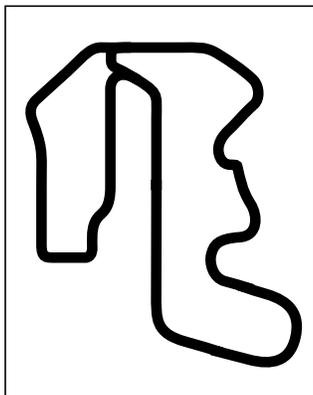

Nor Cal SAAC Course Maps - Thunderhill

Third edition- Scott Griffith



This booklet, and its companion text, the “Nor Cal SAAC Open Track Driver’s Primer”, were written in an effort to provide a head start to the first time driver at a Nor Cal SAAC open track event. Together, they should help the new driver come to their first event educated, prepared, and in a frame of mind that will allow the ground school portion of the first morning to be gotten through quickly and easily. The more of this information you can learn before the event, the less time we’ll have to spend on it at the event. This will immediately result in more track time for you. And that’s the point!

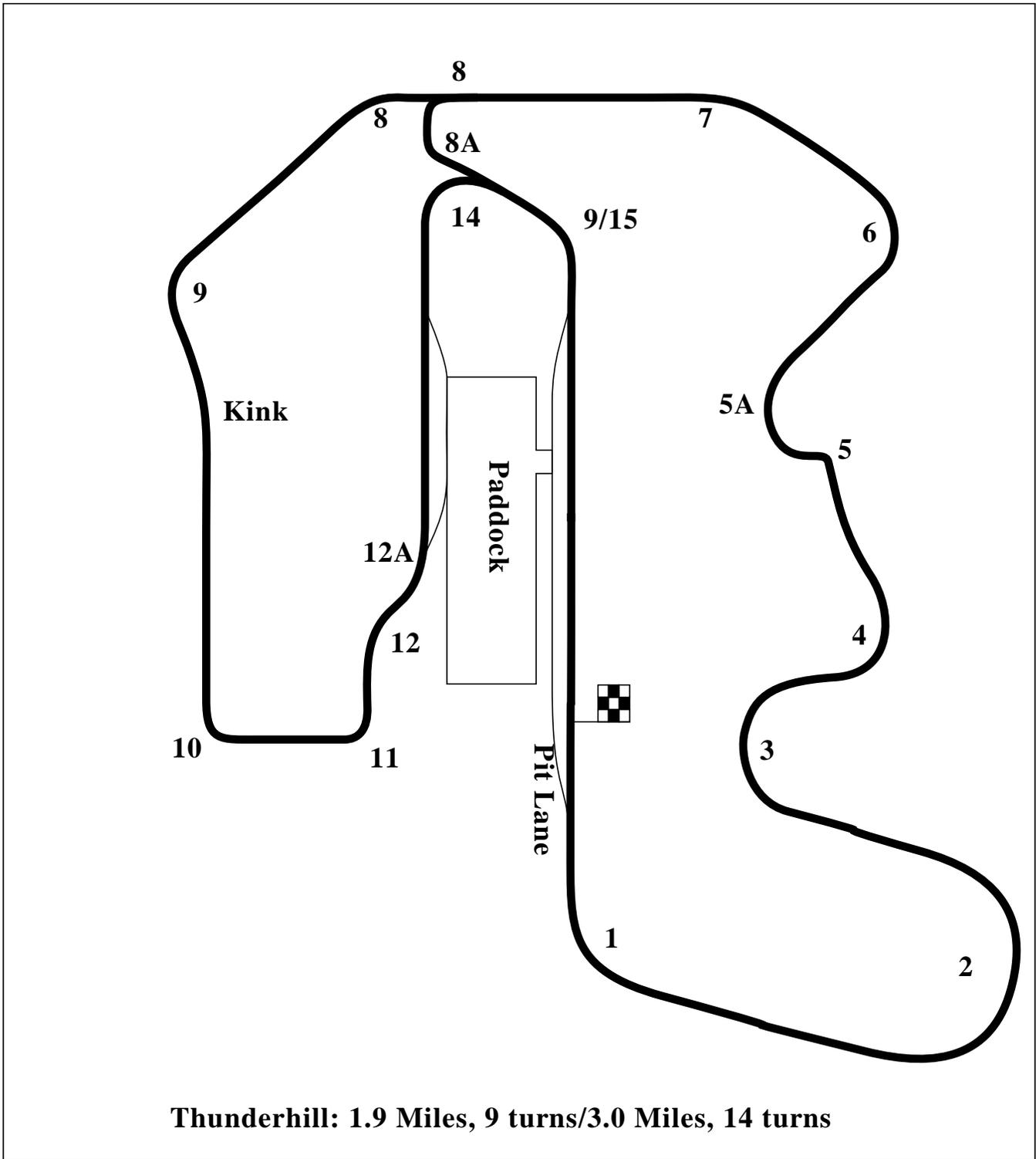
What’s Inside?

This series of booklets contain maps of each of the tracks that we run events on, and provides a corner-by-corner analysis of the racing line. The idealized line we’ll discuss is what we’ll call the “school line”, and it is the safest, easiest to learn, and most rewarding way around the track for a beginner. As you gain experience, you’ll come to find places that your own personal preferred line will differ from what we’ll describe here. That’s normal, and is a sign of experience. If you think about it, you’d expect that a Porsche 911 would need to take a little different corner entry or exit than a Shelby Mustang, for example. But when you’re starting out, the school line we’ll talk about will serve you well.

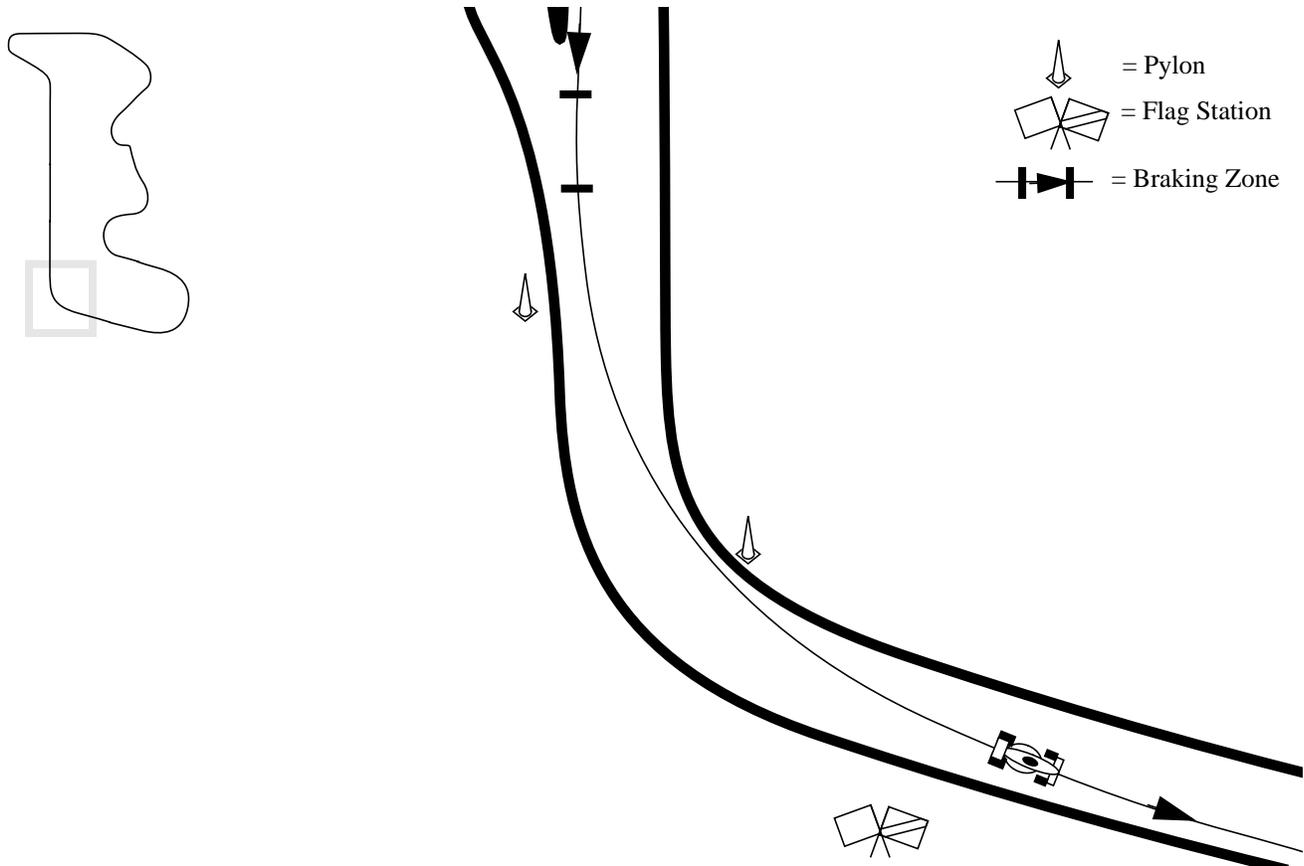
Additionally, in the description of each corner, you’ll find information about landmarks and important safety features, such as where the cornerworkers put their flags, and where there are escape roads and so on. There’s a lot of information in here, and we don’t expect you to have any of it memorized verbatim when you get the track. There won’t be a quiz! But it is very useful to have a good idea of which way the track goes, and the general feel of the terrain, before getting to the track. This will allow you to focus on the art of driving, rather than merely trying not to get lost.

Finally, in the descriptions of each corner, you’ll find that the location of the turn-in and apex points will be marked out. These points will be marked with cones set up beside the track surface for your first few sessions. They are a useful reference, but please make an effort to *learn the track, not the cones*. If they get knocked down, or if we decide not to set them up at all, you should still be able to feel the line and drive the course well. This is track driving, not paint-by-numbers!

Having said all that, let’s get on with the fun. Following this, you’ll find our description of Thunderhill. It is run in two configurations: the “short course” and the “long course”. They’ll be described separately below, with the newly added “long course” corners at the end.



Thunderhill Park Sports Car Course



Turn 1

Turn 1 is a high-speed, fourth gear, sweeping lefthander of about 60 degrees. It is gently uphill, right up until the very exit of the corner. At the exit, there is a small crest in the track, so it does feel a bit blind for just a moment as you crest the hill. It is a challenging, and very fast turn. Beginners often find it to be daunting because of its very high speed nature.

Set up: Move over towards the driver's right edge of the track as you come up the straight. There is a great deal of added pavement driver's right where the pit lane merges with the track. Watch out for slower cars reentering the track from the pits. Leave about a 6 foot safety margin to the edge of the track before the braking zone.

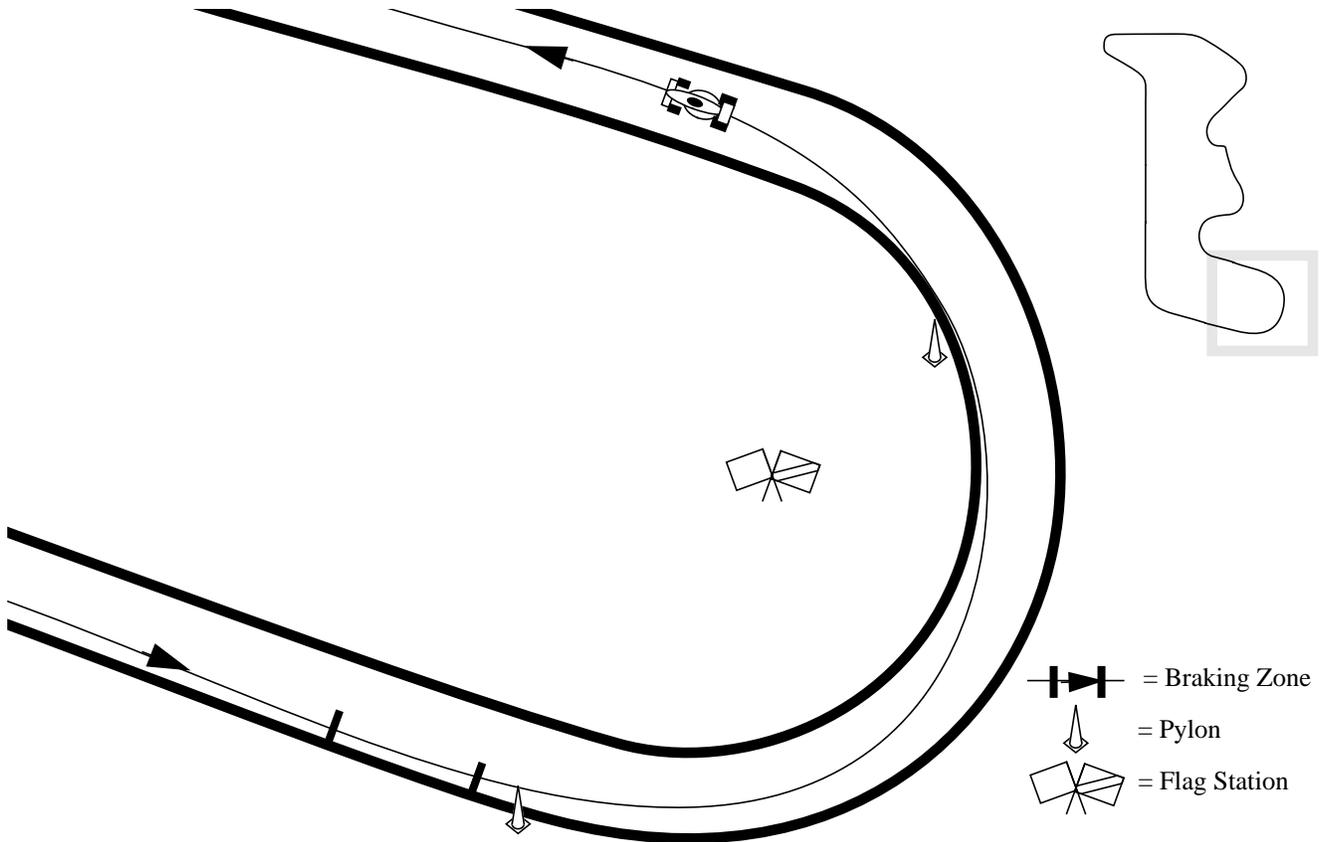
Braking Zone: Do your braking in a straight line, parallel to the edge of the track. The brake markers make excellent reference points. This is a fourth-gear turn in most cars, but work up to it slowly. Third gear is fine for a first-timer. Once you're done with your braking, go back on an even throttle for the turn in.

Turn In: Roll on gentle steering lock at the #1 brake marker. There will be a cone there to serve as a reference point as well. When you're up to speed, you'll begin rolling on the power just as soon as you have the car pointed down at the apex.

Apex: The apex is just after the geometric center of the corner. Try and just kiss the painted berm with your inside tires. When you're at speed, it will be difficult to get to this apex, and you'll be at full power well before the apex.

Exit: Unwind the wheel and track out all the way driver's right, leaving a 3-4 foot safety margin on the run down to Turn 2. Make sure that you have your unwinding done and are going straight *before* the crest. Don't drop 2 wheels off!

Landmarks: There is a flagger station high above the track driver's right after the apex. You'll have to look up to see it, but it is ideally placed to give you advance warning of conditions in Turn 2. When reentering the track from the pit lane, please stay all the way right in the pit lane until well down towards the turn-in for 1. This keeps you from merging into the path of other cars.



Turn 2

Turn 2 is a medium-speed, 180 degree turn. The entry is downhill, and the braking here is very heavy, as you slow from 4th gear to third. The exit is level.

Set up: Track out all the way driver's right exiting Turn 1. Leave about a 3-foot safety margin to the edge of the pavement. Get the car straightened out, and prepare for the braking ahead.

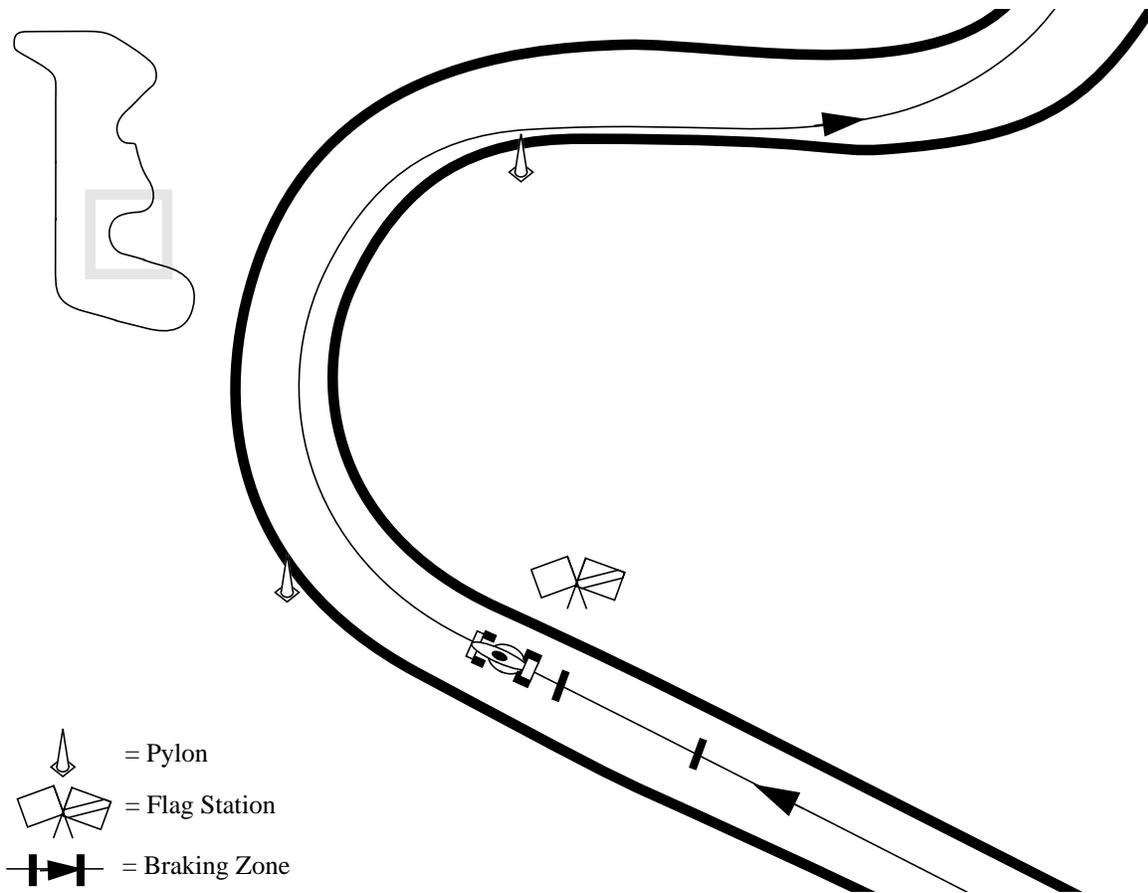
Braking Zone: Very early, very hard, straight line braking. Downshift into third in most cars, clear into second in some. Transition off the brakes and back onto an even throttle before the turn-in point.

Turn In: Stay straight and well out on the outside edge of the pavement well into the turn, and then turn smoothly in. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions. After turn-in, stay out about 3/4 of the track width until fully halfway through the corner, then smoothly tighten in the steering to get to a single, very late apex. Don't allow yourself to turn too early, or too much.

Apex: The apex is way around by the painted curbing, almost 3/4 of the way through the turn. There will be an apex pylon to use as a reference. Once at the apex, begin to unwind the wheel and smoothly feed on the power.

Exit: Unwind the wheel, roll on the power, and track out only to about three-quarters track at the exit. Then begin moving back towards the middle of the track to set up for Turn 3. We compromise the exit from 2 slightly to allow a better entry into 3.

Landmarks: Very few. The track is flat and featureless, once you are into the turn. It is very easy to talk yourself into turning down too much and "hugging the inside". Don't do that.



Turn 3

Turn 3 is very technical. It is a blind, medium-speed, third gear, off camber turn. There is a crest in the track between the braking zone and the turn in area, and many people have a hard time getting their turn-in right. A popular error in Turn 3 is to turn in too early. Another popular error is trying to trail brake over the crest and into the off camber turn-in area.

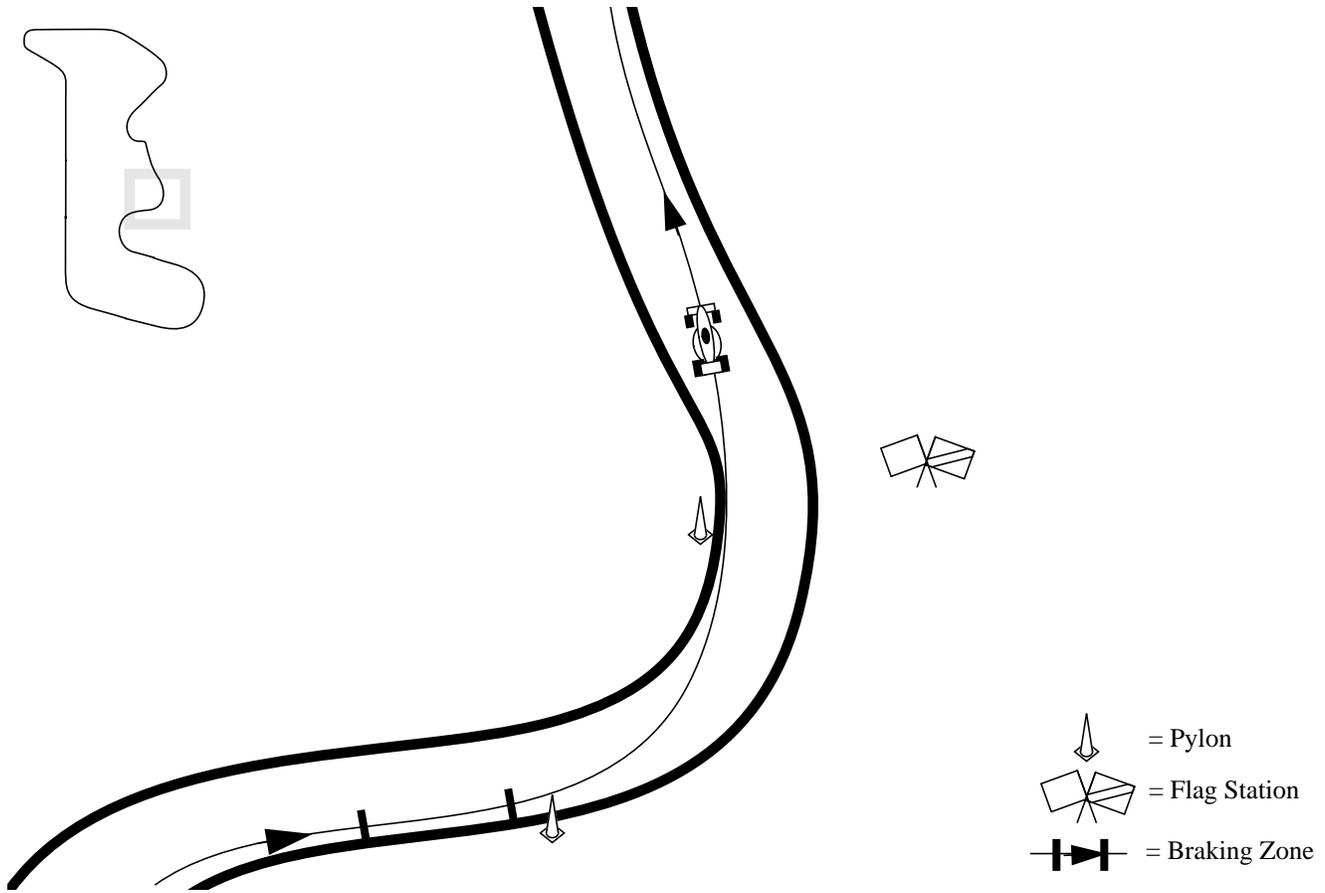
Set up: Move smoothly back to the center of the pavement after compromising the exit of Turn 2. Leave *at least* a 10-foot safety margin to the *left* edge of the pavement. Some cars (notably mid-engined cars) can enter 3 almost on the right edge of the track. Get the car straightened out well before the crest. The safety margin is important here, as the left edge of the track is sandy, steeply off camber, and there is little grip to be had once you're beyond the crest. Stay off the steep outer sections.

Braking Zone: Straight line braking. Stay in third. Transition off the brakes and back onto an even throttle *before* the crest!

Turn In: Get the car settled in a straight line with a 10-foot safety margin to the driver's left edge, and then turn smoothly in. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions. Smoothly wind in the steering to get to a very late apex. The track goes steeply off camber here, so grip is hard to find. *Don't lift*- use an even throttle after the crest.

Apex: The apex is extremely late. We will compromise the exit of Turn 3 to set up for Turn 4. Once at the apex, unwind the wheel and run directly up the driver's right edge of the track to the entrance to 4.

Exit: Unwind the wheel, roll on the power, and stay all the way driver's right.



Landmarks: The Turn 3 flagger's station is right on the edge of the track at the entrance, driver's right. There is a good amount of runoff area here, and people do seem to use it rather often. A common mistake is to trail brake over the crest, or lift abruptly off the throttle when the car gets light in the offcamber portion. This is a *great* place to spin, and that's a great way to do it.

Turn 4

Turn 4 is medium speed, third gear, flat turn. The track turns steeply uphill just at the exit, but too late to provide any additional grip.

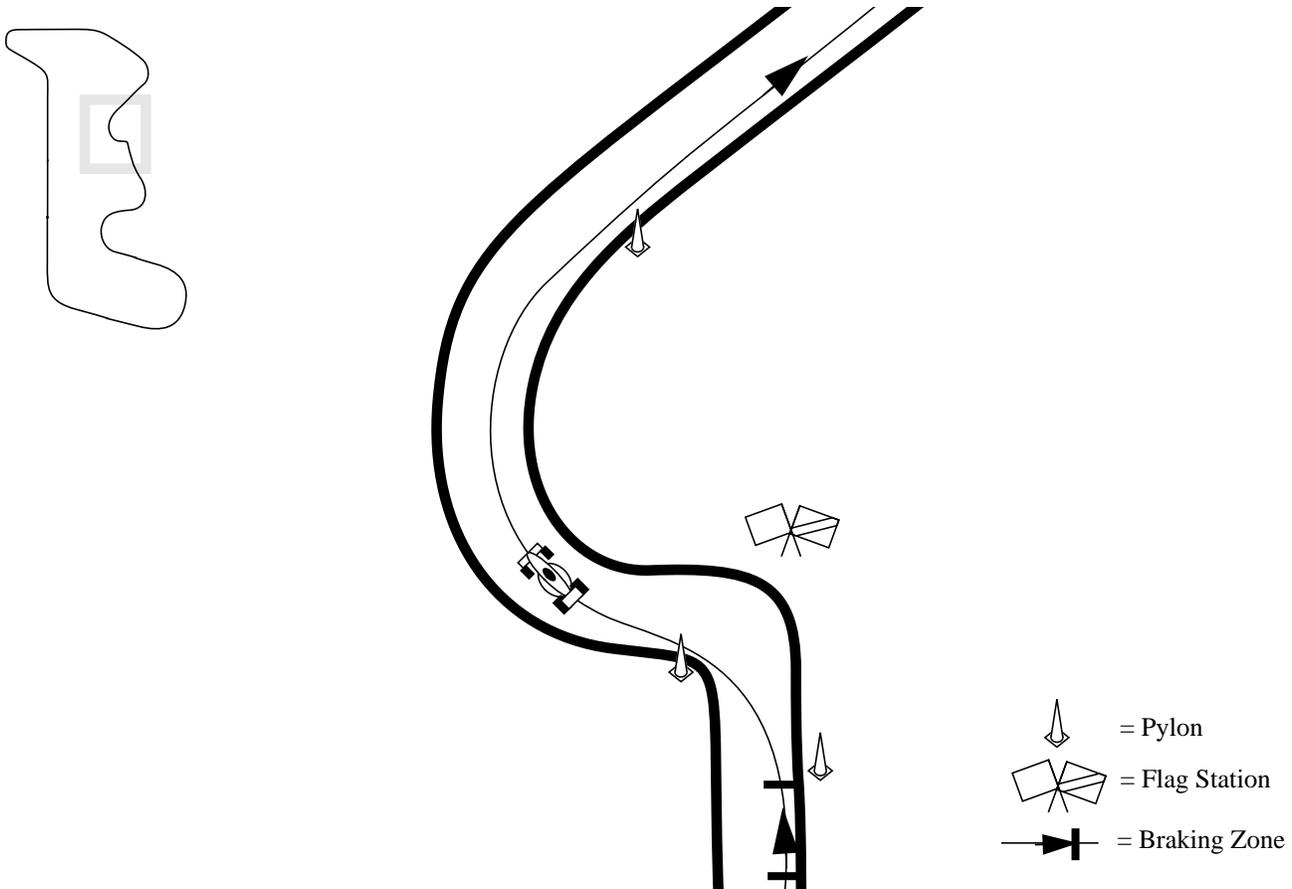
Set up: Stay on the driver's right edge of the pavement exiting Turn 3. Leave about a 3-foot safety margin to the edge of the pavement.

Braking Zone: Very short straight line braking just to settle the car. Transition off the brakes and back onto an even throttle at the turn-in point.

Turn In: Turn smoothly in from the turn-in point, which is right about at the #1 braking marker. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions.

Apex: The apex is just past the geometric middle of the turn. There will be an apex pylon to use as a reference. Roll on the power from right at the apex. Unwind the wheel and feed on the power. If you can't unwind the wheel, you know you turned in too early.

Exit: Track out all the way driver's right, but leave about a 4-6 foot safety margin, to allow you to get the car right over to the right edge of the pavement to set up for Turn 5 after the little unnamed kink.



Landmarks: The Turn 4 flagger's station is well back from the edge of the track, driver's right.

Turn 5 and 5A: The Cyclone

The Turn 5-Turn 5A complex (The Cyclone) is the "signature turn" for Thunderhill, very much as the Corkscrew is the signature turn for Laguna Seca. It combines the very slow, blind, second gear Turn 5, and the much faster, downhill, increasing radius Turn 5A. It is also the least important part of the track in terms of lap times. There is not much time to be made up here, but there is much to lose.

Set up, Turn 5: Stay on the driver's right edge of the pavement after exiting the kink, as the track turns steeply uphill. Leave about a 3-foot safety margin to the edge of the pavement.

Braking Zone: Very hard, straight line braking. Downshift 3-2. Transition off the brakes and back onto an even throttle at the turn-in point.

Turn In, Turn 5: The turn-in is very abrupt, and is done on rhythm. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions. At the turn-in, you can barely see the apex, which is located at the highest point of the hill.

Apex: The apex is right at the top of the hill, with few visual cues available. Immediately after the apex, the track falls very abruptly away, so right at the apex you must go to *zero steering lock* (straight ahead). Done correctly, this will leave you in the rightmost half of the track, headed straight down the hill. If you couldn't make it to the apex, you didn't brake enough. If you couldn't keep the car in the center of the track after the apex, you turned in too early, or didn't turn enough. All of the turning for Turn 5 is done *before the apex*, which is to say *before the car crests the hill*. The resulting short bit of straight steering is

very critical. It allows the car to settle, and guarantees that you aren't trying to turn as the car crests the hill. After all, you can't turn when all 4 wheels are off the ground! For the same reason, you'll need to stay off the very steep berm at the apex.

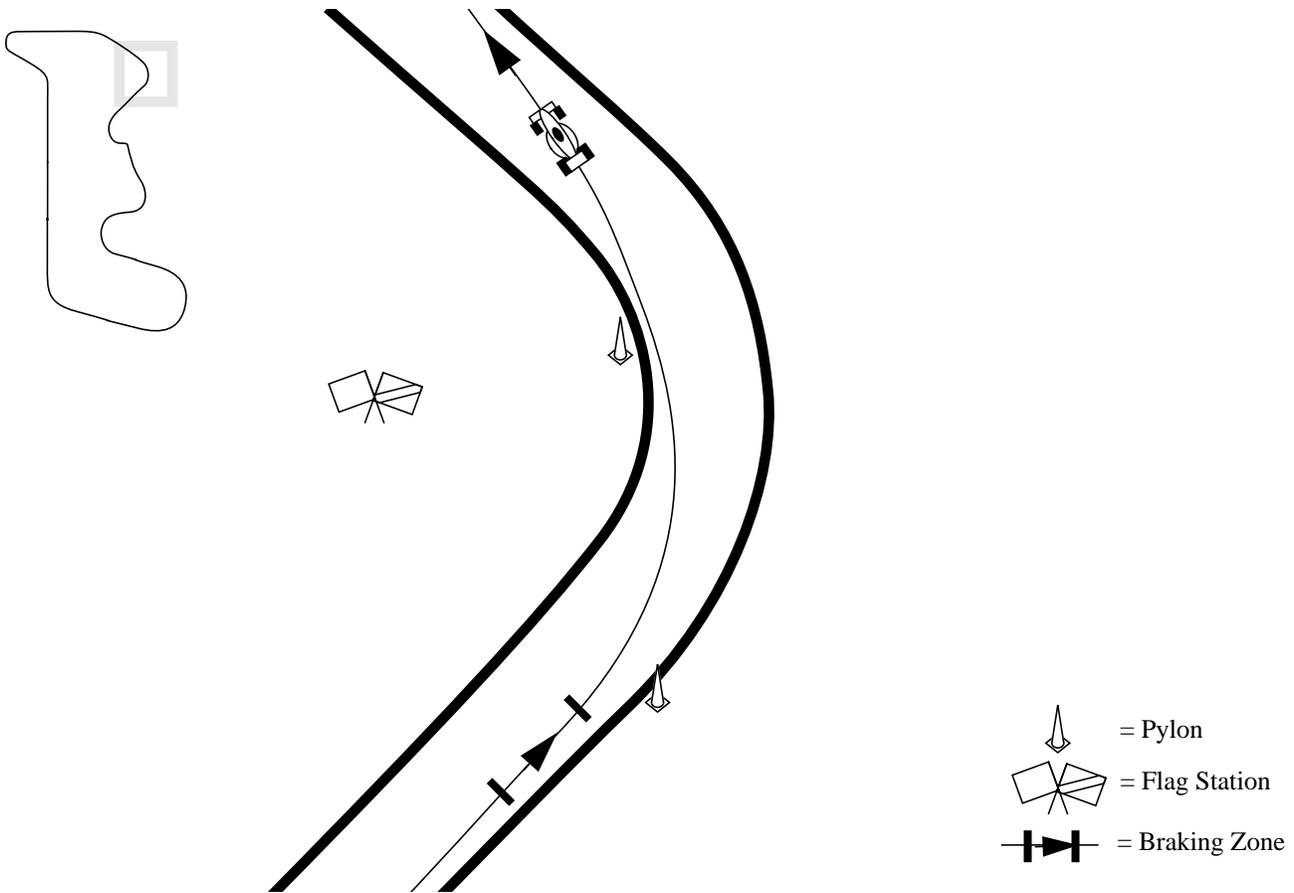
Exit, Turn 5/Turn In, Turn 5A: There is no exit from 5, in the conventional sense. As soon as the car is headed straight down the hill and has settled down from the crest, steering lock must be rolled on to get you to the apex of 5A. Roll on the power as soon as the car is straight and settled, and use the *compression* as the track flattens out at the bottom of the hill to rotate the car to point down at the apex for 5A. The compression at the bottom of the hill will provide extra grip. If you have trouble getting the car to rotate, use less power. The balance between throttle and steering input is very delicate in this section. Complicating matters is the need to upshift to 3rd in some cars. If that shift comes at an awkward time in your car, consider simplifying your job and doing this entire section in third.

Apex, Turn 5A: The apex is very late, as we once again compromise the exit of this turn to establish a better entry for the next turn. Apex just as the track straightens out, keep the car all the way driver's right for the short run down to Turn 6.

Exit, Turn 5A: Your arc down to the very late apex for Turn 5A should leave you all the way driver's right for the flat straight to Turn 6, but leave about a 3-foot safety margin.

Landmarks: The Turn 5 flagger's station is right at the edge of the track opposite the apex. The early warning provided by this flag station is *extremely important*, as this entire section is very blind, and the car will be hard to control as it crests the hill. You must pay very close attention to the flaggers here.

Turn 5 is a very, very slow turn. And yet, every event we have people who spin, or get in trouble, due to trying to go through it too fast. Beginning track drivers almost always make the same mistake: they try to take the fast turns too slow, and the slow turns too fast. Beginning drivers have a lot of trouble with this section. Be sure that you *slow down* enough to have the car under complete control as you learn this part of the track, and treat it with a great deal of respect.



Turn 6

Turn 6 is a high speed, third gear, flat 90 degree turn. It leads onto the back straight, and is therefore very important to get right.

Set up: Stay on the driver's right edge of the pavement after exiting Turn 5A. Leave about a 3-foot safety margin to the edge of the pavement.

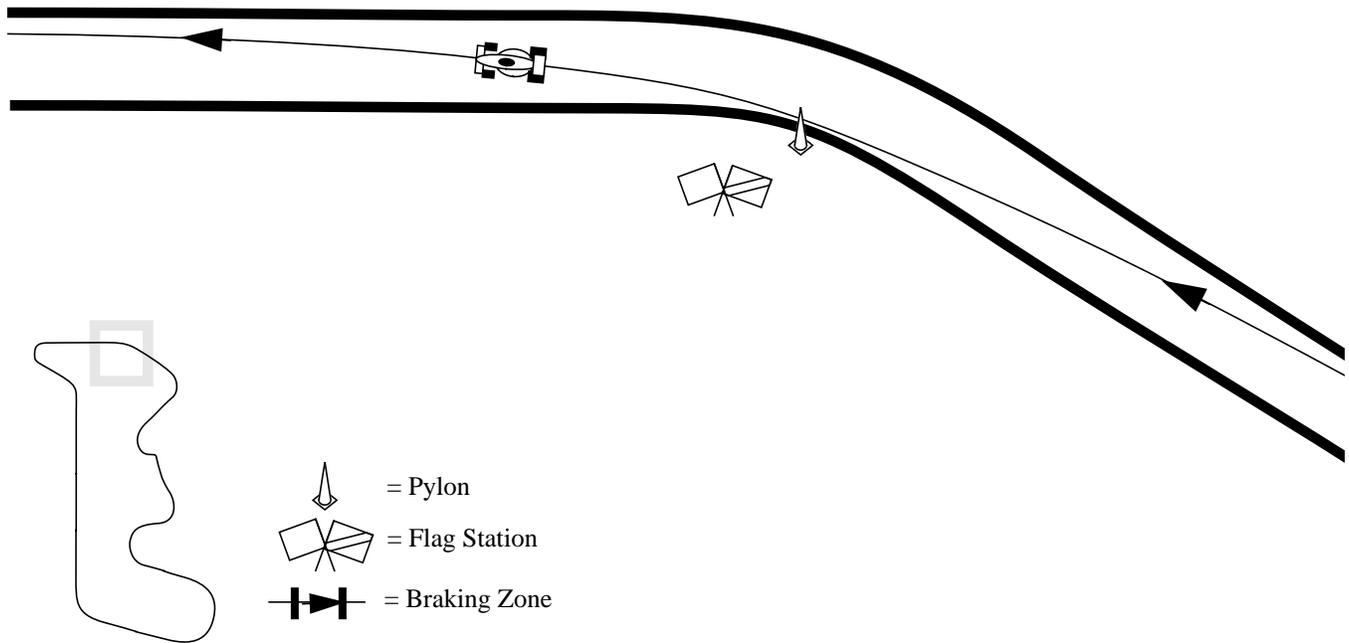
Braking Zone: A short burst of straight line braking, just enough to settle the car. Transition off the brakes and back onto an even throttle at the turn-in point.

Turn In: Turn smoothly in from the turn-in point, which is right about at the #1 braking marker. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions.

Apex: The apex is just past the geometric middle of the turn. There will be an apex pylon to use as a reference. Roll on the power from well before the apex. For some inexplicable reason, the pavers decided to put an extra kink in the curbing right at the apex, and you'll need to adapt to it to keep from unsettling the car. Unwind the wheel and feed on the power. If you can't unwind the wheel, you know you turned in too early.

Exit: Unwind the wheel, hard on the power, and let the car track out all the way driver's right for the straight to Turn 7, but leave about a 3-foot safety margin. Most drivers will upshift from third to fourth just as they unwind the wheel. If you hold on just a tiny amount of steering lock, the car will then sweep back across to driver's left for Turn 7.

Landmarks: The Turn 6 flagger's station is in the center of the turn, well away from the track.



Turn 7

Turn 7 is a high speed, fourth gear, 30 degree left turn,. It really isn't much of a turn, nor it is technically challenging. It is basically a very fast straightaway with excellent visibility that can be taken flat on the throttle.

Set up: If you hold just a few degrees of steering lock as you unwind and exit from Turn 6, the car will naturally sweep back from the driver's right edge just as you get to the apex.

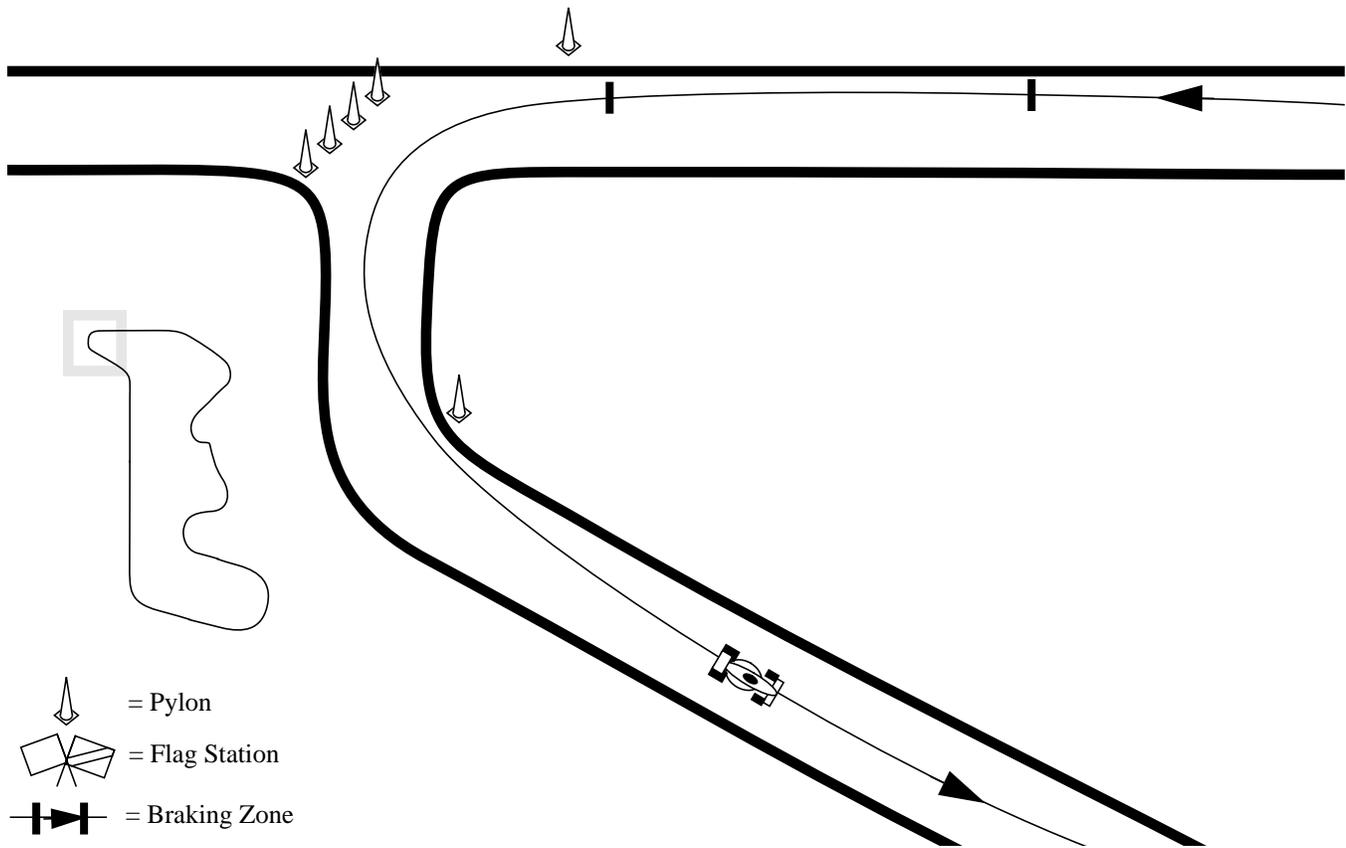
Turn In: There is no turn in point as such. A good driver will simply never *stop* turning as the car exits Turn 6. No steering wheel motion should be needed to drive Turn 7, as it is simply an extension of the process of unwinding the wheel from Turn 6.

Braking Zone: None. This turn is taken flat on the throttle.

Apex: The apex is right at the geometric center of the corner, and the car is allowed to run free at wide-open-throttle throughout this section.

Exit: Unwind the wheel, and track out all the way driver's right, leaving about a 3 foot safety margin. This leaves us in a straight line for the setup for Turn 8 ahead.

Landmarks: The flagger's station at Turn 7 us driver's left at the apex. Flags shown here cover Turn 8 as well, and visibility is excellent. There is no excuse for missing a flag at Turn 7. This is a place to relax, check your gages, and look in your mirrors. Oh, yes, and enjoy the speed!



Turns 8 and 8A, Short Course

The Turn 8-8A complex for the short course is a low-speed and very abrupt pair of turns. They are taken as one turn with a single, very late apex. The long course will be described later.

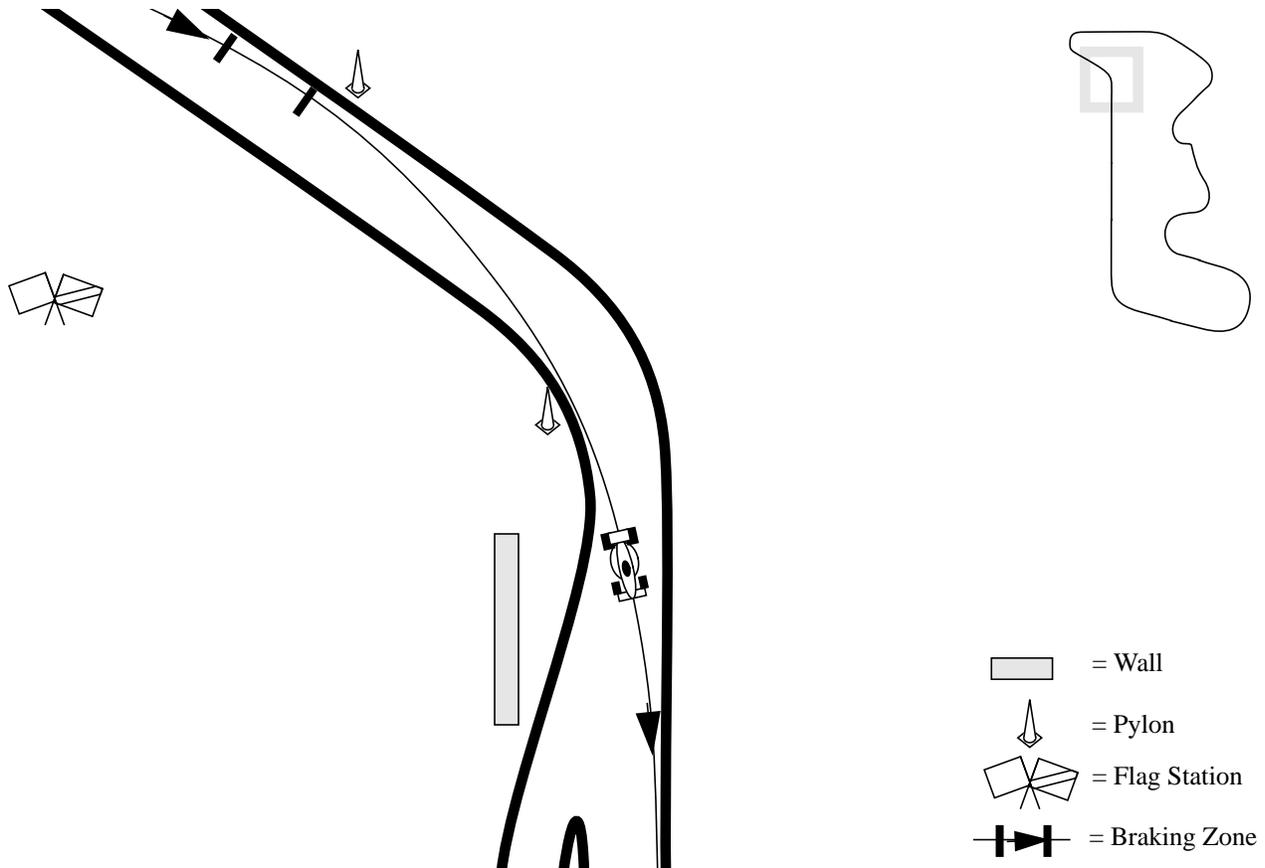
Set up: Your exit from Turn 7 will leave you within 3 feet of the right edge of the track. Aim parallel to the edge of the track, and get the car straight and settled for the braking zone.

Braking Zone: This is a very heavy straight line braking zone. Downshift 4-2, and take this whole complex in second gear. Transition off the brakes and onto an even throttle before the turn-in.

Turn In, Turn 8: Turn in smoothly but strongly from the turn-in point, which is just at the #1 brake marker. There will be a turn-in point marked out with a pylon to use as a reference during the morning sessions. You essentially ignore the first “apex” at Turn 8, missing it by 6-8 feet, in order to carve a smooth arc that will take you down to the real apex at Turn 8A. Ideally, the car will do a great deal of rotation between 8 and 8A, so that you can treat 8A as an increasing radius corner. If you can’t get to the apex at 8A, you very likely didn’t brake enough. Remember, this is a slow, slow corner, and you can only lose time by carrying too much speed at the entrance. Slow in, fast out.

Apex, Turn 8A: The apex is late on the painted berm at Turn 8A, and will be marked with a pylon.

Exit, Turn 8A: You should be unwinding the wheel and squeezing on the throttle from before the apex. Upshift 2-3 and track out only to about half track, and then move back driver’s left to set up for Turn 9/15.



Turn 9, Short Course/Turn 15, Long Course

Turn 9/15 is a flat, third gear, high speed corner. It is very important in terms of lap times, as it leads onto the half-mile front straight. If you are quick in 9/15, that's a speed advantage you'll carry all the way up the straight. If you're slow here, you'll be slow all the way up the straight.

Set up: Move back to the driver's left edge of the track after unwinding the wheel at the exit of Turn 8A or Turn 14.

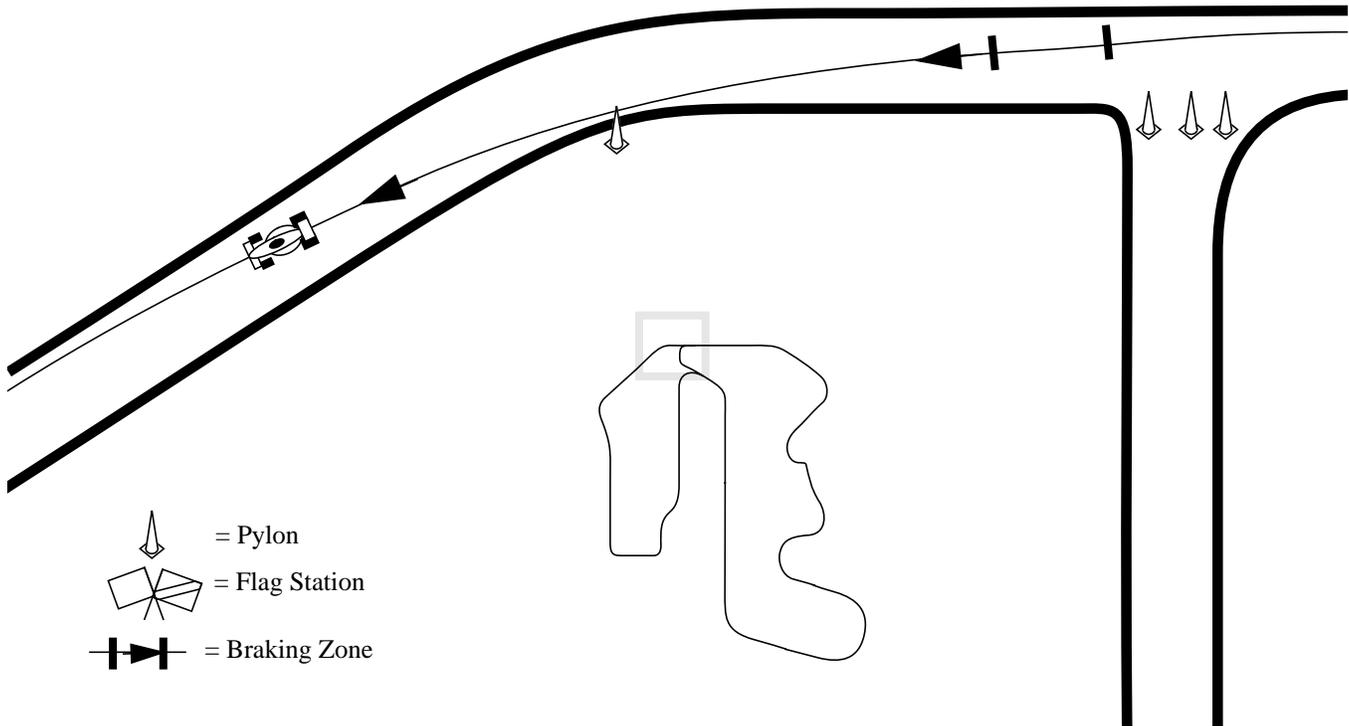
Braking Zone: Light braking for just a beat to settle the car. Lower powered cars may take this corner flat on the throttle. Car positioning is critical.

Turn In: smoothly wind on the steering lock at the turn in point. There will be a reference cone in place. From the turn in, begin to smoothly roll on the power. This is a high-speed corner, and it should be taken on the power.

Apex: The apex is just after the geometric center of the corner. The curbing at the apex is fairly steep, and hitting it with the inside wheels will upset the car a bit. Just a light brush of the curb with the inside tires is a sign of a good apex. You should be on full power by the apex. If you can't get to the apex, you either turned in too late, or you needed to brake more.

Exit: Unwind the wheel and let the car track out all the way driver's right at the exit, upshift 3-4, and enjoy the run up the straight. Don't forget to check your mirrors and gages. Avoid dropping two wheels off driver's left at the exit. If you run out of track, you turned in too early.

Landmarks: The flagger's station for Turn 9/15 is well before the turn, and high up on the hillside. It has a commanding view of the exit of Turn 9/15 and the pit entrance, though, so make every effort to look at it each lap. Watch for cars exiting the track into the pits, as they will slow dramatically at the apex of Turn 9/15 and may catch you off guard.



Turn 8, Long Course

The new Turn 8 for the recently completed long course is a 30 degree lefthander that is very flat, and very fast. It is treated very similarly to Turn 7, except that it is much faster, and slightly tighter. There is a noticeable bump in the pavement at the turn-in point that may seem to upset the car a bit.

Set up: The car should have tracked out all the way driver's right at the exit of 7, so you should be well set up to turn in for 8 by just squeezing on a bit of additional steering lock.

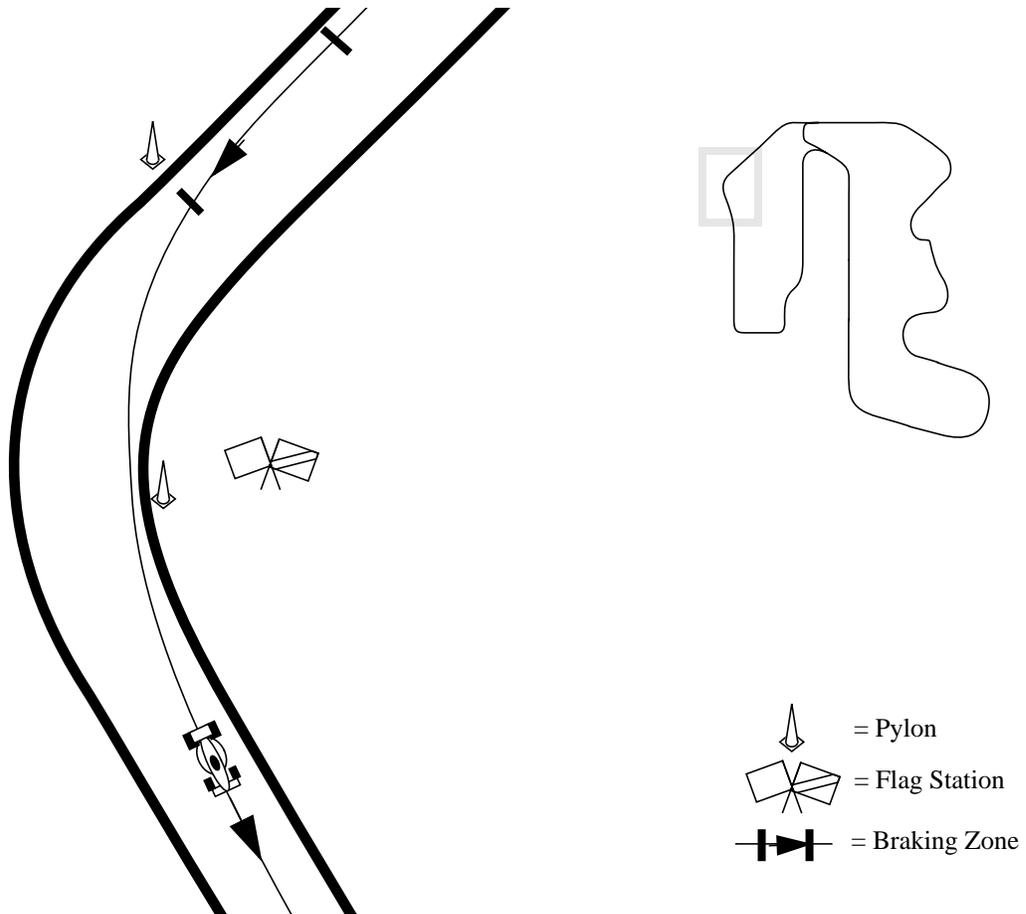
Braking Zone: Gentle straightline braking just after the short course Turn 8 cutoff just to settle the nose, and then back on the throttle through the apex. This is a very, very fast piece of pavement, and it is better to brake a little more, go easy on the throttle, and work up to speed slowly through this section than it is to come hauling in without a good knowledge of how to keep the car settled when you find yourself going faster than you wanted to be. Treat this corner, and Turn 9 that follows, with great respect!

Turn In: Once again, there is no precise turn-in point. If you continue to hold a few degrees of steering lock at the exit of 7, the car will naturally sweep back across to the apex of 8 with just a gentle, gradual tightening of the arc. Turn 8 on the long course is simply an extension of Turn 7.

Apex: The apex is in the middle of the raised concrete berm driver's left. You must be extremely precise with your car placement in order to carry any speed through this section. Hitting the berm will upset the car. Just a light brush of the berm with the inside tires is the sign of a good apex. This is a very critical apex to get to properly, every lap.

Exit: Unwind the wheel, feed on the power, and let the car track out all the way driver's right, leaving about a 3 foot safety margin. This leaves us in a straight line on the right edge of the track for Turn 9 ahead.

Landmarks: There will generally be no flagger's station at Turn 8, as it will be well covered by the station at 7.



Turn 9, Long Course

The new Turn 9 is a 75-degree lefthander that turns steeply uphill, and is quite blind at the entry. You cannot see the exit from either your turn-in point or the apex, so getting the turn-in and initial arc to the apex correct is critical. Turning in too early, or braking too little, will result in an offcourse excursion that features a steep downhill, and is not recommended. Going off course at speed here could very easily result in a rollover, so treat this corner with great respect.

Set up: The car should be allowed to track out all the way driver's right at the exit of Turn 8. Move back in to give yourself a 3 foot safety margin to the edge of the track for the braking zone for Turn 9.

Braking Zone: Braking will be quite heavy, and you will need to downshift to third. Brake in a straight line, and have your braking completed by the #1 brake marker.

Turn In: The turn-in point is right at the #1 brake marker. There is a patch of darker asphalt at that point that can be used for a reference. Do not turn in too early here, as there is little grip to save the car at the crest before the exit.

Apex: The apex is slightly late on the berm driver's left. Just a light brush of the berm with the inside tires is the sign of a good apex. At this point, you still cannot see the exit trackout point as you climb to the crest.

Exit: You should maintain a consistent arc from the apex on, and only unwind the wheel to leave the car in roughly the center of the track as it crests and begins to fall away. You must leave a *minimum 6 foot safety margin* to the driver's right edge of the track before the crest, and you must have all of the steering lock unwound, and be going in a straight line as you go over the top. If you are all the way over to the driver's right edge before the crest, you will run out of track as you go over the top,

because the track continues to turn slightly to the left beyond the crest. Similarly, if you crest the hill with significant steering lock still on, the resulting side load will unsettle the car badly as the suspension unloads as you go over the top. Once past the top, bring the car back a few feet from the driver's right edge as you descend down the hill to set up for The Kink.

Landmarks: There will be a flag station driver's left at the apex, on high enough ground to see over the crest. This is a very critical flag station to look at each lap, as the flaggers can see past the blind crest. Once again, it is *critical* that you get the car straight before the crest, and you must be very careful to leave that 6 foot safety margin to the driver's right edge before the crest.

The Kink, Long Course

The Kink is another turn that is really a very high-speed straight, and will probably be used as a passing zone in many run groups. It is a 10 degree downhill righthander with excellent visibility.

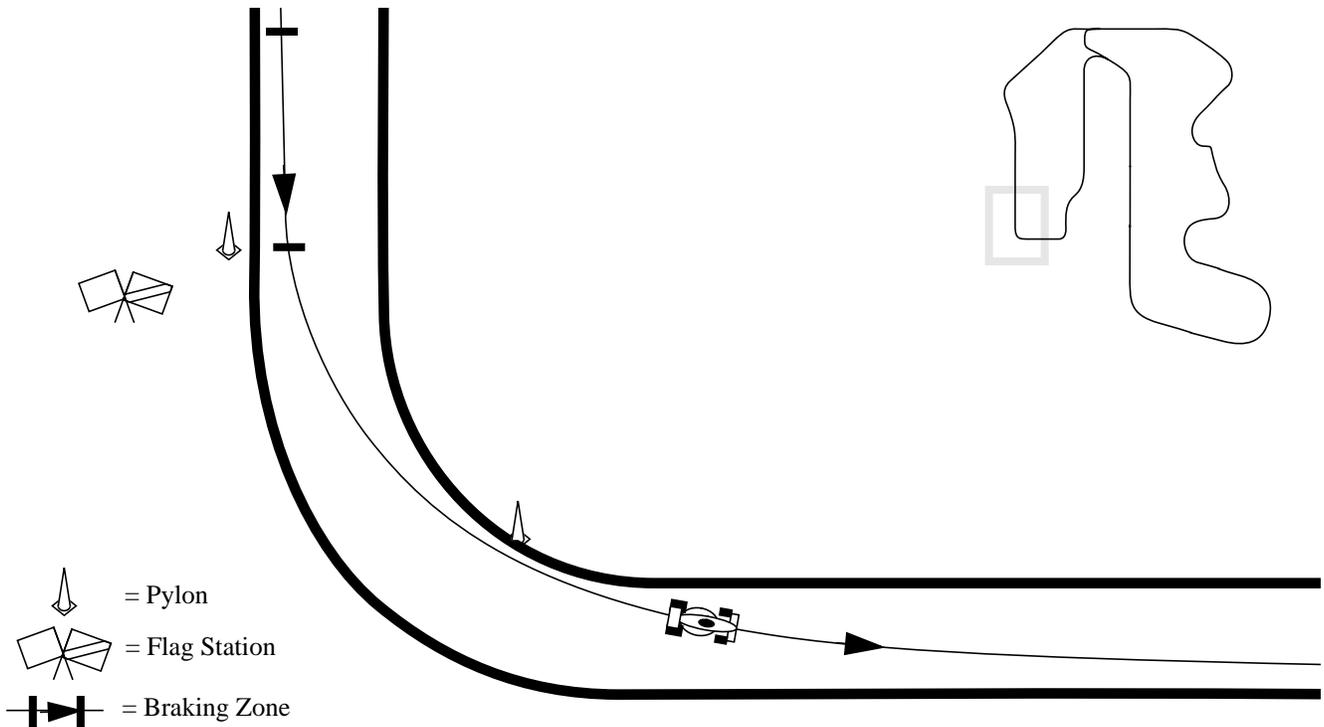
Set up: Move back towards the center of the track exiting 9. Use lots of throttle. Upshift to fourth gear as needed.

Braking Zone: None. This is really a straight, and is taken flat on the throttle.

Turn In/Apex: Wind on enough steering lock to move back over to apex on the driver's right edge in the middle of the Kink. *Use your mirrors*, and be aware of traffic if this section is designated as a passing zone for your group.

Exit: Allow the car to run free back to about the middle of the track at the exit. Use lots of throttle.

Landmarks: None to speak of. There is no flag station for this straight.



Turn 10, Long Course

Turn 10 is a medium-speed, tight, slightly banked 90 degree lefthander. It will be taken in third gear in most cars. The banking here makes this corner faster than it first seems, if used correctly. Drivers will find this reminiscent of Turn 10 at Laguna Seca in that respect.

Set Up: Move back all the way driver's right at the exit of The Kink. Get the car set up in a straight line with about a 3 foot safety margin to the driver's right edge.

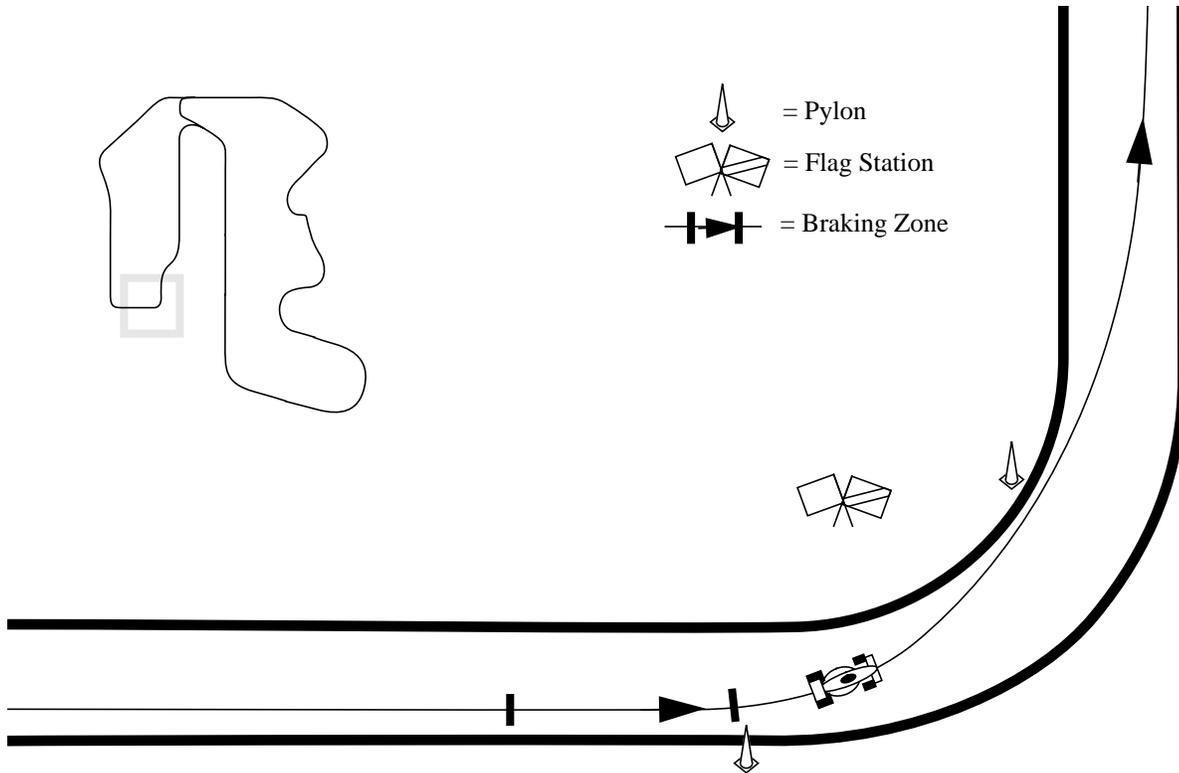
Braking Zone: Hard straightline braking, and downshift to third. There is a gentle rise in the track in the middle of the braking zone that unweights the car a bit, so you may need to brake just a bit earlier to compensate for it.

Turn In: Smoothly wind on the steering lock at the #1 brake marker, and take a nice late turn-in to a textbook late apex, diving down the banking. Using the banking, you can carry a lot of speed through here.

Apex: Textbook late apex. From the apex you can unwind the wheel and squeeze on lots of power, as the extra grip provided by the banking allows you to hook up well.

Exit: Unwind the wheel and allow the car to track out all the way driver's right, using all the power as you head up the very short chute to Turn 11.

Landmarks: Watch out for the little rise in the braking zone that can complicate an otherwise straightforward braking exercise. The flag station will be driver's right opposite the apex. Use the banking to your advantage.



Turn 11, Long Course

Turn 11 is a slow, very tight, blind, 90 degree lefthander. The track rises steeply uphill at the entry, and you cannot see the exit until you are at the apex. This will be another critical flag station to see every lap.

Set up: Let the car run all the way driver's right at the exit of Turn 10, leaving a 3 foot safety margin.

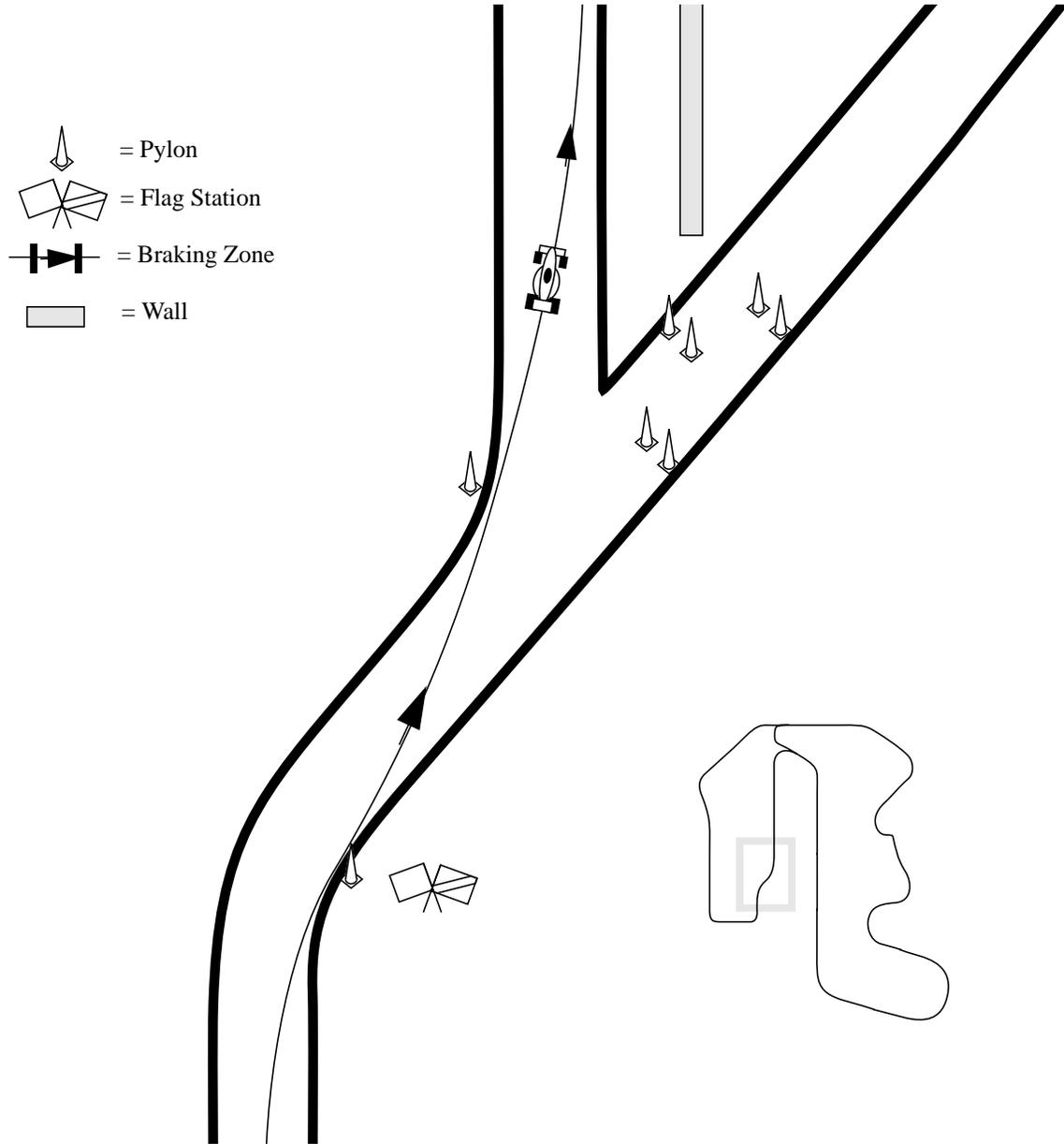
Braking Zone: Very hard, straightline braking along the driver's right edge of the track. Many cars will need to downshift to second gear. Do not underbrake here. This is a very slow turn, so *you must slow the car down* more than you might expect.

Turn In: Very positive turn-in from the end of the braking zone, and no more than an even throttle (no acceleration) to the apex. The apex is at the crest of a hill, so carrying too much speed or too much throttle will lead to drama at the exit.

Apex: Even throttle, and take your apex just as the car crests the hill. Unwind the wheel as the suspension unweights, and feed on the power as the car loads back up after the crest.

Exit: Unwind the wheel and feed on the power, allowing the car to run out to about 3 feet from the driver's right edge. Hold on a little steering lock, however, to sweep the car back into the middle of the track as you run down the short chute into the Turn 12/12A complex.

Landmarks: The flag station driver's left at the apex is absolutely critical to see every lap on this blind corner. Do not under-brake! This is a slow corner, and it is far better to *"go in slow, come out fast"* than it is to *"go in fast, come out backwards"*.



Turns 12 and 12A, Long Course

Turn 12 and 12A form an increasing-radius "S" turn very much like Turns 8 and 8A in the esses at Sears Point. The line in the 30 degree righthand Turn 12 is compromised to allow the car to carry the maximum possible speed through the 30degree left-hand Turn 12A and onto the straight. As these turns are entered from the very slow Turn 11, they are taken flat on the throttle, and form a very good car control test. Turn 12 is a throwaway. It is Turn 12a that matters.

Set up, Turn 12: Move smoothly back into roughly the middle of the track after exiting Turn 11.

Braking Zone, Turn 12: None.

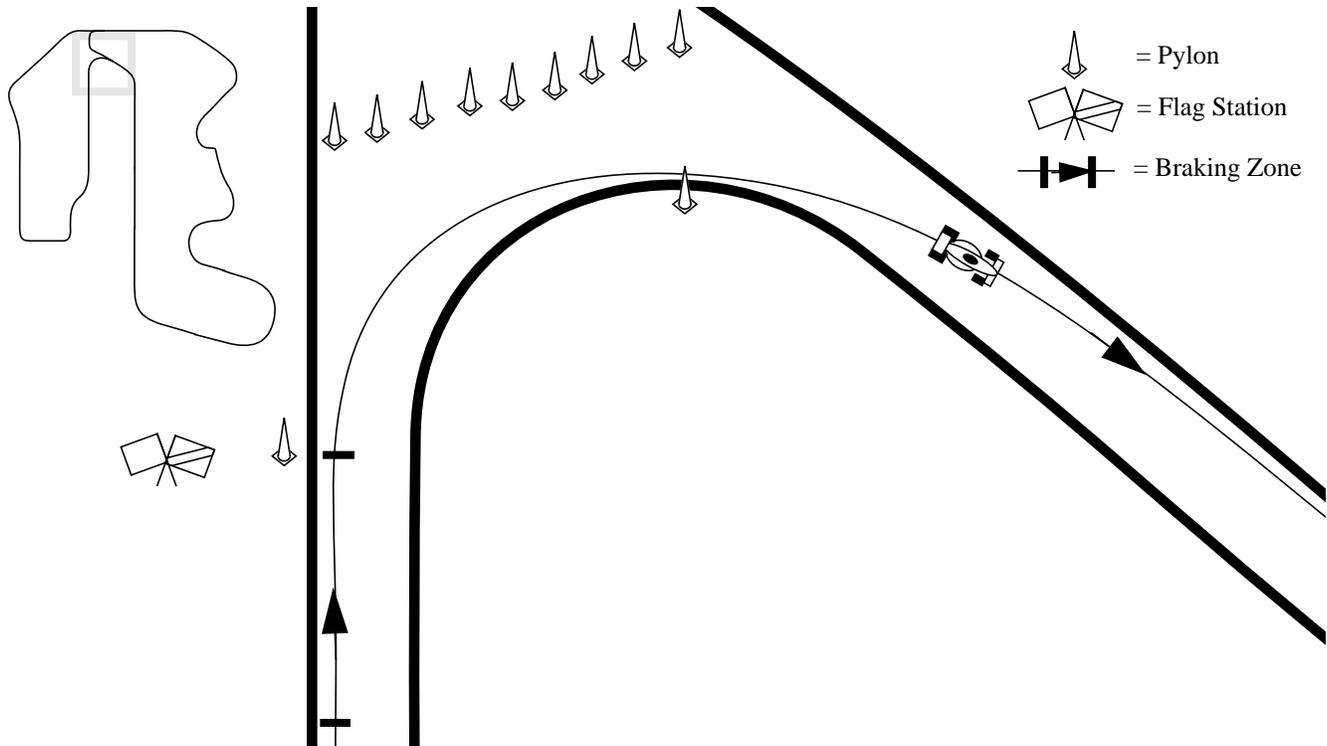
Turn In, Turn 12: The turn-in point is very late, and is intended to allow the car to take a very late apex in 12 so that 12A can be entered smoothly.

Apex, Turn 12/Turn In, Turn 12A: The steering should be rolled out to zero lock just as the car takes a very late apex in Turn 12. After a pause for just a beat to let the chassis settle, the steering should be immediately turned back to the left to enter Turn 12A. There is no "exit" for Turn 12- the entry to Turn 12A is done right at the apex of Turn 12. That little bit of straightline running before turning in for Turn 12A is a critical element of carrying speed through this section in a heavy car.

Apex, Turn 12A: The apex for Turn 12A is very late, and the car should be at wide-open throttle throughout this section. This is one of the few places at the track where wide-open acceleration is mixed with transitional cornering. *Do not turn in too early* for Turn 12A, because the back straight wall is just a few feet off the driver's right edge of the track at the exit. There is little runoff area before the wall.

Exit, Turn 12A. Let the car run free through the increasing-radius exit at wide open throttle, and let it track out all the way driver's right, keeping a 3 foot safety margin. The very fast downhill back straight will undoubtedly be a passing zone, so watch your mirrors for overtaking cars as you move back driver's left to set up for Turn 14.

Landmarks: There is an escape road going straight off of the exit of Turn 12 that forms a back entrance to the paddock, in the case of a mechanical failure. It should not be used for paddock entry except in the case of a failure. Treat the back straight wall with respect, but do not be intimidated by it.



Turn 14, Long Course

Turn 14 is a long, 120 degree sweeping righthander that brings us back to rejoin the short course. Most cars will take this corner in third gear. It is very blind, as the hillside blocks any view of the apex from the straight.

Set Up: Move smoothly back over to the driver's left edge as you run down the straight in top gear. Leave a 3 foot safety margin to the left edge of the pavement as you enter the braking zone.

Braking Zone: Hard, straightline braking at the end of the downhill straight, and get the car into third gear by the #1 brake marker.

Turn In: The turn in point is very deceptive here. The turn-in must be a very gradual, progressive process. It is extremely easy to turn in too early, or too much. You must force yourself to allow the car to stay out wide in the early part of the corner, and wind on your steering lock very slowly and progressively as you go through to take a single, very late apex. There is a cement patch on the surface about halfway through the corner. If you straddle it with the car, you are in about the right place. If you find yourself inside it, you are in trouble. This corner is taken on an even throttle, not accelerating with power on.

Apex: The apex is very late, and is located well around the corner. Once at the apex, unwind the wheel and feed on the power.

Exit: Allow the car to run freely out to the driver's left edge, and re-intersect the familiar line from the short course as you set the car up for the right hand Turn 9/15. Do not allow the car to run wide and drop two wheels off the driver's left edge. Unlike Turn 9/15, at this time there is no curbing there to "catch" wayward drivers who drift out too wide at the exit. Leave yourself a 3 foot safety margin to the driver's left edge of the track as you set up for Turn 9/15. You will find that you enter Turn 9/15 quite a bit faster from the long course than you do from the short course.

Landmarks: You *must* see the flag station, which will be located driver's left at the turn-in point. There is usable runoff road-straight ahead in the braking zone in case you overcook it. Remember the concrete patch, and do not allow yourself to turn in too early, or too much too soon. Keep all 4 wheels on the racing surface at the exit. **Peculiarities:** There is no Turn 13, for reasons unknown except to the course designer- and he's not telling.