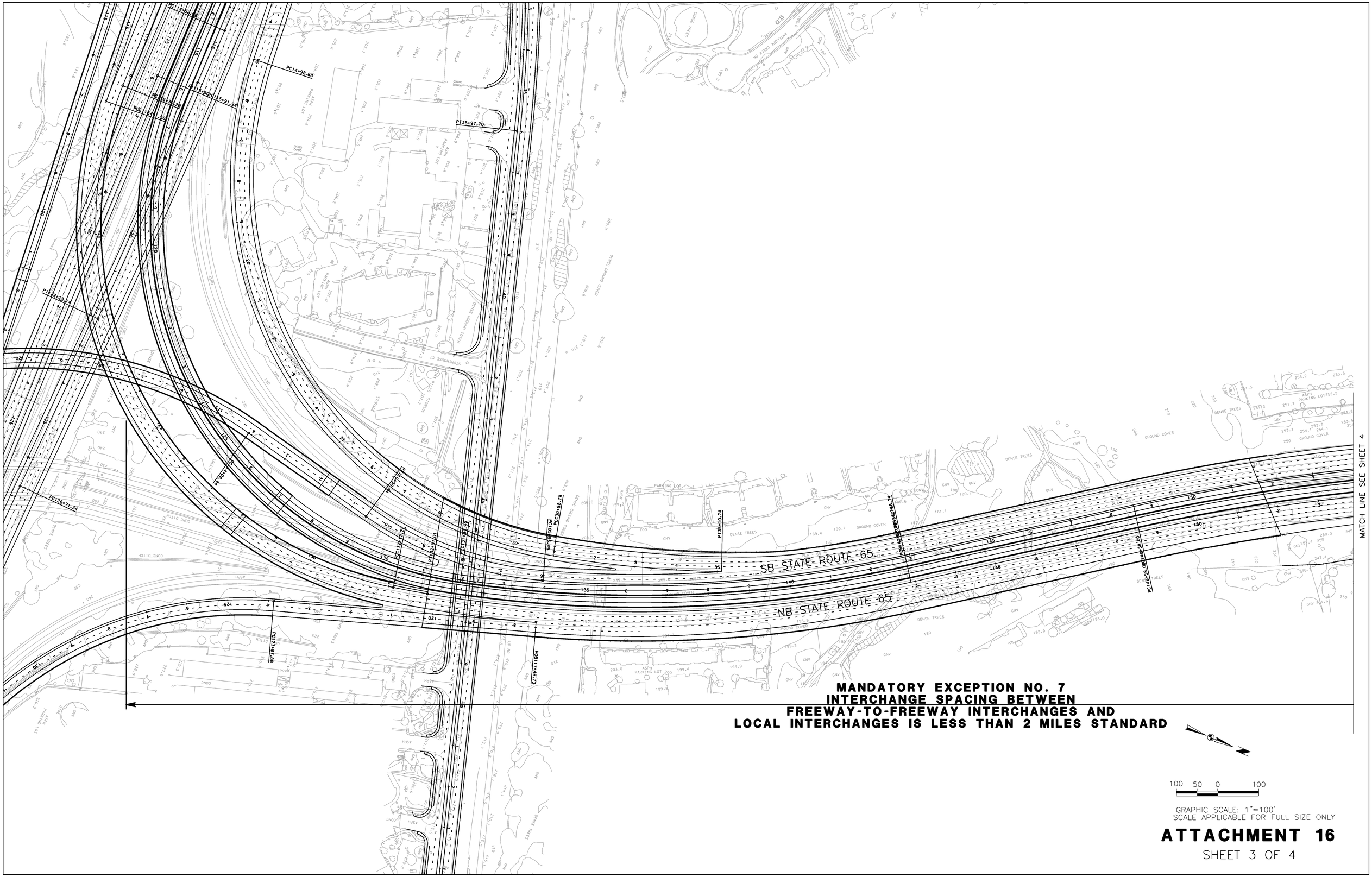
ATTACHMENT 16

SHEET 1 OF 4



ATTACHMENT 16

SHEET 2 OF 4



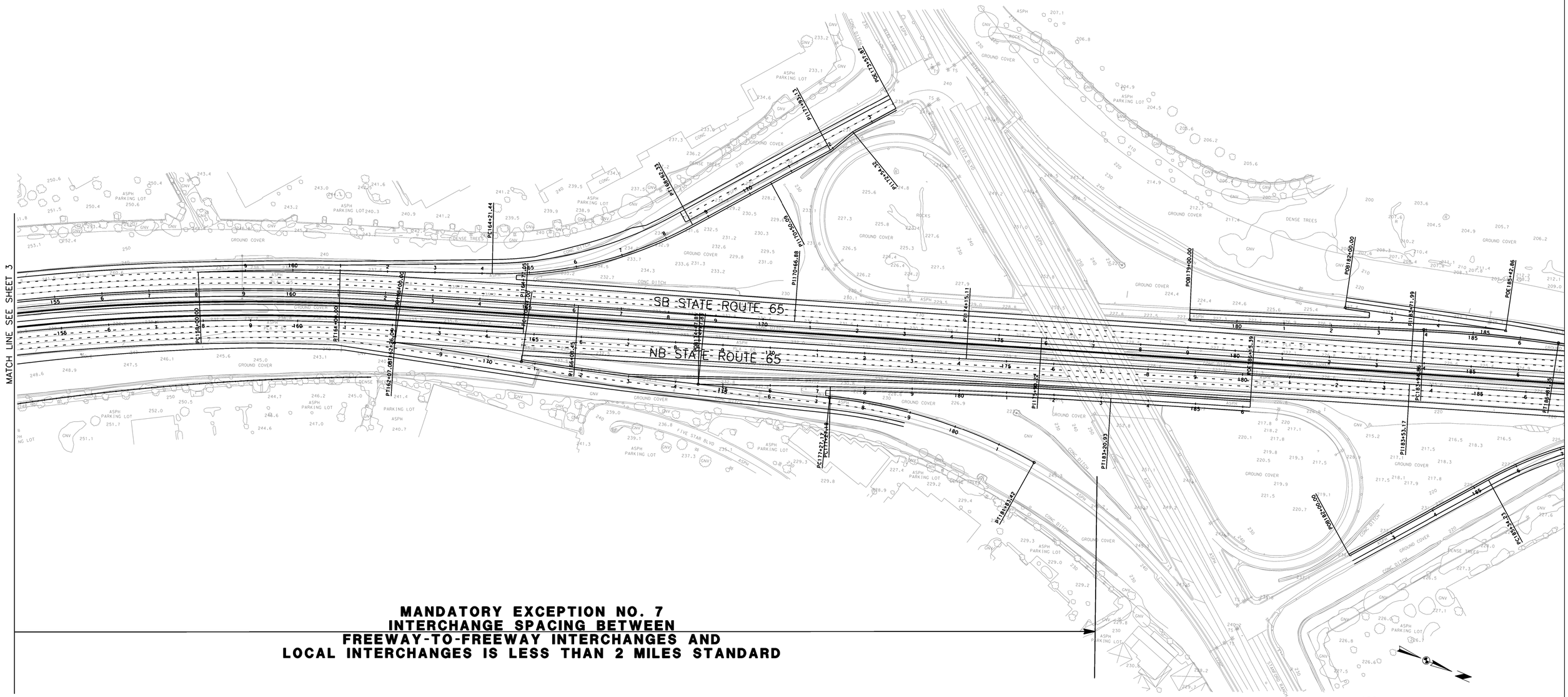
MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

100 50 0 100

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 16

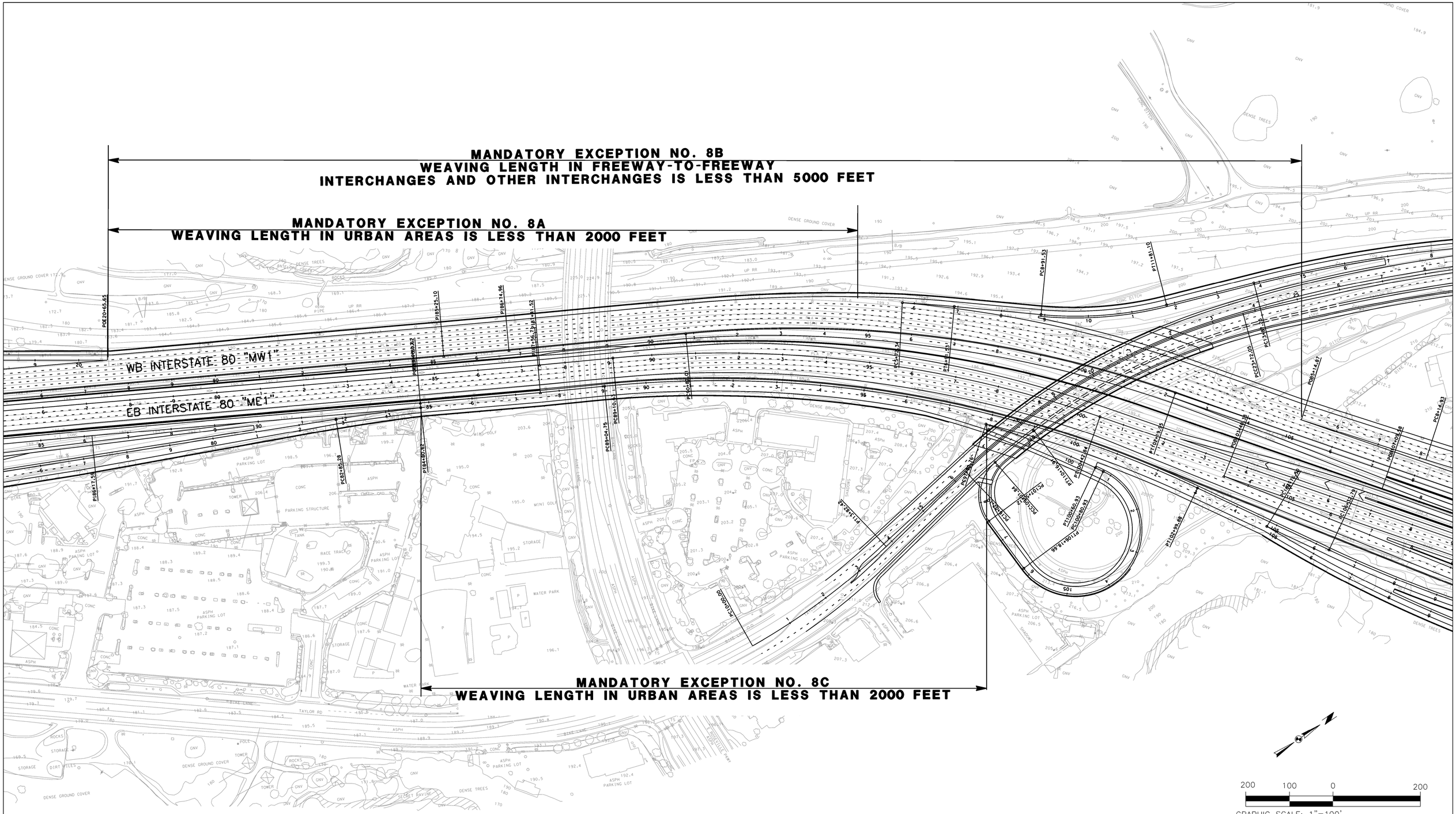
SHEET 3 OF 4



MANDATORY EXCEPTION NO. 7
INTERCHANGE SPACING BETWEEN
FREEWAY-TO-FREEWAY INTERCHANGES AND
LOCAL INTERCHANGES IS LESS THAN 2 MILES STANDARD

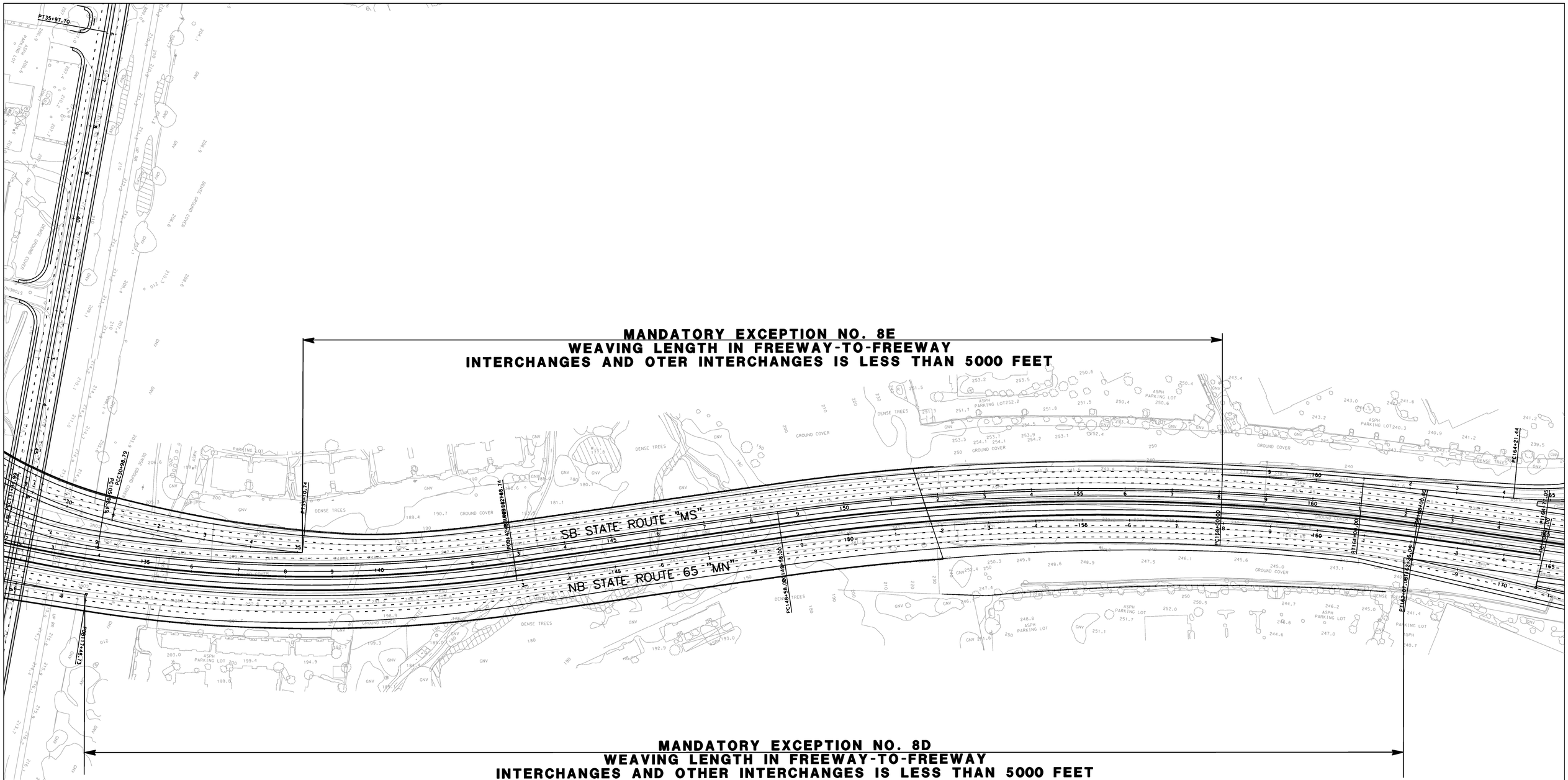
ATTACHMENT 16

SHEET 4 OF 4



ATTACHMENT 17

SHEET 1 OF 2



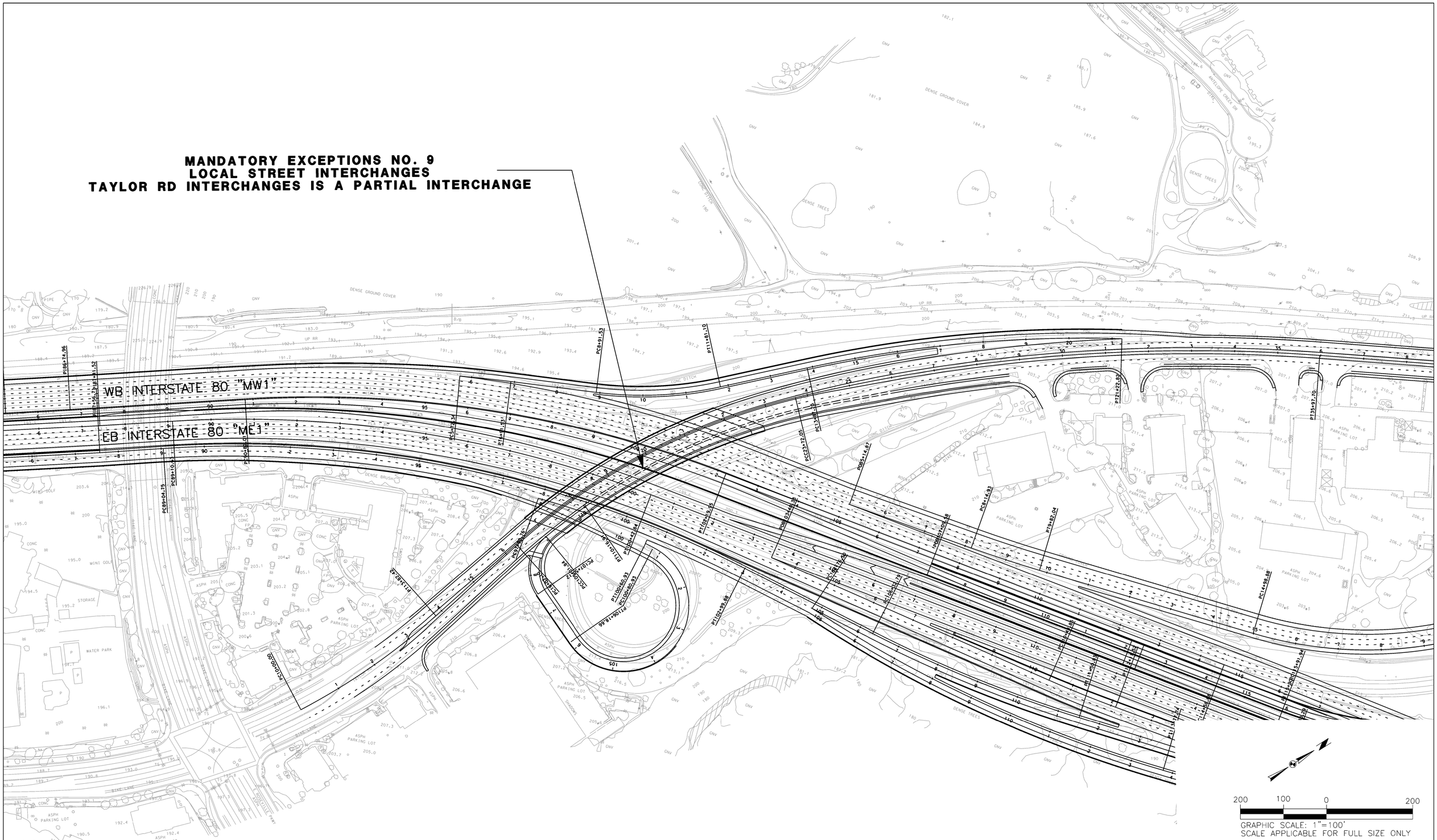
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 18

SHEET 2 OF 2

MANDATORY EXCEPTIONS NO. 9
LOCAL STREET INTERCHANGES
TAYLOR RD INTERCHANGES IS A PARTIAL INTERCHANGE



ATTACHMENT 19

SHEET 1 OF 1

Fact Sheet Exceptions to Advisory Design Standards

Prepared by:

_____
LAUREN PROCTOR, Registered Civil Engineer
CH2M HILL

Submitted by: _____ _____ (916) 286 0332
(Lauren Proctor), Design Engineer Date Telephone

Recommended
for Approval: _____ _____ _____
(Wayne Lewis), Project Manager Date Telephone

Concurrence by: _____ _____ _____
Date Telephone
Chief Office of Design

1. PROPOSED PROJECT

A. Project Description:

The project is located in Placer County in the cities of Roseville and Rocklin at the I-80/SR 65 interchange (see Attachment 1). The project limits consist of I-80 from the Douglas Blvd interchange to the Rocklin Rd interchange (PM 1.9 – 6.1) and SR 65 from the I-80 separation to the Pleasant Grove Blvd interchange (PM R4.8 – R7.3). The project area also includes various local roads specifically, portions of Galleria Blvd/Stanford Ranch Rd, Pleasant Grove Blvd, Eureka Rd/Atlantic St, East Roseville Parkway, and Taylor Rd.

The project would increase capacity at the interchange with the following improvement:

- Replace the eastbound I-80 to northbound SR 65 two-lane loop off-ramp with a three-lane direct flyover ramp.
- Construct new median HOV direct connectors from eastbound I-80 to northbound SR 65 and from southbound SR 65 to westbound I-80.
- Widen the southbound SR 65 connector to westbound I-80 to three lanes.
- Widen the southbound SR 65 connector to eastbound I-80 to two lanes.
- Widen the westbound I-80 connector to northbound SR 65 to two lanes.
- Widen I-80 mainline to add additional lanes and auxiliary lanes.
- Widen Taylor Rd to four lanes

B. Existing Highway:

The existing I-80/SR 65 freeway-to-freeway interchange was constructed in 1985.

I-80 is the principal east-west route in northern California, providing access across the Sierra Nevada for major good movement into the Sacramento and San Francisco Bay areas. The interstates accommodates high commute, interregional, and recreational traffic volumes, as well as high levels of truck freight traffic within the greater Sacramento region.

The existing I-80 mainline facility between Douglas Blvd and separation with SR 65 is a ten-lane freeway. East of the SR 65 separation, I-80 changes to 6 lanes. An existing bottleneck, on SR 65 at the merge between the EB I-80 to NB SR 65 and WB I-80 to NB SR 65 lanes causes traffic to queue back onto I-80 mainline in both directions.

SR 65 is an important interregional route that serves both local and regional traffic. The route serves as a major connector for both automobile and truck traffic originating from the I-80 corridor in the Roseville/Rocklin area to the SR 70/99 corridor in the Marysville/Yuba City area. SR 65 is a vital economic link from residential areas to

shopping and employment centers in southern Placer County. It is also an important route for transporting aggregate, lumber, and other commodities.

In the northbound direction, SR 65 begins at the I-80 separation as a three-lane facility joining the two eastbound I-80 to northbound SR 65 connector ramp lanes with the single lane westbound I-80 to northbound SR 65 connector ramp. The outside lane immediately ends along the East Roseville Viaduct and continues with two lanes through the Galleria Boulevard/Stanford Ranch Road interchange. A partial auxiliary lane begins prior to the Pleasant Grove Boulevard interchange and ends at the northbound off-ramp. Northbound SR 65 continues as a two lane facility with auxiliary lanes past the Pleasant Grove interchanges towards Lincoln.

In the southbound direction, SR 65 has two lanes and auxiliary lanes from Lincoln through the Pleasant Grove Boulevard interchange. A third southbound lane develops under the Galleria Boulevard/Stanford Ranch Road interchange prior to the southbound Galleria Boulevard on-ramp. The three lanes continue across the East Roseville Viaduct and split into four lanes, two serving the southbound SR 65 to westbound I-80 connector ramp, and two serving the southbound SR 65 to eastbound I-80 connector ramp.

C. Safety Improvements:

Project does not include any additional and/or specific safety improvements. Non-standard features of existing facilities to be modified, where feasible are upgraded to standards.

D. Total Project Cost

The estimated project cost for these improvements is $ 351,100,000. Below is the summary of project cost:

Roadway Items	$ 151.5 million
Structure Items	$ 194.0 million
Right-of-Way & Utility	$ 5.5 million
Total	**$ 351.1 million**

2. FEATURES REQUIRING AN EXCEPTION

A. Design Exception Feature #1

Non-standard Feature: Design Speed

HOV Connector and Branch Connectors are proposed to have a design speed of 45 mph. (See Attachment 2)

Standard for Which Exception Is Requested:

HDM Topic 504 – Interchange Design Standard, Index 504.4 – Freeway-to-Freeway Connections

"The design speed for single lane directional and all branch connections should be a minimum of 50 miles per hour. When smaller radius curve, with lower design speeds, are used the vertical sight distance should be consistent with approaching vehicle speeds."

Reason for Requesting Exception:

The reason for this design exception is to avoid impact to the existing East Roseville Viaduct structure, the property in the northeast quadrant of the interchange, and Secret Ravine on the south side of I-80.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct. A 2100' length of existing viaduct will need to be replaced to accommodate the larger radii ramp alignments along with reconstruction 300' of roadway to conform and impact to additional right of way in the northeast quadrant of the interchange.

Additional cost to make standard is $56 million.

B. Design Exception Feature #2

Non-standard Feature: Vertical Curve

The realigned Eureka EB off-ramp "E5" will have vertical curve lengths of 310 feet. (See Attachment 3)

Standard for Which Exception Is Requested:

HDM Topic 204 - Grade, Index 204.4 – Vertical Curves

"For algebraic grade differences of 2 percent and greater, and design speeds equal to or greater than 40 miles per hour, the minimum length of vertical curve in feet should be equal to 10v, where V = design speed."

Reason for Requesting Exception:

The reason for this design exception is to conform to existing conditions at the west end of the I-80 eastbound Taylor Road off-ramp bridge structure over Miner's Ravine and to avoid impacts to the environmental sensitive areas in the ravine.

Conformance to standard would require replacing existing structure to meet 500' length vertical curve.

Additional cost to make standard is $4.2 million.

C. Design Exception Feature #3

Non-standard Feature: Superelevation of Compound Curves

Location A: The proposed superelevation compound curves transition for HOV Connector, "HOV" line will not occur at the PCC. (See Attachment 4)

Location B: The proposed superelevation compound curves transition for SR 65 SB to I-80 WB Connector, "SW" line will occur within the second curve and not at the PCC. (See Attachment 4)

Standard for Which Exception Is Requested:

HDM Topic 202 - Superelevation, Index 202.6 Superelevation of Compound Curve

"Superelevation of compound curve should follow the procedure as shown in Figure 202.6. Where feasible, the criteria in Index 202.5 should apply."

Reason for Requesting Exception:

Location A: The reason for this design exception is to match the 4% slope of East Roseville Viaduct. The viaduct has a minimum clearance required over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. A 2,100' length of existing viaduct will need to be replaced along with reconstruction of 300' of roadway to conform.

Additional cost to make standard is $53 million.

Location B: The reason for this design exception is to match the 4% slope of East Roseville Viaduct. The viaduct has a minimum clearance required over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. A 2,100' length of existing viaduct will need to be replaced along with reconstruction of 300' of roadway to conform.

Additional cost to make standard is $53 million.

F. Design Exception Feature #4

Non-standard Feature: Compound Curves

Location A: The proposed HOV Connector, "HOV" line will have a compound curve of R = 880' less than 2/3 of R = 3,012'. (See Attachment 5)

Location B: The proposed I-80 EB to SR 65 NB Connector, "EN" line will have a compound curve of R = 900' less than 2/3 of R = 3,052. (See Attachment 6)

Location C: The proposed SR 65 SB to I-80 EB Connector, "SE" line will have a compound curve of R = 860' less than 2/3 of R = 2985' and the smaller radius follow the larger radius. (See Attachment 7)

Location D: The proposed SR 65 SB to I-80 WB Connector, "SW" line will have a compound curve of R = 930′ less than 2/3 of R = 2,750′ and the smaller radius follow the larger radius. (See Attachment 6)

Location E: The proposed SR 65 SB to I-80 EB Connector, "SE" line will have a compound curve of R = 930′ less than 2/3 of R = 3,000′. (See Attachment 8)

Standard for Which Exception Is Requested:

HDM Topic 203 – Horizontal Alignment, Index 203.5 – Compound Curves

"Where compound curves are necessary, the shorter radius should be at least two-thirds the longer radius when the shorter radius is 1,000 feet or less. On one-way roads, the larger radius should follow the smaller radius."

Reason for Requesting Exception:

Location A, B, C, and D: The reason for this design exception is due to existing East Roseville Viaduct. The existing viaduct has a 4% superelevation with minimum clearance over UPRR.

Conformance to standard would require changing the profile of SR 65 to increase the finish elevation by approximately 6 feet at Viaduct to be able to change horizontal alignment and maintain minimum clearance over UPRR. The 2,100' length of existing viaduct will need to be replace and reconstruct additional 300' of roadway conform.

Additional cost to make standard is $53 million.

Location E: The reason for this design exception is due to existing right of way and the proximity of Secret Ravine Creek.

Conformance to standard would require shifting the freeway entrance approximately 250 feet to the east and impact outside existing right of way. This will also impact Secret Ravine Creek, requiring a relocation/reconstruction of the creek which is an environmental sensitive area.

Additional cost to make standard is $12.3 million.

G. Design Exception Feature #5

Non-standard Feature: Median Width

Location A: The proposed I-80 mainline will have a median width vary from 22 feet to 36 feet between station "ME1" 128+73 and "ME1"134+47. (See Attachment 9)

Location B: The proposed SR 65 mainline will have a median width 22 feet between station "MS" 170+66 and "MS" 236+62. (See Attachment 10)

Standard for Which Exception Is Requested:

HDM Topic 305 - Median Standards, Index 305.1(1)(a) - Width, Freeway and Expressway: Urban Areas

The minimum median width for freeways and expressways in urban areas should be 36 feet."

Reason for Requesting Exception:

Location A: The reason for this design exception is to conform to existing condition at the end of the project limit.

Conformance to standard would require widening I-80 to Foresthill Rd, approximately 15 mile from I-80/SR 65 Interchange, where the median is 36 feet wide.

Additional cost to make standard is greater than $100 million.

Location B: The reason for this design exception is to conform to the existing planned typical section and the proposed SR 65 Capacity and Operations Improvement project, avoiding additional impacts to roadways, structures and property outside the proposed right of way.

Conformance to standard would require reconstructing Galleria Blvd/Stanford Ranch Rd Overcrossing, realigning all ramps, and change the proposed typical section for SR 65 Capacity and Operations Improvement project to 36 feet.

Additional cost to make standard is $14 million.

H. Design Exception Feature #6

Non-standard Feature: Gore Width

The proposed gore width for Taylor WB on-ramp will be 18 feet. (See Attachment 11)

Standard for Which Exception Is Required

HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two-lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate."

"Standard gore width is 23 feet."

Reason for Requesting Exceptions

The reason for the design exception is due to the mainline I-80 sloping to the opposite direction. A standard 23 feet gore would require an alignment with a longer tangent and a physical gore area shifted further west to avoid a grade break of greater than 10%. It would also shorten the weaving length available the Atlantic Street off-ramp. Due to

the location being immediately adjacent and parallel to UPRR on the north side, all improvement to conform to full standard would have to be to the south side of I-80. Conformance to standard would require realignment of I-80 to the south, including:

- Reconstruct Roseville Parkway Overcrossing
- Reconstruct Eureka Rd/Atlantic St Interchange
- Reconstruct Lead Hill Blvd Overcrossing
- Acquire additional right of way
- Relocate businesses including a hotel, a miniature golf course, parking facilities, and restaurant
- Relocate additional OHP Transmission towers

Additional cost to make standard is $64 million.

H. Design Exception Feature #7

Non-standard Feature: Diverge Angle for Off-ramp

Location A: The proposed diverged angle from I-80 mainline to collector-distributor road "CD1" is 2 degree. (See Attachment 12)

Location B: The proposed diverged angle from collector-distributor road "CD1" to Eureka Rd EB off-ramp "E5" is 2 degree. (See Attachment 12)

Standard for Which Exception Is Required

HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"Design of freeway entrances and exits should conform to the standard designs illustrated in Figure 504.2A-B (single lane), and Figure 504.3L (two-lane entrances and exits) and/or Figure 504.4 (diverging branch connections), as appropriate."

Reason for Requesting Exceptions

The reason for this design exception is to conform to existing condition and to avoid impact to existing structures and right of way.

Conformance to standard would require to shift "CD1" and "E5" a minimum of 200 feet to the west and replace the existing eastbound Eureka Rd off-ramp structure over the ravine and shorten the length of auxiliary lane between the Douglas Blvd on-ramp and the off-ramp, affecting weaving operations negatively.

Additional cost to make standard is $7.5 million.

H. Design Exception Feature #8

Non-standard Feature: Deceleration Length for Off-ramp

The proposed Eureka EB off-ramp "E5" will have a deceleration length of 65 feet. (See Attachment 12)

Standard for Which Exception Is Required

HDM Topic 504 – Interchange Design Standards, Index 504.2 (2) Freeway Entrances and Exits: Standard Designs

"The minimum deceleration length shown on Figure 504.2B shall be provided prior to the first curve beyond the exit nose to assure adequate distance for vehicle to decelerate before entering the curve."

"The same standard should apply for the first curve after the exit from a collector-distributor road."

Reason for Requesting Exceptions

The reason for this design exception is to conform to existing condition and to avoid impact to existing structures and right of way.

Conformance to standard would require to shift "CD1" and "E5" a minimum of 200 feet to the west and replace the existing eastbound Eureka Rd off-ramp structure over the ravine and shorten the length of auxiliary lane between the Douglas Blvd on-ramp and the off-ramp, affecting weaving operations negatively.

Additional cost to make standard is $7.5 million.

I. Design Exception Feature #9

Non-standard Feature: Lane Requirement on Off-ramp

Location A: NB off-ramp to Galleria Blvd, "G2" will be a single-lane ramp 1,660 feet. (See Attachment 13)

Location B: SB off-ramp to Stanford Ranch Rd, "G4" will be a single-lane ramp 1,650 feet. (See Attachment 13)

Standard for Which Exception Is Required

HDM Topic 504 - Interchange Design Standards, Index 504.3(5) - Ramps: Single-lane Ramps

"If the length of a single lane ramp exceeds 1,000 feet, an additional lane should be provided on the ramp to permit passing maneuvers."

Reason for Requesting Exceptions

Location A: The reason for this design exception is due to existing condition. The proposed ramp is consistent with the existing ramp length. An additional lane for this ramp would impact the existing structure.

Conformance to standard would require replacing Galleria Blvd/Stanford Ranch Rd Overcrossing and also impact traffic circulation.

Additional cost to make standard is $12 million.

Location B: The reason for this design exception is due to existing condition. The proposed ramp is consistent with the existing ramp length. An additional lane for this ramp would impact the existing structure.

Conformance to standard would require replacing Galleria Blvd/Stanford Ranch Rd Overcrossing and also impact traffic circulation.

Additional cost to make standard is $12 million.

J. Design Exception Feature #10

Non-standard Feature: Side Slope

Location A: The propose side slope along SR 65 SB mainline from station "MS" 217+00 to station "MS" 222+00 will be 2:1. (See Attachment 14)

Location B: The propose side slope along I-80 WB to SR 65 NB Connector from station "WN" 120+24 to station "WN" 123+88 will be 2:1 slope. (See Attachment 15)

Standard for Which Exception Is Required

HDM Topic 304 - Side Slopes, Index 304.1 - Side Slope Standards

"For a new construction, widening, or where slopes are otherwise being modified, embankment (fill) slopes should be 4:1 or flatter."

Reason for Requesting Exceptions

Location A: The reason for this design exception is to avoid impact to existing culvert, creek and the environmental sensitive area. The propose slope is matching the existing 2:1 slope condition on this culvert area.

Conformance to standard would require an additional retaining wall along this location.

Additional cost to make standard is $0.4 million.

Location B: The reason for this design exception is to avoid additional right of way and impacts to the existing storage facility.

Conformance to standard would require an additional retaining wall along this location.

Additional cost to make standard is $1.0 million.

3. TRAFFIC DATA

Existing and design year (2040) average daily traffic (AADT) and peak-hour volumes are summarized in Table 1:

Table 1
Summary of Annual Average Daily Traffic

Freeway Segment	Existing		2040	
	AADT	Peak Hr	AADT	DHV
Interstate 80				
EB Douglas Blvd to Eureka Rd	77500	6518	102100	9140
EB Eureka Rd to Taylor Rd	79350	6705	108900	7460
EB Taylor Rd to SR 65	75000	6196		
EB SR 65 to Rocklin Rd	54800	4591	68650	6110
WB Rocklin Rd to SR 65	54800	4129	68650	5140
WB SR 65 to Taylor Rd	75000	5812	106500	8030
WB Taylor Rd to Atlantic St	79350	6326	108900	8720
State Route 65				
NB I-80 to Stanford Ranch Rd	53050	4359	77800	8000
NB Stanford Ranch Rd to Pleasant Grove Blvd	52200	4138	77400	7470
SB Pleasant Grove Blvd to Galleria Blvd	52200	4079	77400	6470
SB Galleria Blvd to I-80	53050	3975	77800	6750
Ramp/Connector Segment	**Existing**		**2040**	
	AADT	**Peak Hr**	**AADT**	**DHV**
Interstate 80				
EB Eureka Rd Off-ramp	10940	1094	13600	1360
EB Eureka Rd Loop On-ramp	2290	229	3100	310
EB Eureka Rd on-ramp	8990	899	15200	1520
EB Taylor Rd loop Off-ramp	5090	509	5800	580
EB I-80 to NB SR 65 loop Connector	31870	3187	47500	4750
WB I-80 to NB SR 65 Connector	11720	1172	20700	2070
WB Taylor Rd On-ramp	5140	514	7300	730
WB Atlantic St Off-ramp	3730	373	5800	580
WB Atlantic St Loop Off-ramp	8260	826	12000	1200
WB Atlantic St On-ramp	9830	983	12300	1230
State Route 65				
NB Stanford Ranch Rd Off-ramp	11460	1146	16500	1650
NB Stanford Ranch Rd On-ramp	9250	925	11200	1120
SB Pleasant Grove Blvd On-ramp	5840	584	11100	1110
SB Galleria Blvd Off-ramp	8000	800	15600	1560
SB Galleria Blvd On-ramp	9820	982	18400	1840
SB SR 65 to EB I-80 Connector	15820	1582	25900	2590
SB SR 65 to WB I-80 Connector	28310	2831	36500	3650

Data provided by Fehr & Peers

4. ACCIDENT ANALYSIS

The actual accident rates for I 80 for the 3-year period (July 1, 2009 to June 30, 2012) from PM 1.90 to 6.10 and SR 65 from PM 4.86 to 7.30 were compared to the statewide average accident rates for similar facilities. Following are accident data from Caltrans' Traffic Accident Surveillance and Analysis System (TASAS) – Transportation System Network (TSN) Table B summarized in Table 2.

Table 2
Actual and Average Accident Rates from 7/1/2009 to 6/30/2012

Direction/ Location	Number of Accidents				Accident Rates					
					Actual			Average		
	Total	F*	I**	F+I***	F*	F+I***	Total	F*	F+I***	Total
WB & EB I-80 Mainline (PM 1.90 to 6.10)	658	5	228	233	0.008	0.37	**1.05**	0.004	0.28	0.91
NB & SB SR 65 Mainline (PM 4.86 to 7.30)	165	2	55	57	0.007	0.21	0.61	0.006	0.33	1.03
I-80 EB off to Atlantic/Taylor (PM 2.85)	13	0	3	3	0	0.23	**1.01**	0.003	0.35	1.01
I-80 EB loop off to Taylor Rd (PM 3.60)	7	0	3	3	0	0.62	**1.44**	0.003	0.30	1.06
I-80 WB on from Taylor Rd (PM 3.61)	2	0	0	0	0	0	0.36	0.003	0.18	0.57
I-80 WB on from SR 65 SB (PM 3.95)	18	0	5	5	0	0.19	**0.70**	0.003	0.11	0.32
I-80 EB off to SR 65 NB (PM 4.22)	32	0	10	10	0	0.31	**0.98**	0.004	0.20	0.68
I-80 WB off to SR 65 NB (PM 4.32)	9	1	5	6	0.069	0.41	**0.62**	0.005	0.13	0.38
I-80 EB on from SR 65 SB (PM 4.50)	2	0	2	2	0	0.16	0.16	0.003	0.14	0.41

SR 65 NB loop off to Galleria Blvd (PM 5.81)	5	0	1	1	0	0.14	0.70	0.003	0.30	1.06
SR 65 SB loop off to Stanford Ranch (PM 6.04)	4	0	2	2	0	0.70	**1.39**	0.003	0.30	1.06

Note: Accident rates on mainline are per million vehicle miles.

* Fatalities
** Injuries
*** Fatalities plus injuries

Bold and underlined font indicates actual rates are higher than average

Mainline I 80

A total of 658 accidents were reported within the proposed project limits in both directions of I-80, including 5 fatalities and 228 injuries. As shown in Table 2, the actual accident rate on I 80 is 1.05, which is higher than the statewide average of 0.91 for a similar type facility. The accident rates for fatal and injury accidents are also higher than comparable state averages.

During the three-year period, the types of accidents that occurred on I 80 were as follows: 408 rear-ends (62.0%); 132 sideswipes (20.1%); 79 hit objects (12.0%); 13 broadsides (2.0%); 10 overturns (1.5%); 8 other factors (1.2%) and 6 auto-pedestrian (0.9%).

The majority of the accidents took place in the left, right or interior lanes, with only 11.5% of the accidents occurring in the left or right shoulder areas or the recovery areas beyond the shoulders, where the propose design feature #3 in this Fact Sheet is located. Rear-end accidents account for 62.0% of all the accidents, which are generally congestion-related. The next most frequent accident types are side-swipe and hit object (32.1%). The other accident types are collectively less than 10% of all accidents.

The proposed addition of general purpose lanes and HOV are expected to improve traffic operations within this area.

Mainline SR 65

A total of 165 accidents were reported within the proposed project limits in both directions of SR 65, including 2 fatalities and 55 injuries. As shown in Table 2, the actual accident rate on SR 65 is 0.61, which is lower than the statewide average of 1.03 for a similar type facility. The accident rates for fatal and injury accidents are also lower than comparable state averages.

The most frequent accident type is a rear end accident which account for 69.1% of all the accidents, which is typical of congested related. The next most frequent accident types are side-swipe and hit object.

The proposed addition of general purpose and HOV lanes are expected to improve traffic operations within this area.

80/65 Connectors

A total of 60 accidents were reported at 4 different connector locations. There are 3 locations that have accident rates higher than the statewide average for a similar type of facility, as shown in Table 2. In addition, the proposed improvements are anticipated to provide improved operational conditions through addition of HOV lanes and reconfigurations of this freeway to freeway facilities, thereby helping to reduce the accident frequency at these locations.

The 3 locations that have actual accident rates higher than the statewide rate are as follows:

80 Westbound Connector from 65 Southbound (PM 3.95)

A total of 18 accidents were reported with no fatalities. The actual accident rate on the connector is 0.70, which is higher than the statewide average of 0.32 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects and sideswipe type of collisions. These accidents are consistent with short weaving distances and number of lanes and turning roadways of the existing facilities.

80 Eastbound Connector to 65 Northbound (PM 4.22)

A total of 32 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.98, which is higher than the statewide average of 0.68 for a similar type facility.

The types of accidents mostly involve passenger cars and pickup trucks that were speeding and made improper turn type collisions, resulting in rear-end, hit objects, sideswipe, and head-on type of collisions. These accidents are consistent with number of lanes, turning roadways and configuration of the existing facilities.

80 Westbound Connector to 65 Northbound (PM 4.32)

A total of 9 accidents were reported at this location with no fatalities. The actual accident rate on the connector is 0.62, which is higher than the statewide average of 0.38 for a similar type facility.

The types of accidents involved mostly passenger cars that were speeding, under the influence of alcohol and made improper turns, resulting in rear-end, hit objects and side swipe type of collisions. These accidents are consistent with number of lanes and turning roadways of the existing facilities.

The project proposed to add an additional lane to each of connector and a separate HOV lane connector from I-80 to SR 65 and SR 65 to I-80. It will also eliminate the existing loop connector from WB I-80 to NB SR 65. All these improvements are expected to improve traffic operations of this freeway-to-freeway interchange.

I-80 EB Off-ramp to Atlantic St/Taylor Rd Intersection (PM 2.85)

A total of 13 accidents were reported with no fatalities. The actual accident rate on the off-ramp is 1.01, which is the statewide average for a similar type facility.

The types of accidents involve passenger cars that were speeding and involved in rear-end and hit objects type collisions. These accidents are consistent with short weaving distances, number of ramps and turning roadways, and short acceleration/deceleration distances of the existing facilities.

The proposed CD road, auxiliary lane, and ramp reconstruction will provide improved operational conditions and is anticipated to reduce the accident frequency at this location to less than the statewide rate.

I-80 EB Loop Off-ramp to Taylor Rd (PM 3.60)
A total of 7 accidents were reported at this location with no fatalities. The actual accident rate on the off-ramp is 1.44, which is higher than the statewide average of 1.06 for a similar type facility.

The types of accidents involved mostly passenger cars that were under the influence of alcohol and made improper turns, resulting in the vehicles hitting objects and overturn. These accidents are consistent with short weaving distance and short deceleration distances, and short separation distances of the existing facilities.

The proposed project adds CD road and separate the ramps movement from mainline. The proposed ramp reconstruction will provide improved operational conditions and is anticipated to reduce the accident frequency at this location to less than the statewide rate.

SR 65 SB Loop Off-ramp to Stanford Rd (PM 6.04)
A total of 4 accidents were reported at this location with no fatalities. The actual accident rate on the on-ramp is 1.39, which is higher than the statewide average of 1.06 for a similar type facility.

The types of accidents involved passenger cars that were speeding and made improper turns, resulting in rear-end type of collisions. These accidents are consistent with configuration of the turning roadways of the existing facilities.

There is a separate project, SR 65 Capacity and Operations Improvement project that will add an auxiliary lane.

5. INCREMENTAL IMPROVEMENTS

None

6. FUTURE CONSTRUCTION

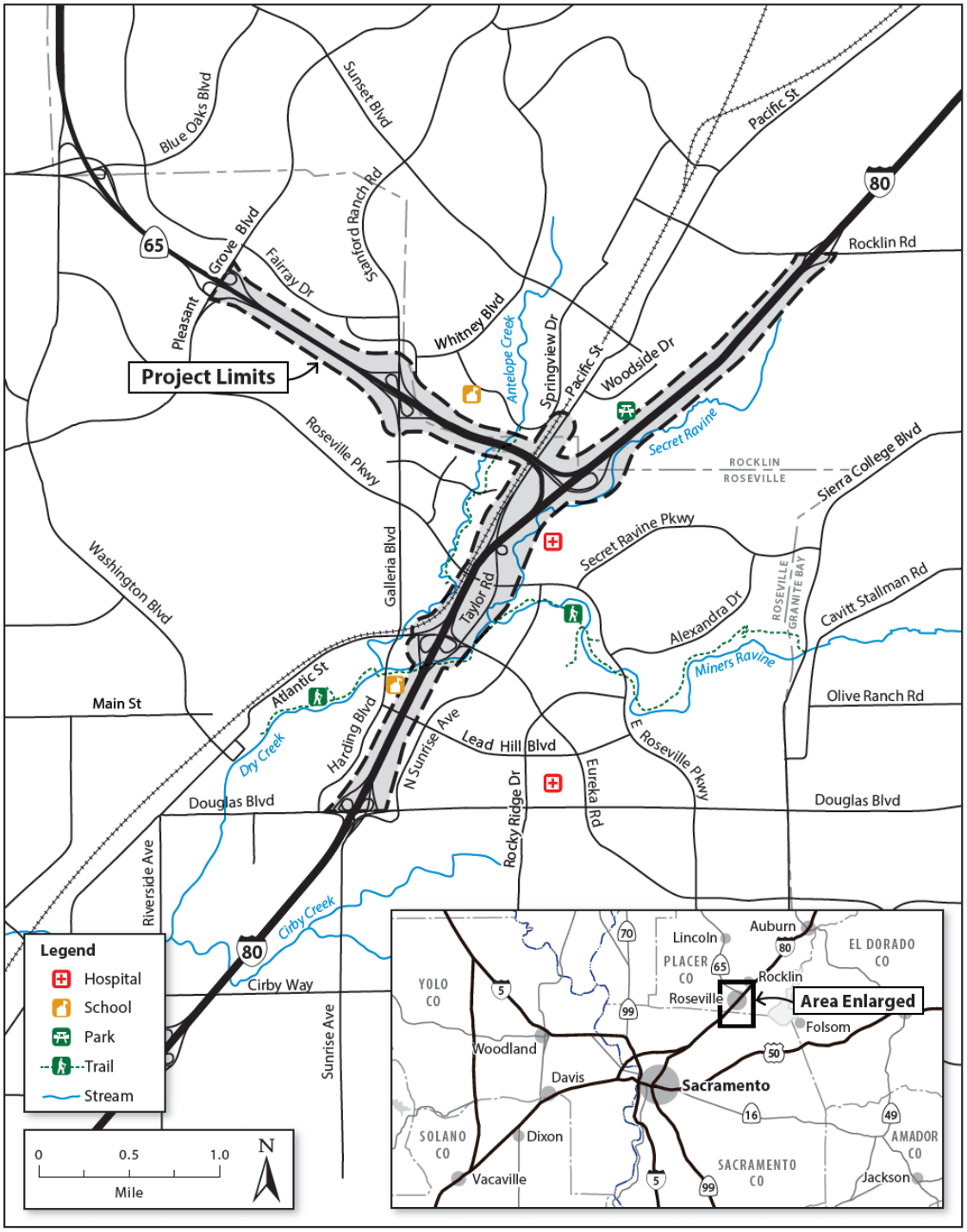
There is a proposed “SR 65 Capacity and Operations Improvement project” which is in the PA&ED phase. This project will widen SR 65 to the north adding general purpose, HOV lanes, and auxiliary lanes.

7. PROJECT REVIEWS, CONCURRENCE

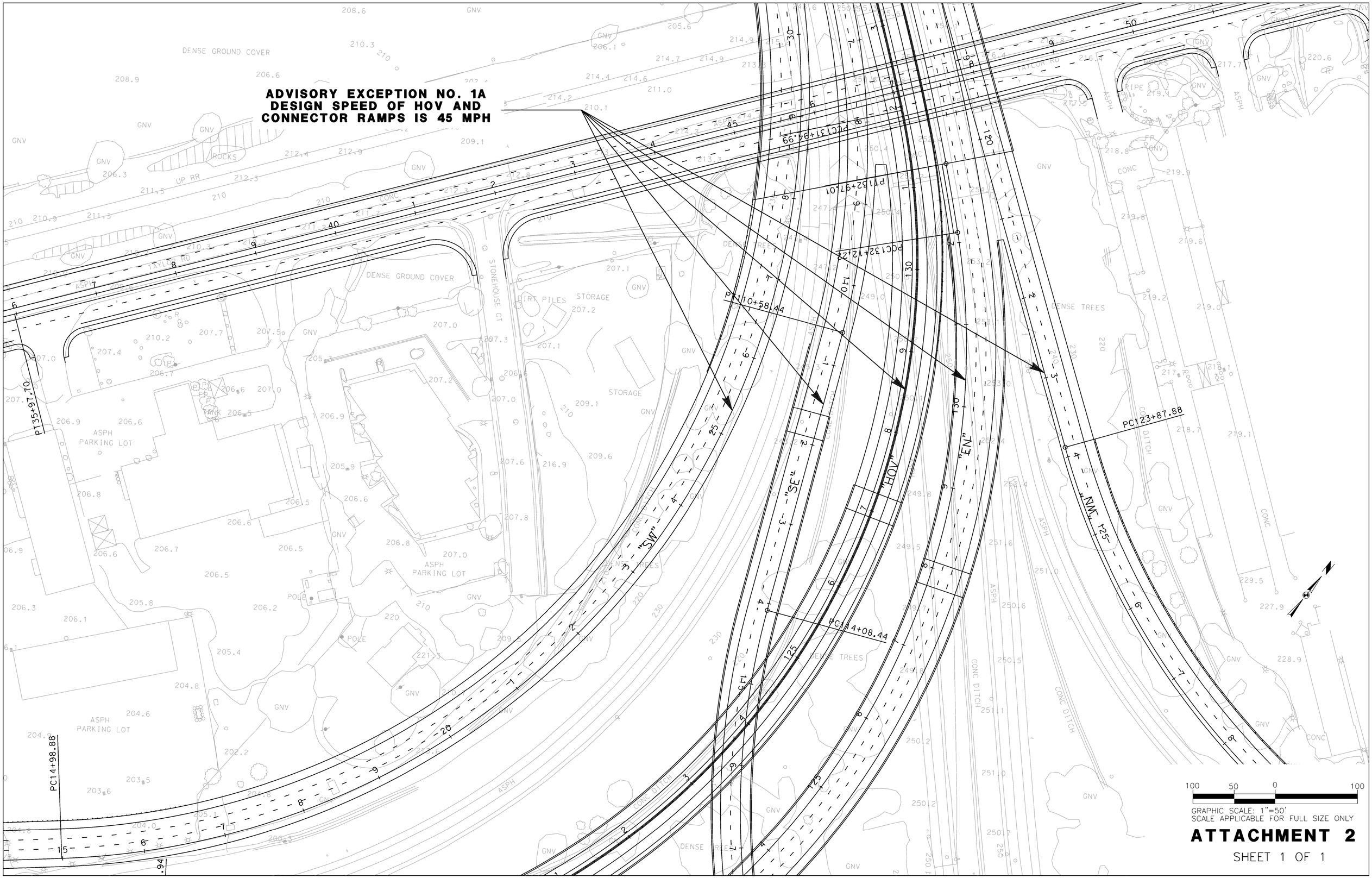
These design exceptions have been reviewed and concurred by XXXXX, HQ Design Reviewer on April 201X.

8. ATTACHMENTS

1) Attachment 1 - Vicinity Map
2) Attachment 2 - Feature #1 Design Speed
3) Attachment 3 - Feature #2 Vertical Curve
4) Attachment 4 - Feature #3 Superelevation of Compound Curves
5) Attachment 5 - Feature #4 Location A - Compound Curves
6) Attachment 6 - Feature #4 Location B, D - Compound Curves
7) Attachment 7 - Feature #4 Location C - Compound Curves
8) Attachment 8 - Feature #4 Location E - Compound Curves
9) Attachment 9 - Feature #5 Location A – Median Width
10) Attachment 10 - Feature #5 Location B – Median Width
11) Attachment 11 - Feature #6 Gore Width
12) Attachment 12 - Feature #7, #8 Diverge Angle and Deceleration Length for off-ramp
13) Attachment 13 - Feature #9 Lane Requirement on Off-ramp
14) Attachment 14 - Feature #10 Location A – Side Slope
15) Attachment 15 - Feature #10 Location B – Side Slope

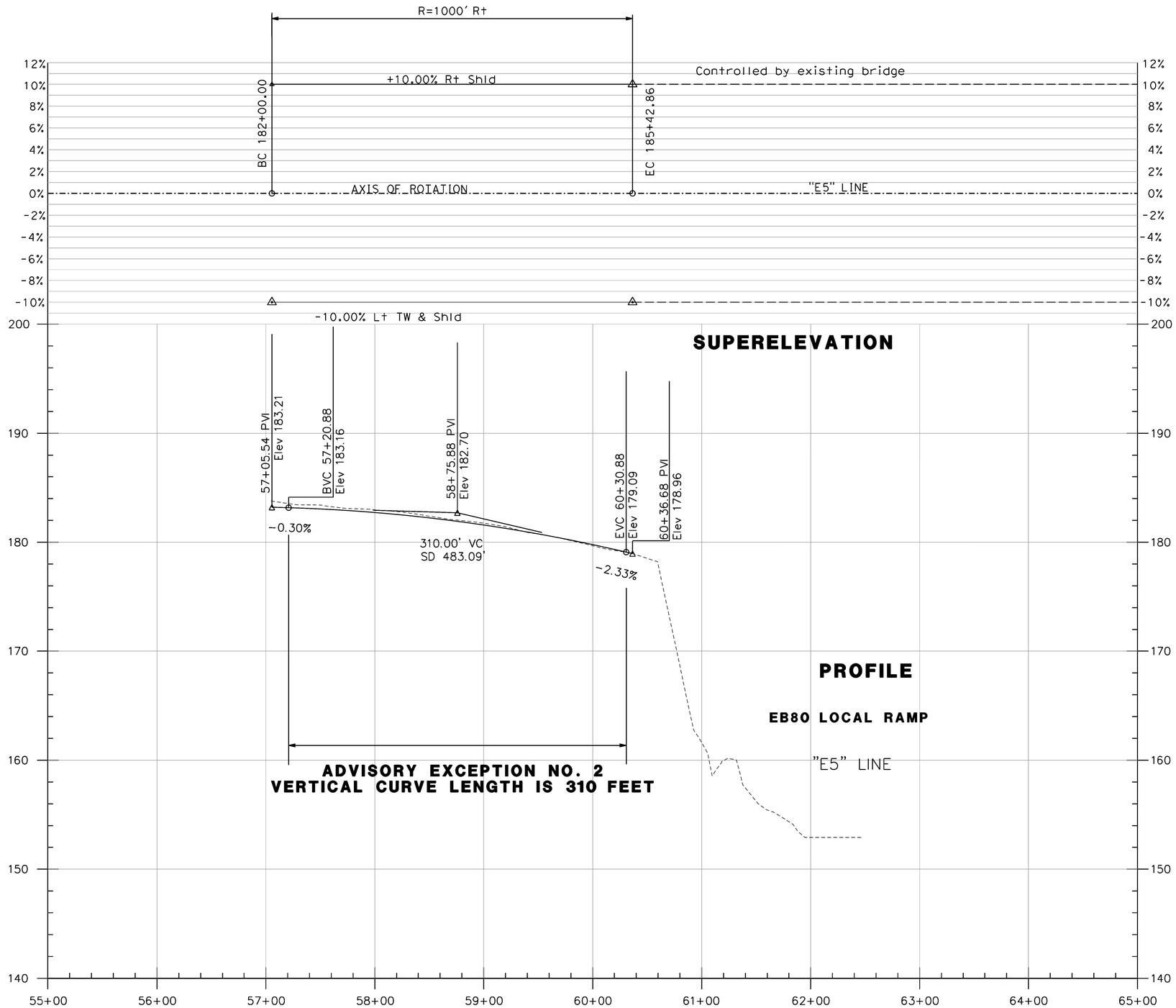


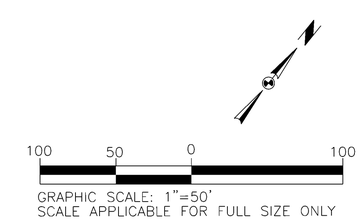
ATTACHMENT 2
VICINITY MAP



ATTACHMENT 2

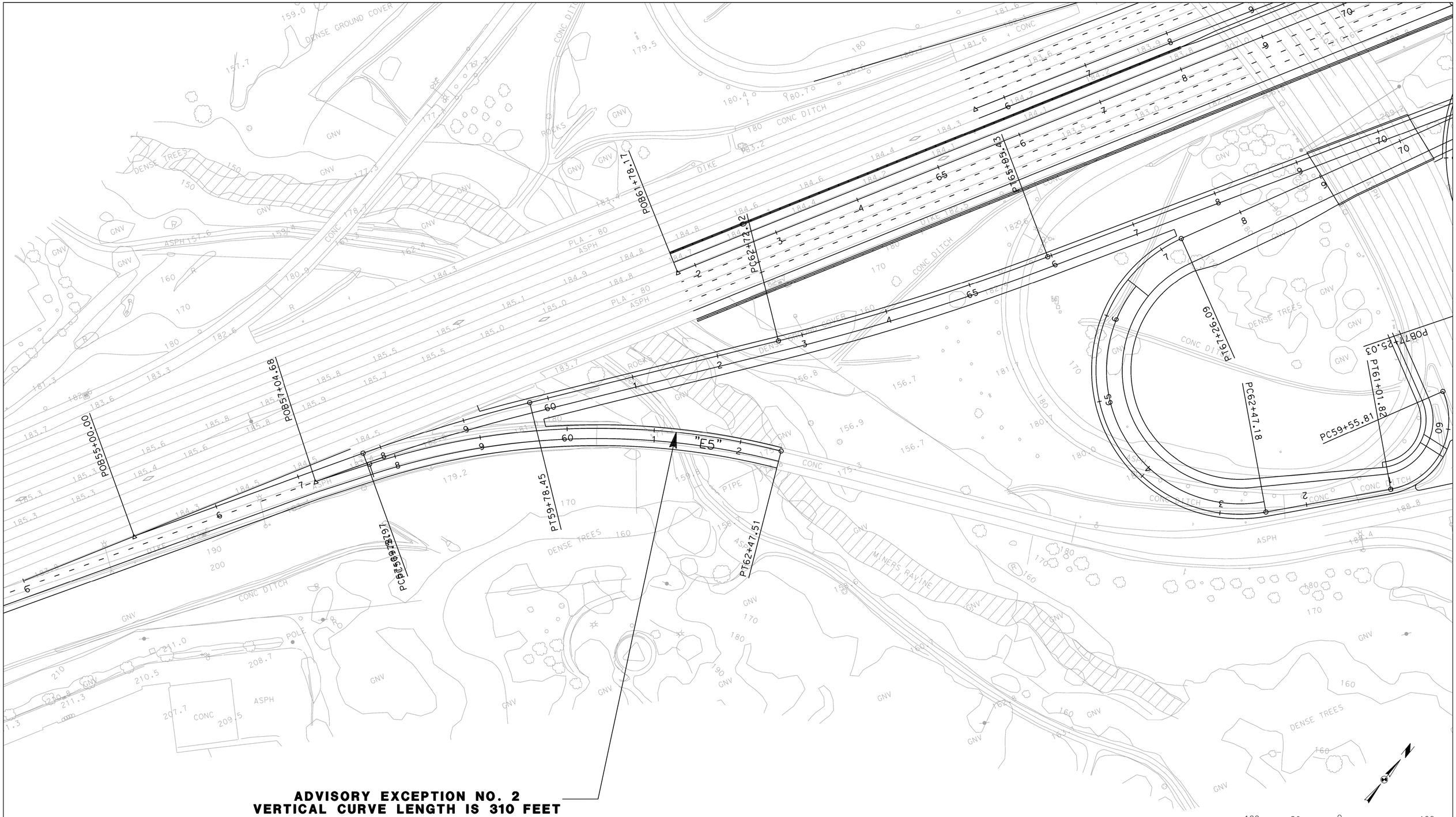
SHEET 1 OF 1





ATTACHMENT 3

SHEET 1 OF 2



ADVISORY EXCEPTION NO. 2
VERTICAL CURVE LENGTH IS 310 FEET

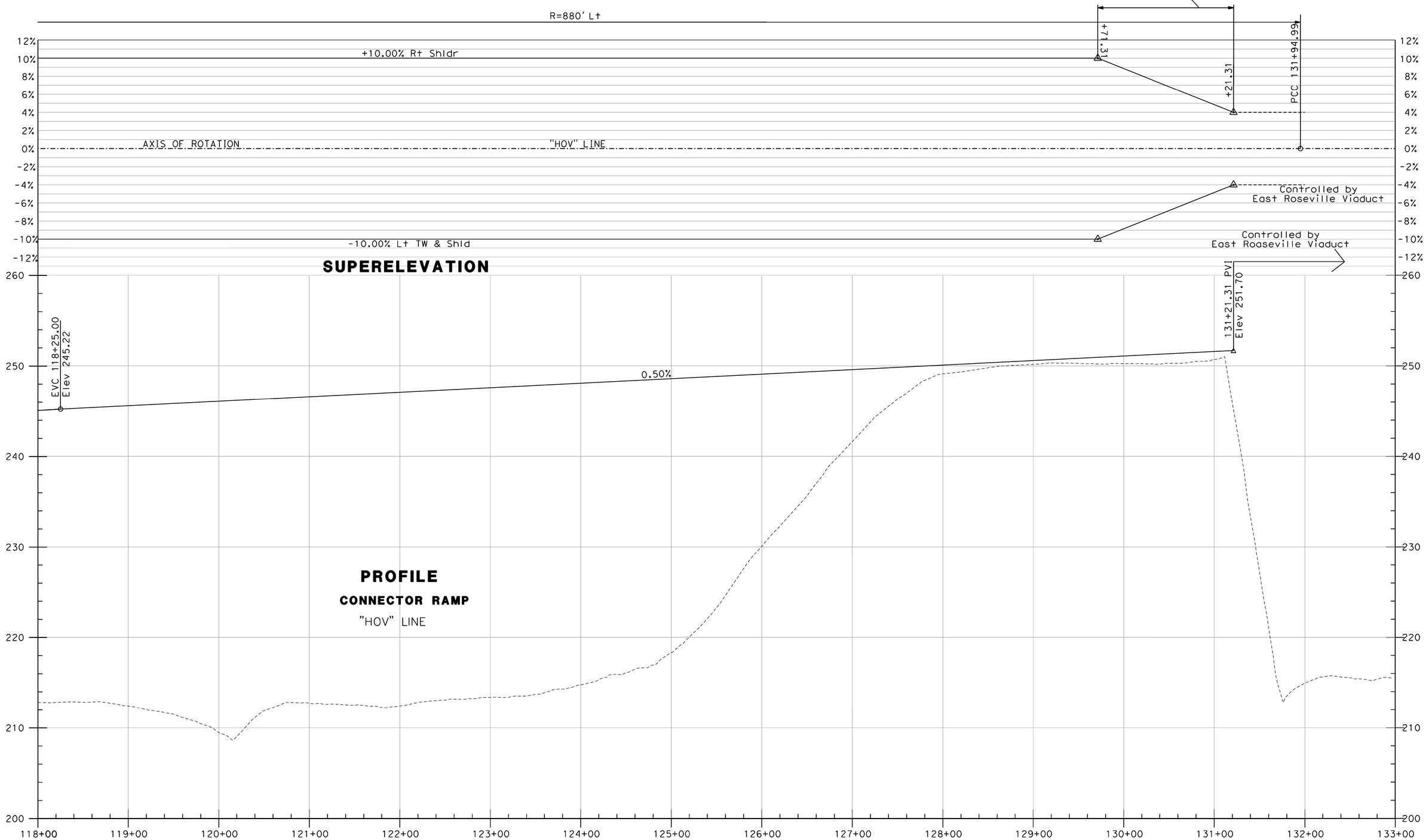
100 50 0 100

GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 3

SHEET 2 OF 2

ADVISORY EXCEPTION NO. 3A
SUPERELEVATION COMPOUND CURVE TRANSITION
WILL NOT OCCUR AT PCC



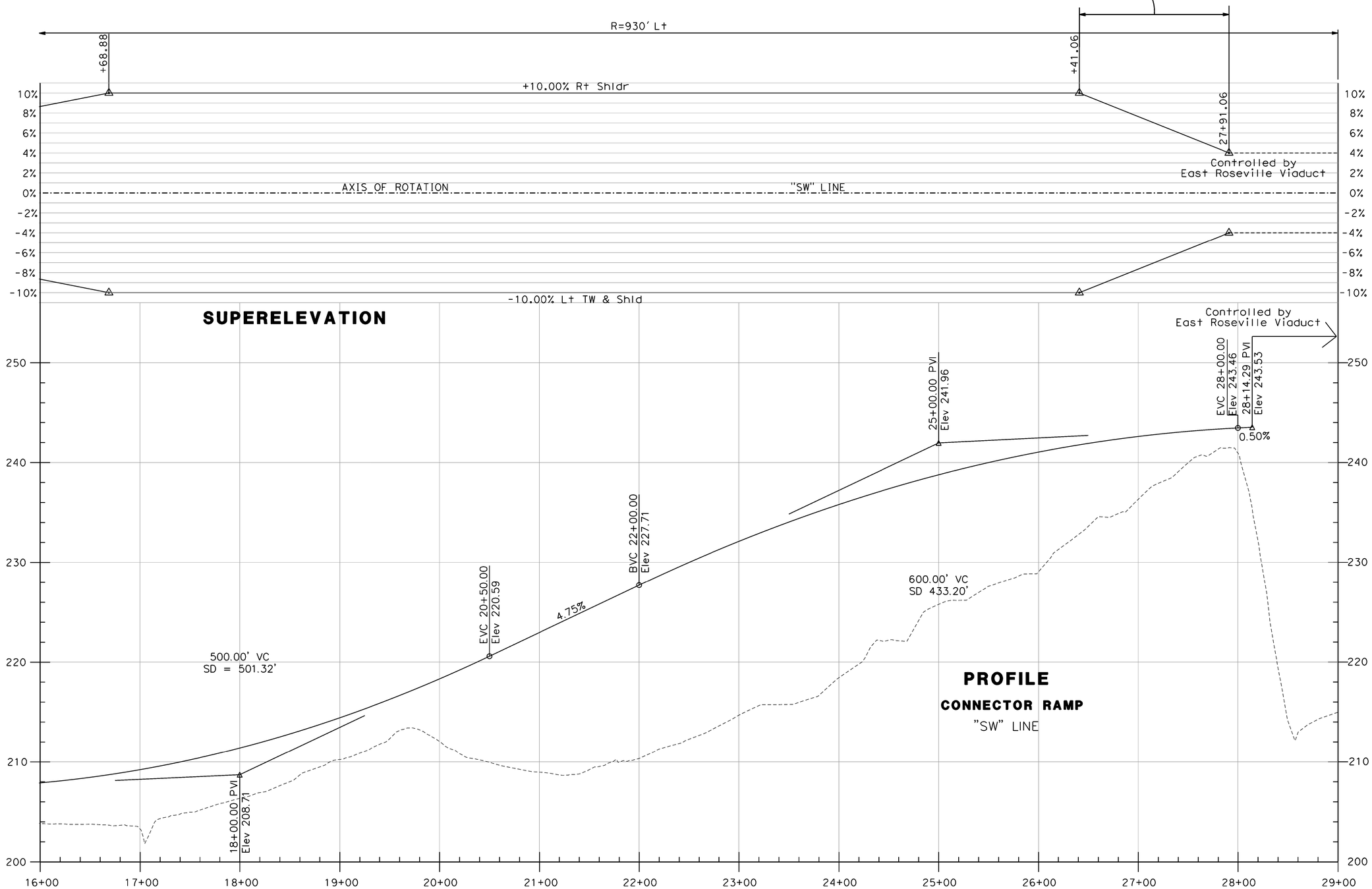
100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

SHEET 1 OF 3

ADVISORY EXCEPTION NO. 3B
SUPERELEVATION COMPOUND CURVE TRANSITION
OCCURS IN SECOND CURVE NOT AT PCC

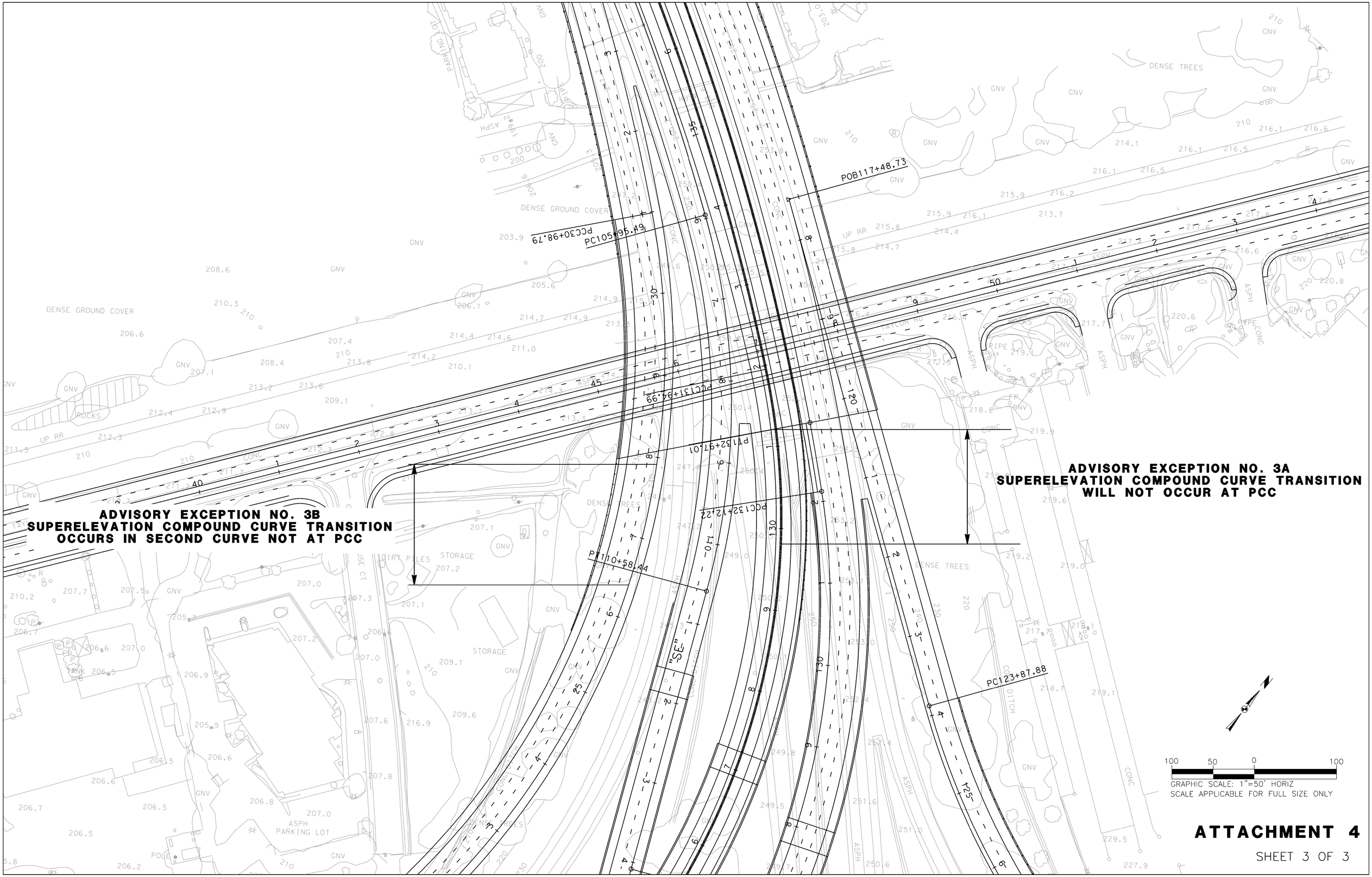


100 50 0 100
GRAPHIC SCALE: 1"=50' HORIZ
SCALE APPLICABLE FOR FULL SIZE ONLY

20 10 0 20
GRAPHIC SCALE: 1"=10' VERT
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 4

SHEET 2 OF 3

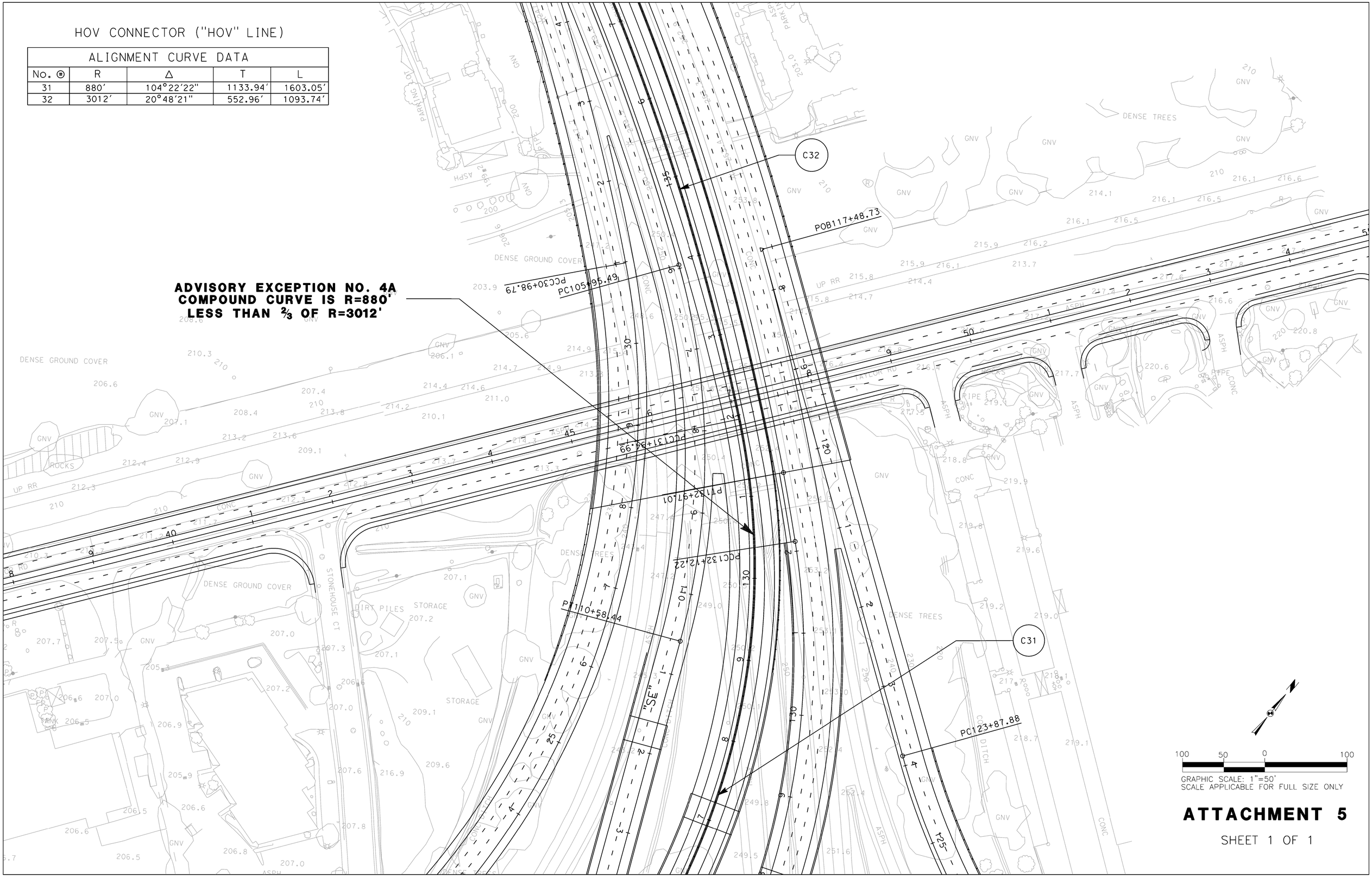


ATTACHMENT 4

SHEET 3 OF 3

HOV CONNECTOR ("HOV" LINE)

ALIGNMENT CURVE DATA				
No. Ⓡ	R	Δ	T	L
31	880′	104°22′22"	1133.94′	1603.05′
32	3012′	20°48′21"	552.96′	1093.74′

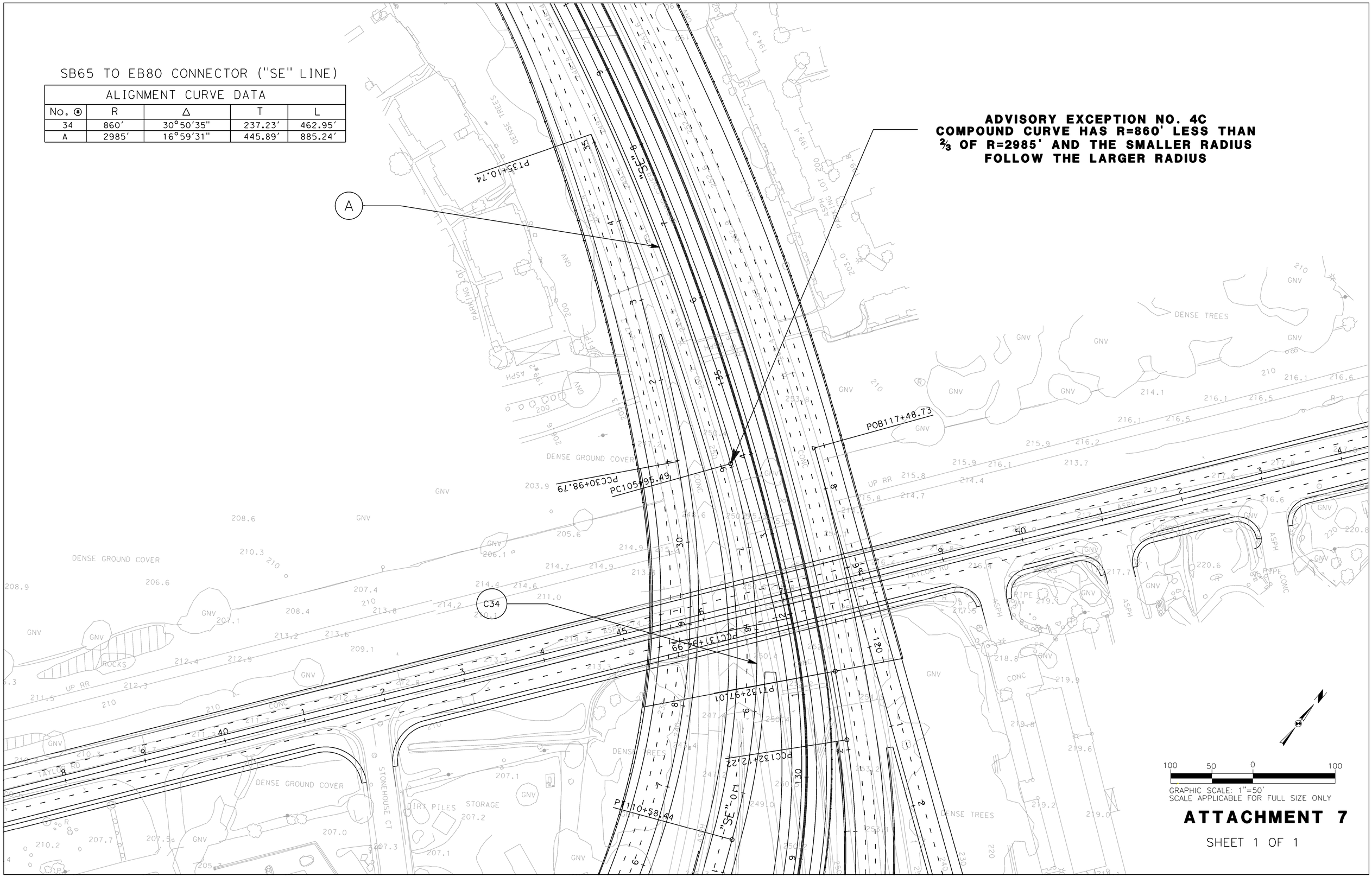


ATTACHMENT 5

SHEET 1 OF 1

SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ®	R	Δ	T	L
34	860′	30°50′35"	237.23′	462.95′
A	2985′	16°59′31"	445.89′	885.24′



ATTACHMENT 7

SHEET 1 OF 1

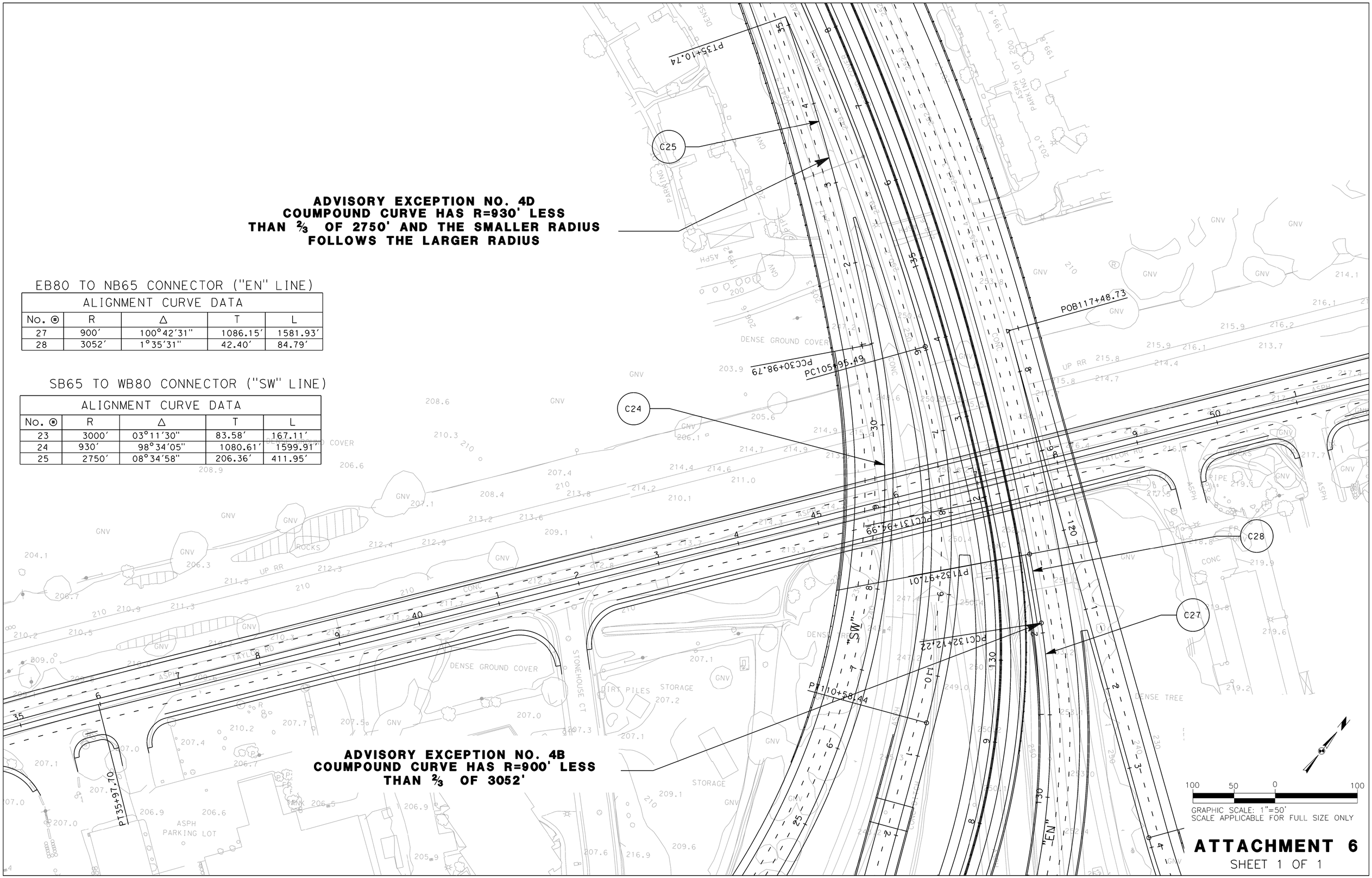
ADVISORY EXCEPTION NO. 4D
COUMPOUND CURVE HAS R=930' LESS
THAN ⅔ OF 2750' AND THE SMALLER RADIUS
FOLLOWS THE LARGER RADIUS

EB80 TO NB65 CONNECTOR ("EN" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
27	900′	100°42′31"	1086.15′	1581.93′
28	3052′	1°35′31"	42.40′	84.79′

SB65 TO WB80 CONNECTOR ("SW" LINE)

ALIGNMENT CURVE DATA				
No. ⊛	R	Δ	T	L
23	3000′	03°11′30"	83.58′	167.11′
24	930′	98°34′05"	1080.61′	1599.91′
25	2750′	08°34′58"	206.36′	411.95′

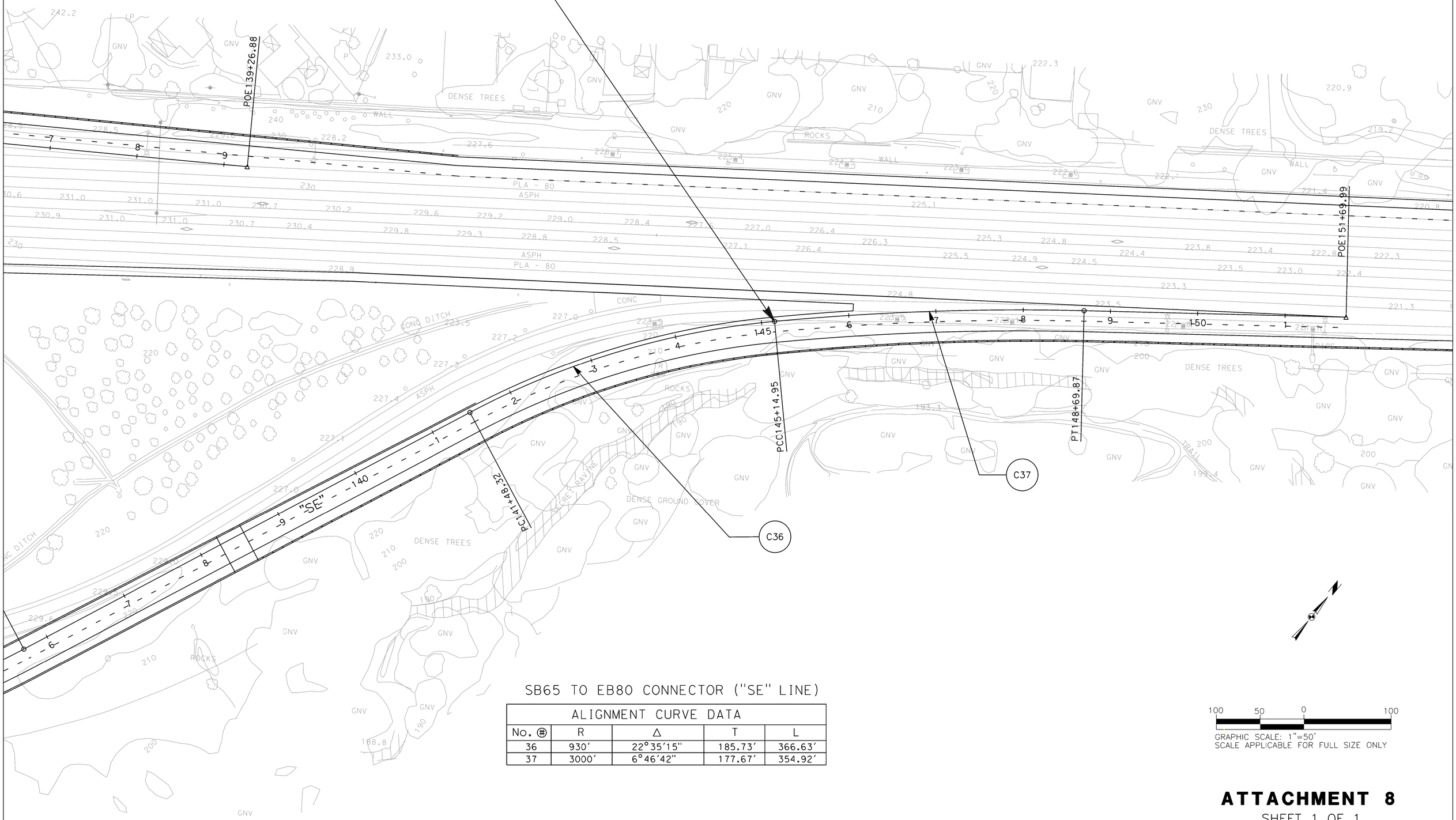


ADVISORY EXCEPTION NO. 4B
COUMPOUND CURVE HAS R=900' LESS
THAN ⅔ OF 3052'

ATTACHMENT 6

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 4E
COMPOUND CURVE IS R=930' LESS THAN
⅔ OF R=3000'

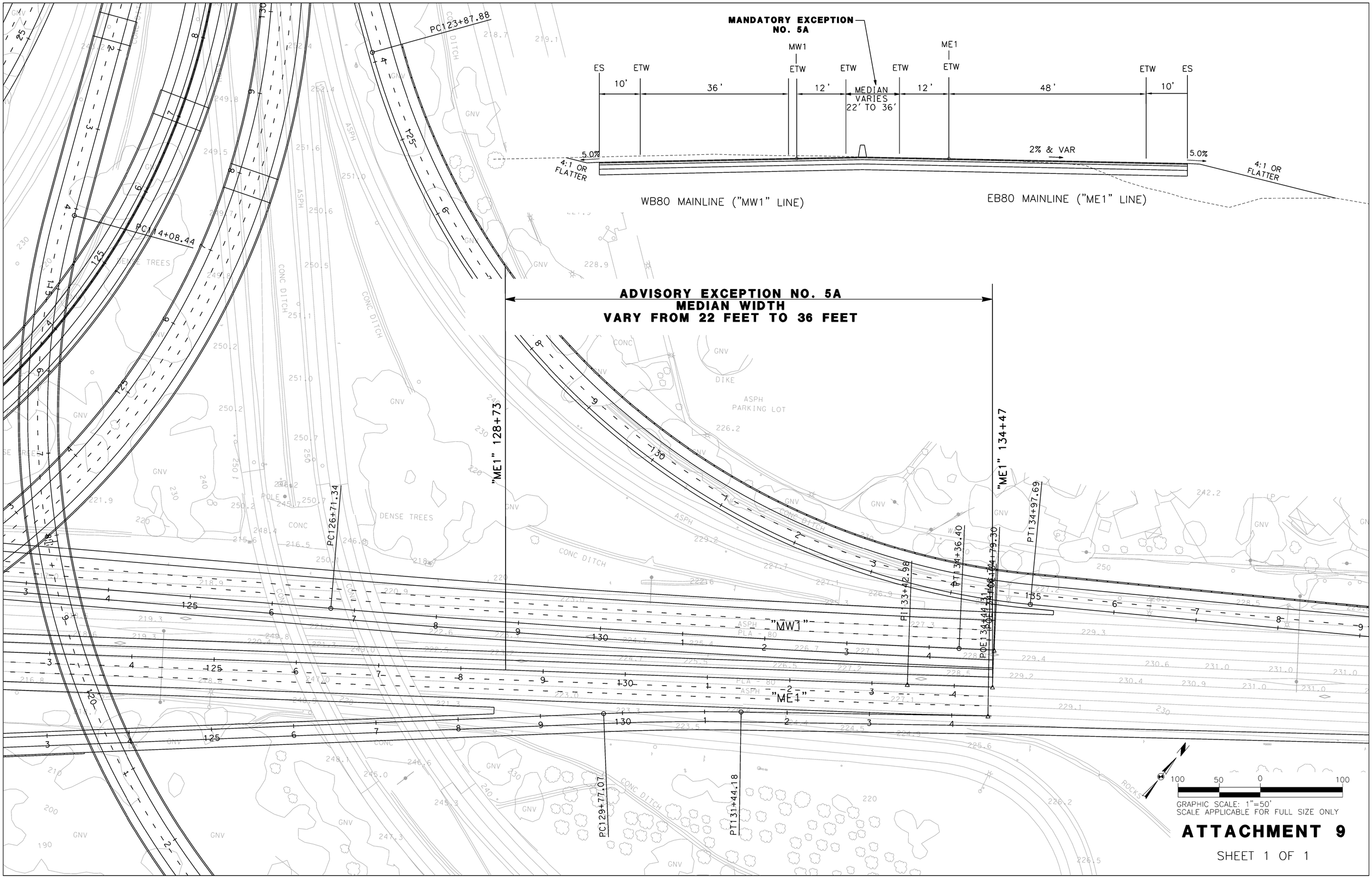


SB65 TO EB80 CONNECTOR ("SE" LINE)

ALIGNMENT CURVE DATA				
No. ⊕	R	Δ	T	L
36	930′	22°35′15"	185.73′	366.63′
37	3000′	6°46′42"	177.67′	354.92′

100 50 0 100
GRAPHIC SCALE: 1"=50'
SCALE APPLICABLE FOR FULL SIZE ONLY

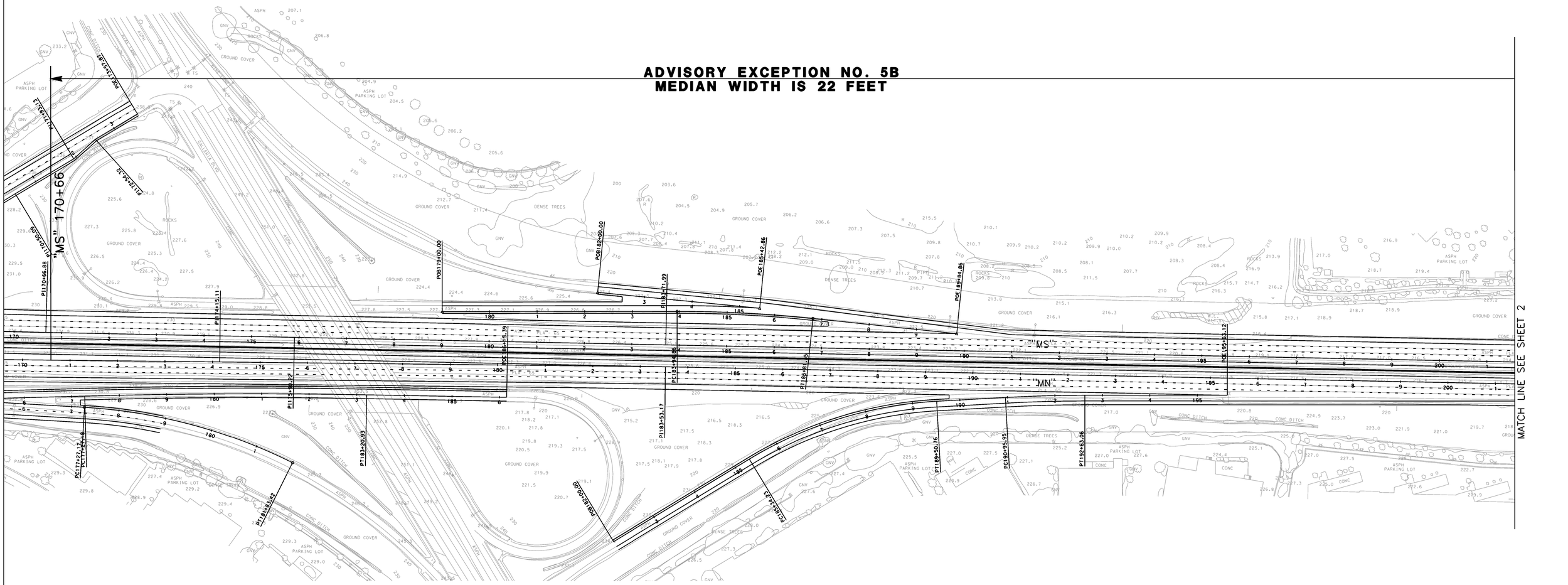
ATTACHMENT 8
SHEET 1 OF 1

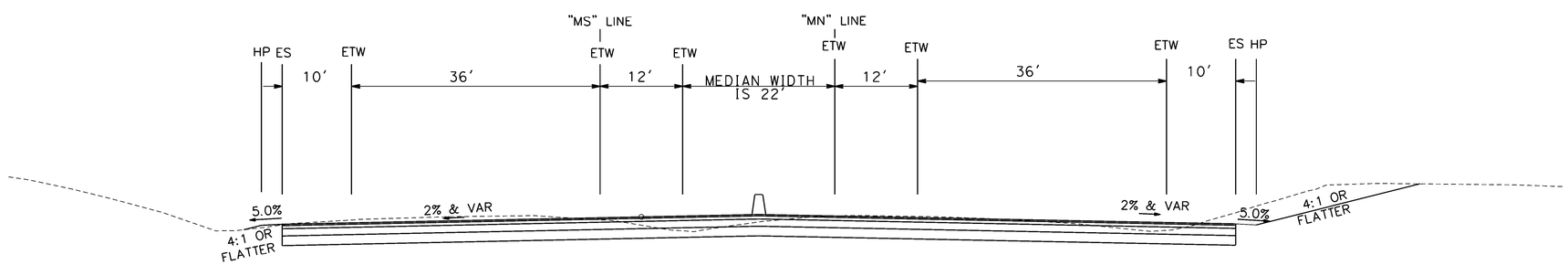


ATTACHMENT 9

SHEET 1 OF 1

ADVISORY EXCEPTION NO. 5B
MEDIAN WIDTH IS 22 FEET





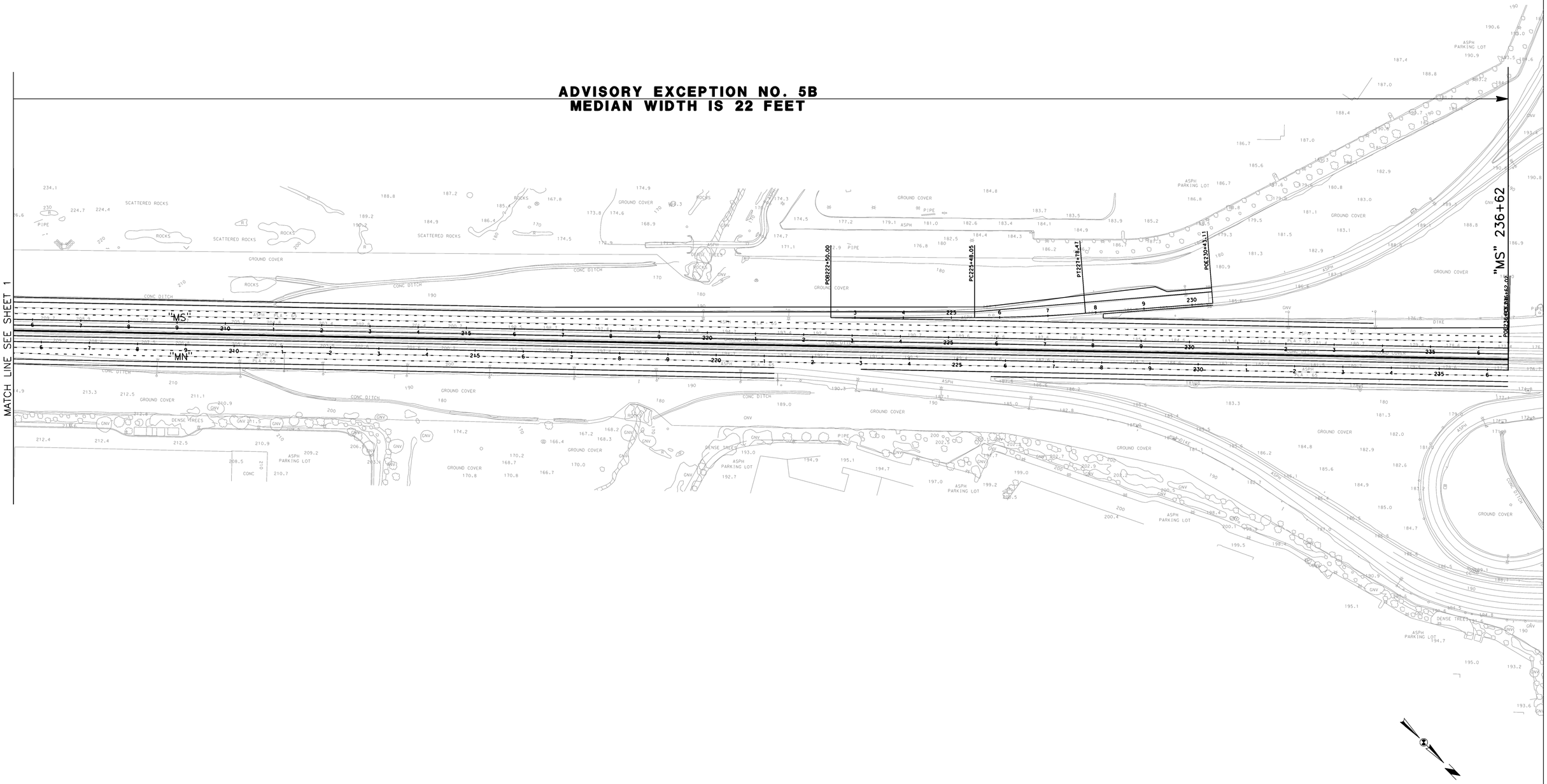
200 100 0 200

GRAPHIC SCALE: 1"=100'
SCALE APPLICABLE FOR FULL SIZE ONLY

ATTACHMENT 10

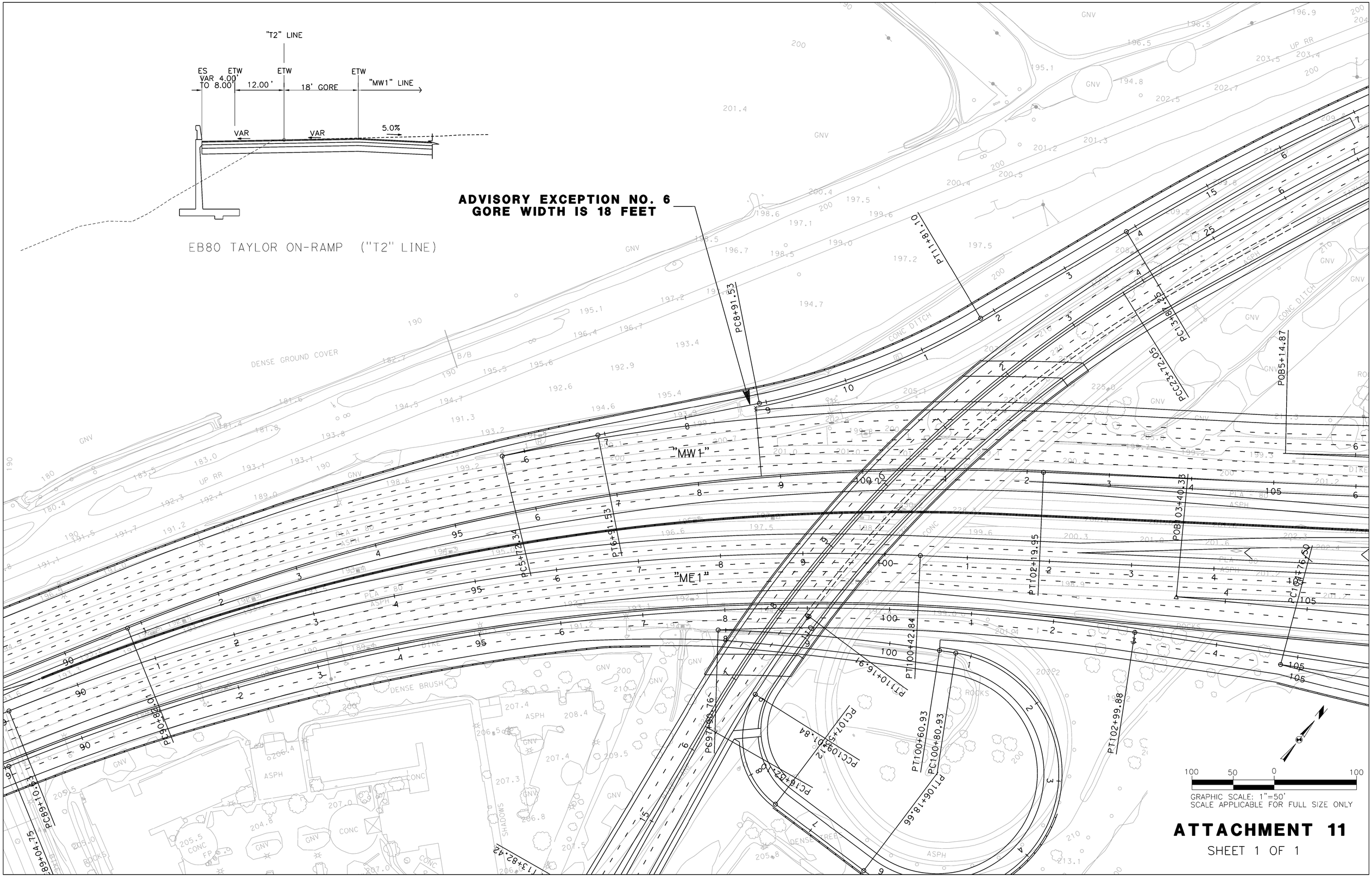
SHEET 1 OF 2

ADVISORY EXCEPTION NO. 5B
MEDIAN WIDTH IS 22 FEET



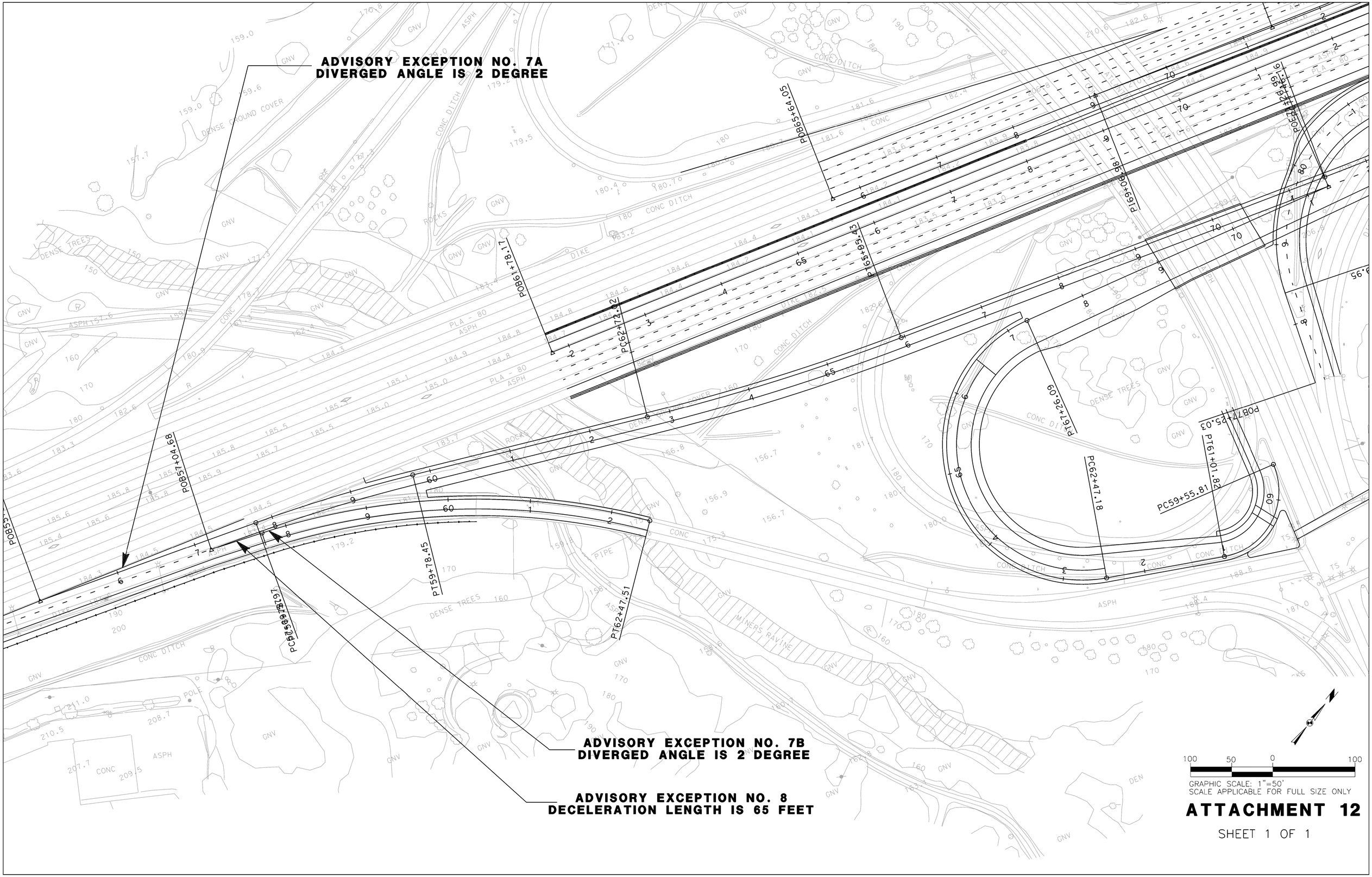
ATTACHMENT 10

SHEET 2 OF 2



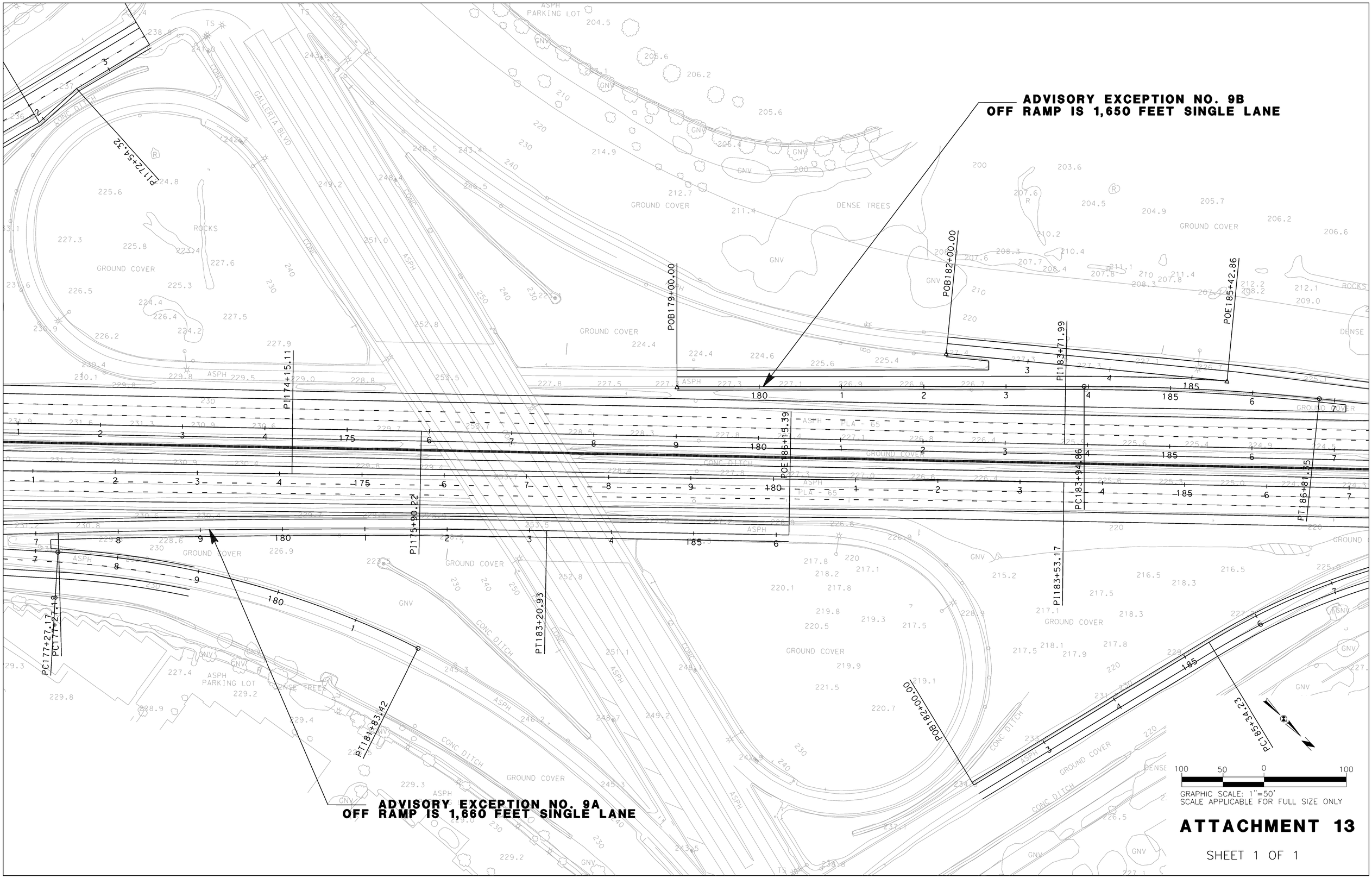
ATTACHMENT 11

SHEET 1 OF 1



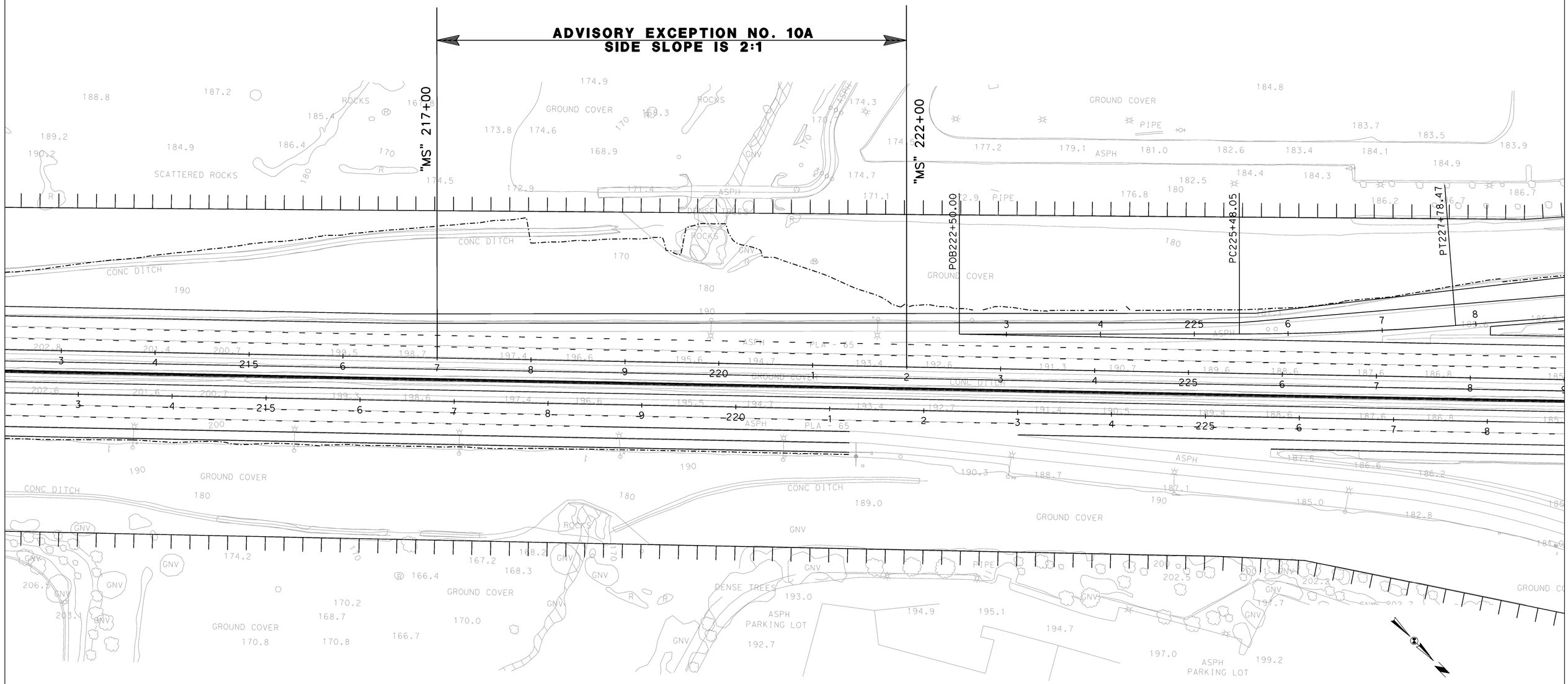
ATTACHMENT 12

SHEET 1 OF 1



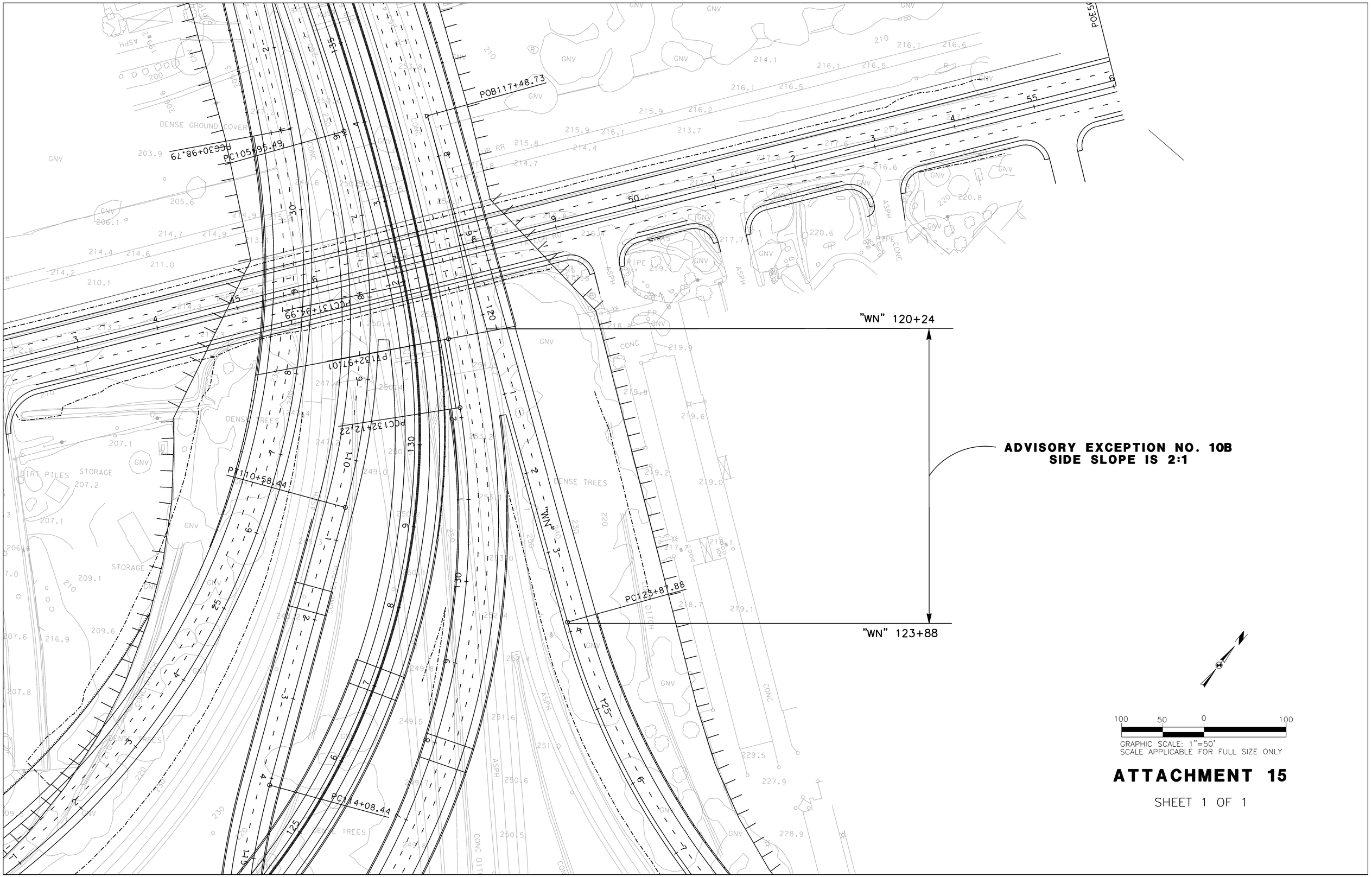
ATTACHMENT 13

SHEET 1 OF 1



ATTACHMENT 14

SHEET 1 OF 1



ATTACHMENT 15

SHEET 1 OF 1