STATE OF WASHINGTON

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

1300 S. Evergreen Park Dr. S.W., P.O. Box 47250 • Olympia, Washington 98504-7250
(360) 664-1160 • TTY (360) 586-8203

February 2, 2010

Jodi Mitchell
Sound Transit
401 South Jackson Street
Seattle, WA 98104-2826

Peter Zahn
City of DuPont
303 Barksdale Avenue
DuPont, WA 98327

Dale King, Superintendent
Tacoma Rail
2601 SR 509
North Frontage Road
Tacoma, WA 98421

RE: TR-100131 - Petition from the Washington State Department of Transportation to Modify the Barksdale Avenue Highway-Rail Grade Crossing

Dear Ms. Mitchell, Mr. Zahn and Mr. King:

On January 19, 2010, the Washington State Department of Transportation filed a petition with the Washington Utilities and Transportation Commission (Commission), seeking approval to modify an at-grade railroad crossing at Barksdale Avenue in the City of DuPont, Washington. The petition also seeks to interconnect the railroad warning devices with the nearby traffic light and install wayside horns at the crossing. The Commission assigned Docket No. TR-100131 to this petition.

Please review the attached petition and respond by February 22, 2010. Your response options include:

- Support the petition – Complete the Respondent's Waiver of Hearing form, which serves as your consent for the Commission to issue an order without further notice or hearing.

- Do not support the petition – Reply with your position and include whether you feel a hearing is necessary to resolve the issues or suggest other courses of action, such as further discussion prior to going to hearing.

If you do not respond within 20 days of the date of this letter, we will assume you do not support the petition and will set the matter for hearing. You will be required to attend the hearing and respond to the Commission.

If you have any questions, please contact Kathy Hunter at (360) 664-1257 or khunter@utc.wa.gov.

Sincerely,

David Pratt
Assistant Director, Transportation Safety

Enclosure

cc: Kevin Jeffers, WSDOT (without attachment)

WASHINGTON
UTC
UTILITIES AND TRANSPORTATION COMMISSION

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

Washington State Department of Transportation Petitioner, vs. **Central Puget Sound Regional Transportation Authority and the City of DuPont** Respondent	)	DOCKET NO. TR- 100131 PETITION TO MODIFY A HIGHWAY-RAIL GRADE CROSSING **Barksdale Avenue** USDOT CROSSING # **085836E** UTC CROSSING #

2010 JAN 19 AM 8:25

The Petitioner asks the Washington Utilities and Transportation Commission to approve modification of a highway-rail grade crossing.

Section 1 – Petitioner's Information

Washington State Department of Transportation Petitioner
310 North Maple Park Ave SE Street Address
Olympia, WA 98504 City, State and Zip Code
PO Box 47307, Olympia, WA 98504-7407 Mailing Address, if different than the street address
Kevin Jeffers Contact Person Name
360-705-7982; JefferK@wsdot.wa.gov Contact Phone Number and E-mail Address

Section 2 – Respondent's Information

Central Puget Sound Regional Transportation Authority ("Sound Transit")

Respondent

401 South Jackson Street

Street Address

Seattle, WA 98104-2826

City, State and Zip Code

Mailing Address, if different than the street address

Jodi Mitchell

Contact Person Name

206-398-5080; Jodi.Mitchell@SoundTransit.org

Contact Phone Number and E-mail Address

City of DuPont

Respondent

303 Barksdale Ave

Street Address

DuPont, WA 98327

City, State and Zip Code

Mailing Address, if different than the street address

Peter Zahn

Contact Person Name

(253) 912-5381, pzahn@ci.dupont.wa.us

Contact Phone Number and E-mail Address

Section 3 – Current Crossing Information

1. Railroad company(ies) _____
   - Tracks owned by: **Sound Transit**
   - Operating railroad: **Tacoma Rail, BNSF, Amtrak**

2. Type of railroad at crossing ☑ Common Carrier ☐ Logging ☐ Industrial

   ☐ Passenger ☐ Excursion

3. Type of tracks at crossing ☑ Main Line, number of tracks **1**
   ☐ Siding or Spur, number of tracks ____

4. Average daily train traffic, freight **2 per day (trains typically operate 4-5 days/week, max.)**

   Authorized freight train speed **10 mph** Operated freight train speed **10 mph**

5. Average daily train traffic, passenger **0**

   Authorized passenger train speed **N/A** Operated passenger train speed **N/A**

6. Describe current crossing configuration including type of train detection, active warning devices, preemption, etc.:
This is currently a single track crossing with cantilever-mounted flashing lights on the southbound roadway approach and crossing gates on all approaches.

The existing interconnection is simultaneous pre-emption. When activated, the traffic lights go into an "all-way-flashing red" mode.

Section 4 – Expected Crossing Characteristics After Modification

1. Type of railroad operations at crossing ☑ Common Carrier ☐ Logging ☐ Industrial

☑Passenger ☐ Excursion

2. Type of tracks at crossing ☑ Main Line, number of tracks **1**
☐ Siding or Spur, number of tracks _____

3. Average daily train traffic, freight **2**

Authorized freight train speed **40 mph** Operated freight train speed **40 mph**

4. Average daily train traffic, passenger **16**

Authorized passenger train speed **79 mph** Operated passenger train speed **79 mph**

5. Will the modified crossing eliminate the need for one or more existing crossings?
Yes ____ No **X**

6. If so, state the distance and direction from the modified crossing.

_____

_____

_____

7. Does the petitioner propose to close any existing crossings and if yes, which crossings?
Yes ____ No **X**

_____

Section 5 – Proposed Temporary Crossing

1. Will a temporary crossing be installed? Yes ____ No __X__

2. If so, describe the purpose of the crossing and the estimated time it will be needed

_____

_____

_____

3. Will the petitioner remove the crossing at completion of the activity requiring the temporary crossing? Yes ____ No ____ **N/A**

Approximate date of removal _____

Section 6 – Current Highway Traffic Information

1. Name of roadway/highway **Barksdale Avenue**

2. Roadway classification **Arterial**

3. Road authority **City of DuPont/ WSDOT**

4. Average annual daily traffic (AADT) **13990 (in year 2006)**

5. Number of lanes **2 NB lane, 3 SB lanes.**

6. Roadway speed **25mph**

7. Is the crossing part of an established truck route? Yes **X** No _____

8. If so, trucks are what percent of total daily traffic? **3% (peak hour)**

9. Is the crossing part of an established school bus route? Yes **X** No _____

10. If so, how many school buses travel over the crossing each day? **15**

11. Describe any changes to the information in 1 through 7, above, expected within ten years: **AADT estimated to grow to 26,290 (in year 2020); as part of the project, a new 1' wide median will be installed on the north side of crossing, a short section of median will be installed on the south side of crossing. The new median will help discourage motorists from evading the crossing gates.**

Section 7 – Alternatives to the Proposed Modifications

1. Does a safer location for a crossing exist within a reasonable distance of the current or proposed location? Yes ____ No X

2. If a safer location exists, explain why the crossing should not be located at that site.

3. Are there any hillsides, embankments, buildings, trees, railroad loading platforms or other barriers in the vicinity which may obstruct a motorist's view of the crossing?
Yes X No ____

4. If a barrier exists, describe:
- ♦ Whether petitioner can relocate the crossing to avoid the obstruction and if not, why not.
- ♦ How the barrier can be removed.
- ♦ How the petitioner or another party can mitigate the hazard caused by the barrier.

Views of the Northbound approach are obstructed by the handrails on the bridge over Interstate 5. Views on the Southbound approach to the crossing are obstructed by the roadway geometry, which curves away from the track.

5. Is it feasible to construct an over-crossing or under-crossing at the proposed location as an alternative to an at-grade crossing?
Yes ____ No X

6. If an over-crossing or under-crossing is not feasible, explain why.
The existing site is surrounded by businesses, Interstate 5, and a military installation. While the roadway is below the tracks on the Southbound approach to the crossing, on the North side of the tracks, the roadway passes over Interstate 5 south of the tracks. To construct an overcrossing or undercrossing would mean relocating Interstate 5.

7. Does the railway line, at any point in the vicinity of the modified crossing, pass over a fill area or trestle or through a cut where it is feasible to construct an over-crossing or an under-crossing, even though it may be necessary to relocate a portion of the roadway to reach that point?

Yes X No ____

8. If such a location exists, state:

- ♦ The distance and direction from the proposed crossing.
- ♦ The approximate cost of construction.
- ♦ Any reasons that exist to prevent locating the crossing at this site.

While the roadway is below the tracks on the Southbound approach to the crossing, on the North side of the tracks, the roadway passes over Interstate 5 immediately south of the tracks. To construct an overcrossing or undercrossing would mean relocating Interstate 5. Cost of construction would likely be in the range of $50 million to $100 million. The only suitable location where there is sufficient grade difference is at the existing crossing location. Because of the presence of Interstate 5, any such roadway over/undercrossing would also have to span the freeway.

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9. Is there an existing public or private crossing in the vicinity of the proposed modified crossing?

Yes ____ No X

10. If a crossing exists, state:

- ♦ The distance and direction from the proposed crossing.
- ♦ Whether it is feasible to divert traffic from the proposed to the existing crossing.

Section 8 – Sight Distance

1. Complete the following table, describing the sight distance for motorists when approaching the tracks from either direction after modification. "**Number of feet from proposed crossing" is measured parallel to the track from the crossing gate along the centerline of the "outside" lane. Sight distance is measured from the edge of traveled way (edge of fog line or curb line) along the CL of track at the crossing. NOTE - for "Left" sight distances, the edge of traveled way is on the *opposite* side of the roadway. Sight distances assume motorist will not have to turn their heads more than 90 degrees on the Southbound curving approach to the Barksdale Avenue crossing.**

Note that sight distances from the I-5 Southbound Off Ramp are NOT reflected in the tables below. The I-5 Off Ramp is both parallel and very close to the tracks. Motorists on the Off-Ramp may have their forward visibility along the track, at certain angles, obstructed somewhat by the railroad crossing cantilever mast and gate mechanism. Since the tracks also extend behind motorists on the Off-Ramp, rearward visibility, though unlimited by obstacles, is likely to be zero, based on motorists' tendency to not look behind them.

a. Approaching the crossing from **SOUTH** (North, South, East, West), the current approach provides an unobstructed view as follows:

Direction of sight (left or right)	Number of feet from proposed crossing	Provides an unobstructed view for how many feet
Right	300	**0 (obscured by bridge railing)**
Right	200	**5 (obscured by bridge railing)**
Right	100	**320**
Right	50	**220**
Right	25	**280**
Left	300	**0 (obscured by bridge railing)**
Left	200	**0 (obscured by bridge railing)**
Left	100	**140**
Left	50	**165**
Left	25	**215**

b. Approaching the crossing from **NORTH** (Opposite direction-North, South, East; West), the current approach provides an unobstructed view as follows:

Direction of sight (left or right)	Number of feet from proposed crossing	Provides an unobstructed view for how many feet
Right	300	**0 (around curve in road)**
Right	200	**0 (around curve in road**
Right	100	**165**
Right	50	**85**
Right	25	**30**
Left	300	**0 (around curve in road)**
Left	200	**0 (around curve in road)**
Left	100	**220**
Left	50	**320**
Left	25	**320**

2. Will the modified crossing provide a level approach measuring 25 feet from the center of the railway on both approaches to the crossing?

Yes ____ No X

3. If not, state in feet the length of level grade from the center of the railway on both approaches to the crossing.

At the North side of the crossing, the roadway centerline profile slopes down from the crossing at 0.45% for approximately 5', then it matches the existing grade. Beyond that point, the centerline on the north side descends at approximately 4.8% overall. The 4.8% slope begins approximately 5' from the edge of the crossing panels and gets steeper. The roadway centerline profile to the South of the crossing slopes upward away from the crossing at 0.83% for approximately 5', then matches the existing ground, which is sloping upward from the crossing at a grade of approximately 2%.

4. Will the modified crossing provide an approach grade of not more than five percent prior to the level grade?

Yes X No ____

3. If not, state the percentage of grade prior to the level grade and explain why the grade exceeds five percent.

The approach grade from the south averages approximately 4.8%, however, short sections of the approach grade are steeper than 4.8%. Note that the Southbound approach grade is significantly steeper in the far right lane than at the centerline, and will have less than 2 feet of level (or nearly level) area at the edge of the crossing panel.

Section 9 – Illustration of Modified Crossing Configuration

Attach a detailed diagram, drawing, map or other illustration showing the following:

- ♦ The vicinity of the modified crossing.
- ♦ Layout of the railway and highway 500 feet adjacent to the crossing in all directions.
- ♦ Percent of grade.
- ♦ Obstructions of view as described in Section 7 or identified in Section 8.
- ♦ Traffic control layout showing the location of the existing and proposed signage.

Existing features (buildings, trees, etc) that are obstructions are shown on the accompanying plan in "screened" or "grayscale" lines.

Section 10 – Proposed Warning Signals or Devices

1. Explain in detail the number and type of proposed automatic signals or other warning devices planned at the crossing, including a cost estimate for each. If the proposed medications include adding or modifying preemption, contact UTC for the additional worksheets.
Modifications to the existing warning devices include replacement of the existing crossing gates with newer model gates (there are currently gates on all roadway approaches, and a cantilever on the southbound roadway approach).

The control equipment for the railroad warning devices will be upgraded to modern constant warning time units, replacing the existing case and hardware. The new circuitry will allow for additional advanced pre-emption time. The interconnection between the grade crossing control equipment and the roadway traffic signal controller will be upgraded to a 6-wire supervisory configuration. The roadway authority can use 2 or 6 of these wires, depending upon their interconnection wiring preferences.

An activated blank-out sign with the message or symbol "No Right Turn" is proposed at the intersection of Barksdale Avenue and the Southbound Off-Ramp from Interstate 5. Another activated blank-out sign with the message or symbol "No Right Turn" is proposed at the intersection of Barksdale Avenue and DuPont-Steilacoom Road. These signs will illuminate when advance pre-emption becomes effective and thus help deter vehicles from making movements toward the tracks.

After the railroad advance pre-emption is in effect, and after the crossing gates have had sufficient time to descend, the green phase on North/Southbound Barksdale Avenue will end at both the Interstate 5 Ramp terminal intersection and at the DuPont-Steilacoom Road intersection. Movements which do not conflict with the railroad tracks will be permitted. In conjunction with the blank-out signs, these measures are intended to deter traffic queues from forming over the tracks.

Pedestrian movements conflicting with the pre-emption call would be terminated immediately, with the walk symbol immediately changing to "Don't Walk" or going blank, depending upon the roadway authority's preference.

The military checkpoint at Fort Lewis has the potential to impact traffic in the vicinity of the crossing. At high national security alert levels, vehicle movement times through the checkpoint queues may lengthen significantly, with potential impacts on the overall traffic operations, and potentially prevent the "track clearance" features of the traffic signal phasing from operating as intended.

The approximate cost for railroad crossing signal improvements at Barksdale Avenue is $450,000.

Section 11 – Justification of Installation of Wayside Horn (if applicable)

1. Describe in detail why this crossing should have a wayside horn installed. Also include a description of where the wayside horns and indicator lights will be installed at the crossing. **With higher speed operations, wayside horns are being installed to help avoid creating noise for residents adjacent to the track. With higher speed trains, the train horn would begin sounding farther from the crossing, near residential areas. The indicator lights will be installed on separate masts, mounted high so that engineers can see them from a distance. The mast for the wayside horns will be installed in the median just north of the crossing.**

Section 12 – Additional Information

Provide any additional information supporting the proposal, including information such as the public benefits that would be derived from modifying the crossing as proposed.

New concrete crossing panel crossing surfaces will be installed, and the roadway repaved to match the elevation of the panels.

Section 13 – Waiver of Hearing by Respondent TR-100131

Waiver of Hearing -Sound Transit

The undersigned represents the Respondent in the petition to modify a highway-railroad grade crossing.

We have investigated the conditions at the crossing proposed for modification. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the crossing be modified and consent to a decision by the commission without a hearing.

Dated at _____ , Washington, on the _____ day of

_____, 20 ____.

_____

Printed name of Respondent

_____

Signature of Respondent's Representative

_____

Title

_____

Phone number and e-mail address

_____

_____

Mailing address

Section 13 – Waiver of Hearing by Respondent TR-100131

Waiver of Hearing – City of DuPont

The undersigned represents the Respondent in the petition to modify a highway-railroad grade crossing.

We have investigated the conditions at the crossing proposed for modification. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the crossing be modified and consent to a decision by the commission without a hearing.

Dated at _____ , Washington, on the _____ day of

_____, 20 ____.

_____

Printed name of Respondent

_____

Signature of Respondent's Representative

_____

Title

_____

Phone number and e-mail address

_____

_____

Mailing address

Section 13 – Waiver of Hearing by Respondent TR-100131

Waiver of Hearing – Tacoma Rail

The undersigned represents the Respondent in the petition to modify a highway-railroad grade crossing.

We have investigated the conditions at the crossing proposed for modification. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the crossing be modified and consent to a decision by the commission without a hearing.

Dated at Tacoma, Washington, on the 12th day of February, 20 ___.

Tacoma Rail

Printed name of Respondent

Dale W. King

Signature of Respondent's Representative

Superintendent

Title

(253) 396-3327 dale.king@cityoftacoma.org

Phone number and e-mail address

2601 SR 509 N. Frontage Road

Tacoma, WA 98421

Mailing address

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2010 FEB 16 AM 8:10
STATE OF WASH.
UTIL. AND TRANSP.

GUIDE FOR DETERMINING TIME REQUIREMENTS FOR TRAFFIC SIGNAL PREEMPTION AT HIGHWAY-RAIL GRADE CROSSINGS

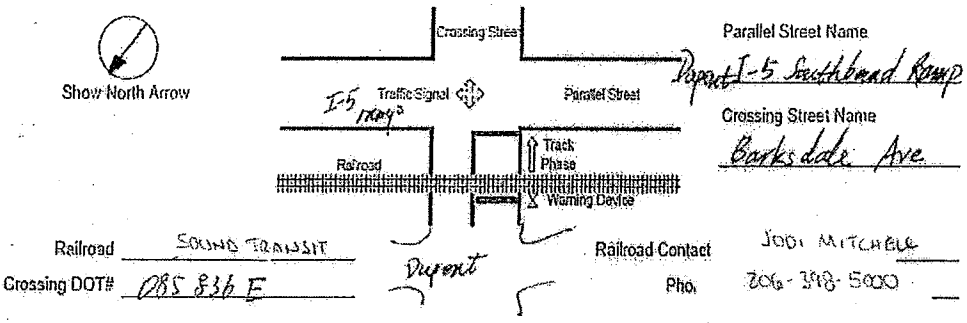
GUIDE FOR DETERMINING TIME REQUIREMENTS FOR
TRAFFIC SIGNAL PREEMPTION AT HIGHWAY-RAIL GRADE CROSSINGS

WASHINGTON UTC UTILITIES AND TRANSPORTATION COMMISSION

City _____ Date 6/3/2008

County Pierce Completed by Tony Wang

District _____ District Approval _____



Parallel Street Name: Dupont I-5 Southbound Ramp

Crossing Street Name: Barksdale Ave.

Railroad: SOUND TRANSIT Railroad Contact: JODI MITCHELL

Crossing DOT#: 085 836 E Phone: 206-398-5000

SECTION 1: RIGHT-OF-WAY TRANSFER TIME CALCULATION

Preempt verification and response time

			Remarks
1. Preempt delay time (seconds)	1.	0	
2. Controller response time to preempt (seconds)	2.	0	Controller type: 2070- new controller
3. Preempt verification and response time (seconds): add lines 1 and 2	3.	0	This calculation is also applicable to TMP380

Worst-case conflicting vehicle time

			Remarks
4. Worst-case conflicting vehicle phase number	4.	5	
5. Minimum green time during right-of-way transfer (seconds)	5.	60	
6. Other green time during right-of-way transfer (seconds)	6.	0	
7. Yellow change time (seconds)	7.	3.5	
8. Red clearance time (seconds)	8.	1	
9. Worst-case conflicting vehicle time (seconds): add lines 5 through 8	9.	10.5	

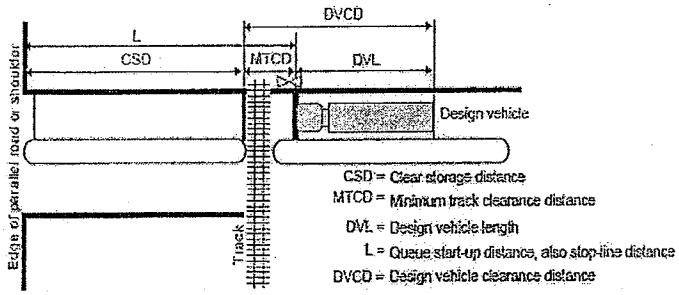
Worst-case conflicting pedestrian time

			Remarks
10. Worst-case conflicting pedestrian phase number	10.	5	
11. Minimum walk time during right-of-way transfer (seconds)	11.	0	omitted
12. Pedestrian clearance time during right-of-way transfer (seconds)	12.	0	
13. Vehicle yellow change time, if not included on line 12 (seconds)	13.	3.5	
14. Vehicle red clearance time, if not included on line 12 (seconds)	14.	1.0	
15. Worst-case conflicting pedestrian time (seconds): add lines 11 through 14	15.	4.5	

Worst-case conflicting vehicle or pedestrian time

16. Worst-case conflicting vehicle or pedestrian time (seconds): maximum of lines 9 and 15	16.	10.5
17. Right-of-way transfer time (seconds): add lines 3 and 16	17.	10.5

SECTION 2: QUEUE CLEARANCE TIME CALCULATION



			Remarks
18. Clear storage distance (CSD, feet)	18.	270	
19. Minimum track clearance distance (MTCD, feet)	19.	60	
20. Design vehicle length (DVL, feet)	20.	67	Design vehicle type:
21. Queue start-up distance, L (feet): add lines 18 and 19	21.	330	
22. Time required for design vehicle to start moving (seconds): calculate as 2+(L÷20)	22.	18.5	Remarks
23. Design vehicle clearance distance, DVCD (feet): add lines 19 and 20	23.	127	
24. Time for design vehicle to accelerate through the DVCD (seconds)	24.	15.5	Read from Figure 2 in Instructions.
25. Queue clearance time (seconds): add lines 22 and 24	25.	34	

SECTION 3: MAXIMUM PREEMPTION TIME CALCULATION

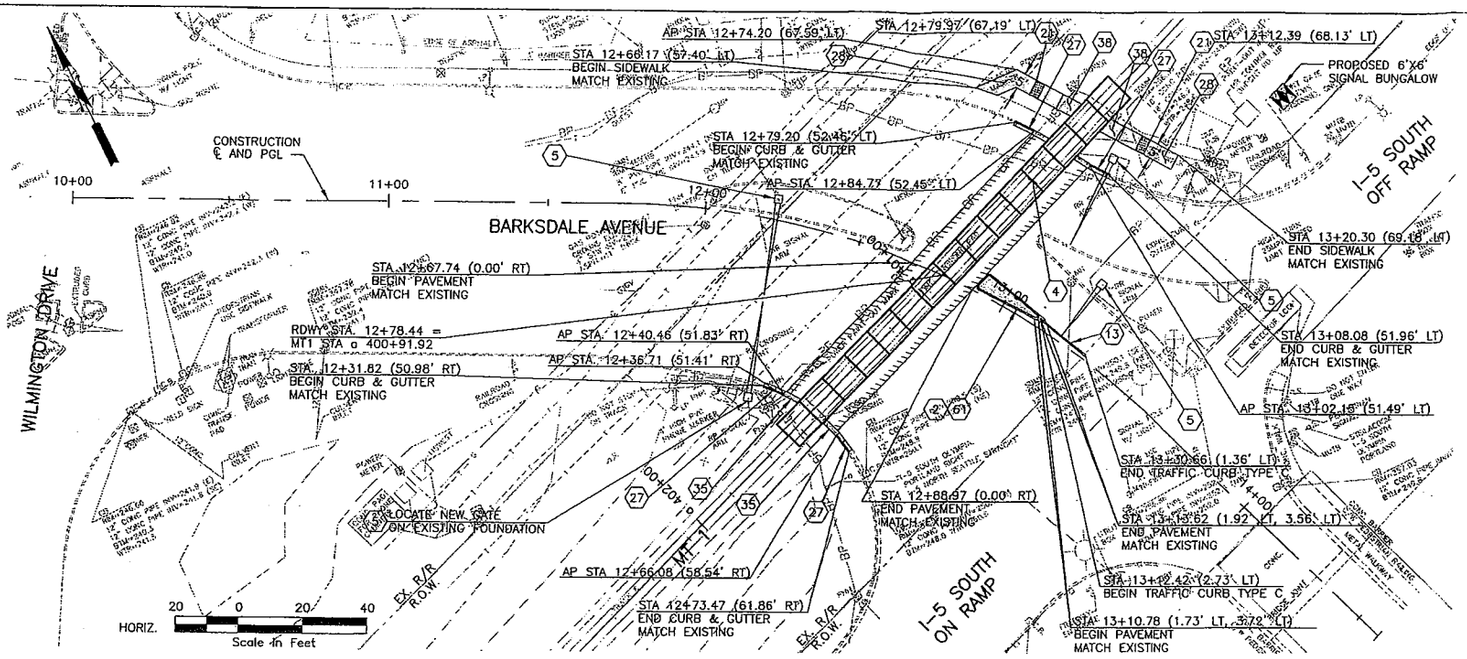
			Remarks
26. Right-of-way transfer time (seconds): line 17	26.	10.5	
27. Queue clearance time (seconds): line 25	27.	34	
28. Desired minimum separation time (seconds)	28.	4.0	
29. Maximum preemption time (seconds): add lines 26 through 28	29.	48.5	

SECTION 4: SUFFICIENT WARNING TIME CHECK

			Remarks
30. Required minimum time, MT (seconds): per regulations	30.	200	
31. Clearance time, CT (seconds): get from railroad	31.	30	Rail Signal Design
32. Minimum warning time, MWT (seconds): add lines 30 and 31	32.	230	Excludes buffer time (BT)
33. Advance preemption time, APT, if provided (seconds): get from railroad	33.	25.5	
34. Warning time provided by the railroad (seconds): add lines 32 and 33	34.	48.5	
35. Additional warning time required from railroad (seconds): subtract line 34 from line 29, round up to nearest full second, enter 0 if less than 0	35.	0	

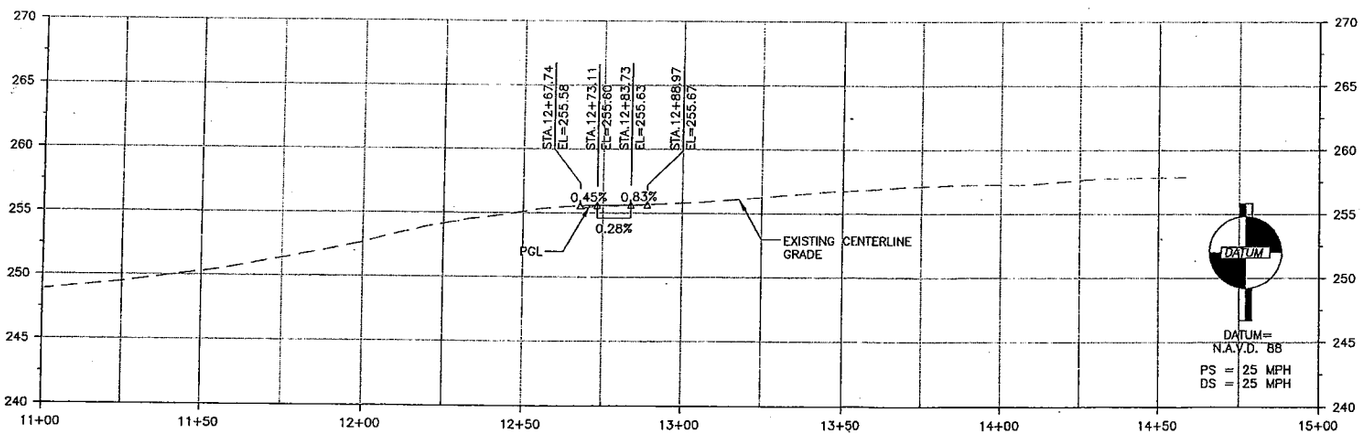
If the additional warning time required (line 35) is greater than zero, additional warning time has to be requested from the railroad. Alternatively, the maximum preemption time (line 29) may be decreased after performing an engineering study to investigate the possibility of reducing the values on lines 1, 5, 6, 7, 8, 11, 12, 13 and 14.

Remarks: _____



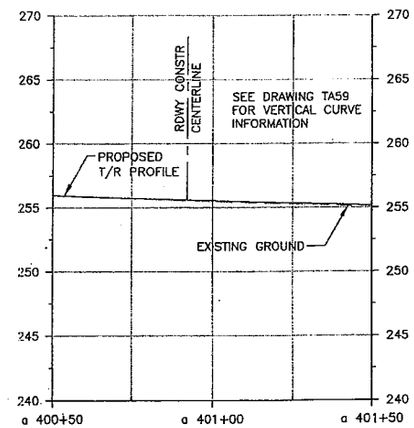
GENERAL NOTES:

1. SEE DRAWING RDCN FOR CONSTRUCTION NOTES AND ADDITIONAL GENERAL NOTES.
2. NEW GATES ON EASTBOUND BARKSDALE AVE TO BE PERPENDICULAR TO ROADWAY.
3. DETECTABLE WARNING TILE PATTERN TO MATCH WSDOT STD PLAN F-3B.



BARKSDALE AVENUE

SCALE (FULL SIZE): 1" = 20' HORIZ.
1" = 5' VERT.



MT 1 TRACK PROFILE

SCALE (FULL SIZE): 1" = 20' HORIZ.
1" = 5' VERT.

FILE NAME	PD_RD130.dwg
TIME	11:54am
DATE	Jan 07, 2009
PLOTTED BY	eberger
DESIGNED BY	RDH
ENTERED BY	ETP
CHECKED BY	CR
PROJ. ENGR.	BB
REGIONAL ADM.	

REVISION	DATE	BY

REGION NO. 10 | STATE WASH
JOB NUMBER 43088
CONTRACT NO. RTA/CP 16-08

SOUNDTRANSIT

EUGENE MILES BERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

SOUNDER COMMUTER RAIL, M STREET TO LAKEWOOD TRACK AND SIGNAL IMPROVEMENTS

BARKSDALE AVENUE

ROADWAY PLAN AND PROFILE

RD130

SHEET OF SHEETS

C:\PW\working\SEA\dms51116\PD_RD130.dwg, 1/7/2009 11:54:38 AM, eberger, 1:2

ROADWAY CONSTRUCTION NOTES

1. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER C.O.T. STD. PLAN NO. SU-03.
2. MODIFIED WSDOT CEMENT CONC. SIDEWALK FOR MEDIAN (PER DETAIL DRAWING RDDET113).
3. CEMENT CONCRETE SIDEWALK (PER C.O.T. STD. PLAN SU-04).
4. CONCRETE CROSSING PANELS WITH ELASTOMERIC FLANGE FILLER. SEE TRACK PLAN AND PROFILE DRAWINGS.
5. CROSSING SIGNAL EQUIPMENT. SEE GRADE CROSSING SIGNAL PLANS.
6. CEMENT CONCRETE TRAFFIC BARRIER CURB PER CITY OF LAKEWOOD STD. PLAN S-2F.
7. CEMENT CONCRETE SIDEWALK (PER CITY OF LAKEWOOD STD. PLAN S-2A).
8. TYPE D MOUNTABLE CEMENT CONCRETE CURB AND GUTTER PER C.O.T. STD. PLAN NO. SU-03. (NOT USED)
9. CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 2 PER C.O.T. STD. PLAN SU-08 MODIFIED WITH CURB AT BACK OF S/W. (SEE TYPICAL SECTIONS.)
10. CRUSHED SURFACING BASE COURSE (ACCESS PAD TO RAILROAD SIGNAL EQUIPMENT: 6" CSBC COMPACTED DEPTH OVER GRAVEL BORROW SUBGRADE).
11. 8" REINFORCED HEAVY DUTY SIDEWALK AND / OR DRIVEWAY PER DRAWING NO. RDDET01. (NOT USED)
12. REPLACE EXISTING CROSSING WITH 115# WOOD TIES. (NOT USED)
13. TYPE C PRECAST TRAFFIC CURB (PER WSDOT STD. PLAN F-2).
14. CEMENT CONCRETE TRAFFIC CURB PER C.O.T. STD. PLAN NO. SU-03.
15. CHAINLINK FENCE TYPE 3 (PER WSDOT STD. PLAN L-20.10-00). (NOT USED)
16. BEAM GUARDRAIL TYPE 1 PER WSDOT STD. PLAN NO. C-1.
17. (NOT USED)
18. (NOT USED)
19. (NOT USED)
20. CEMENT CONC. DRIVEWAY ENTRANCE-MODIFIED (PER DETAIL DRAWING RDDET114).
21. STATION/OFFSET LOCATION FOR DETECTABLE WARNING PATTERN. SEE DRAWINGS RDDET110 AND RDDET111.
22. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER CITY OF LAKEWOOD STD. PLAN S-2F.
23. ADJUST UTILITY TO GRADE.
24. TYPICAL CURB AND GUTTER/SIDEWALK TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RDDET110).
25. CONSTRUCT A 3' WIDE DETECTABLE WARNING STRIP WITH TRUNCATED DOMES PER C.O.T. DEPT. OF PUBLIC WORKS STANDARD PLAN SU-05A. SEE DRAWING NO. RDDET01. (NOT USED)
26. CONSTRUCT SIDEWALK RAMP TYPE 2 PER C.O.T. STD. PLAN SU-05. (NOT USED)
27. CEMENT CONC. TRAFFIC CURB AND GUTTER PER WSDOT STD. PLAN F-10.12-00.
28. CEMENT CONC. SIDEWALK (PER WSDOT STD. PLAN F-30.10-00).
29. (NOT USED)
30. RECONSTRUCT DRIVEWAY IN KIND AS NOTED TO MATCH EXISTING. (NOT USED)
31. CEMENT CONC. SIDEWALK (PER CITY OF LAKEWOOD STD. PLAN S-2B).
32. CEMENT CONC. SIDEWALK RAMP TYPE 5 PER WSDOT STD. PLAN F-42.10-00.
33. (NOT USED)
34. (NOT USED)
35. TYPICAL CURB AND GUTTER TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RDDET110).
36. (NOT USED)
37. (NOT USED)
38. TYPICAL CURB AND GUTTER/PLANTER/SIDEWALK TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RDDET111).
39. REPLACE CONCENTRIC CONE WITH ECCENTRIC CONE, ADJUST TO GRADE AND ORIENT LID AWAY FROM CURB. (NOT USED)
40. TYPICAL DEPRESSED SIDEWALK AT RAIL CROSSING (PER DETAIL DRAWING RDDET111).
41. CONCRETE PAD FOR BUS STOP (PER DETAIL DRAWING RDDET112).

ROADWAY CONSTRUCTION NOTES (CONT.)

42. DUAL FACED CEMENT CONC. TRAFFIC CURB (PER WSDOT STD. PLAN F-10.12-00).
43. (NOT USED)
44. (NOT USED)
45. (NOT USED)
46. HMA CURB (PER DETAIL DRAWING RDDET113).
47. (NOT USED)
48. SIDEWALK RAMP TYPE 2 PER CITY OF LAKEWOOD STD. PLAN S-3B.
49. (NOT USED)
50. HMA SIDEWALK RAMP (PER DETAIL DRAWING RDDET113).
51. CURB AND GUTTER TRANSITION TO HMA CURB (PER DETAIL DRAWING RDDET113).
52. CEMENT CONCRETE SIDEWALK RAMP TYPE 2 MODIFIED (PER DETAIL DRAWING RDDET110).
53. (NOT USED)
54. MOUNTABLE CEMENT CONCRETE TRAFFIC CURB AND GUTTER (PER DETAIL DRAWING RDDET114).
55. (NOT USED)
56. CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 1 (PER C.O.T. STD. PLAN NO. SU-07).
57. (NOT USED)
58. CEMENT CONC. SIDEWALK RAMP TYPE 3B PER WSDOT STD. PLAN F-40.15-00.
59. STORMWATER CURB BREAK (PER DETAIL DRAWING RDDET112).
60. (NOT USED)
61. CEMENT CONC. TRAFFIC CURB (PER WSDOT STD. PLAN F-10.12-00).
62. PRECAST DUAL FACED SLOPED MOUNTABLE CURB (PER WSDOT STD. PLAN F-10.64-01).
63. (NOT USED)
64. BEAM GUARDRAIL ANCHOR TYPE 1 (PER WSDOT STD. PLAN C-6 WITH END SECTION DESIGN C PER WSDOT STD. PLAN C-7).
65. CHAIN LINK FENCE TYPE 4 (PER WSDOT STD. PLAN L-20.10-00) WITH VINYL COATING.

GENERAL NOTES – ROADWAY CONSTRUCTION

1. SEE UTILITY RELOCATION AND PROTECTION PLANS FOR STORM DRAINAGE, MISC. CONDUIT AND CASING INSTALLATION.
2. SEE SHEETS RDAL121-RDAL125 FOR ROADWAY MEDIAN DETAILS.
3. SEE SHEETS RDTS110-RDTS128 FOR PAVEMENT SECTIONS.
4. CURB AND CURB AND GUTTER DEFINED BY FACE OF CURB UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE PROVIDED AT TOP OF CURB UNLESS OTHERWISE NOTED AND DO NOT RELECT CURB CUTS OR SIDEWALK RAMPS.
5. ALL CURB RETURN ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED. AT CURB CUT RAMPS, CURB RETURN ELEVATIONS ARE INDICATED AT A POINT 6" ABOVE GUTTER FLOWLINE UNLESS OTHER WISE NOTED.
6. ALL UNITS ARE IN FEET UNLESS OTHERWISE SPECIFIED.
7. DRIVEWAYS ARE STATIONED AT CENTERLINE OF DRIVEWAY.
8. STORMWATER CURB BREAKS ARE STATIONED AT CENTERLINE OF STORMWATER CURB BREAK.

FILE NAME	PD_RDCN.dwg
TIME	11:59am
DATE	Jan 07, 2009
PLOTTED BY	eberger
DESIGNED BY	RDH
ENTERED BY	RDH
CHECKED BY	XXX
PROJ. ENGR.	
REGIONAL ADM.	

REVISION	DATE	BY

REGION NO.	STATE
10	WASH
JOB NUMBER 43088	
CONTRACT NO. RTA/CP 16-08	

SOUNDTRANSIT

EUGENE MILESBERGER — STATE OF WASHINGTON — 42263 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

SOUNDER COMMUTER RAIL, M STREET TO LAKEWOOD TRACK AND SIGNAL IMPROVEMENTS

ROADWAY CONSTSTRUCTION NOTES

ROADWAY CONSTRUCTION NOTES

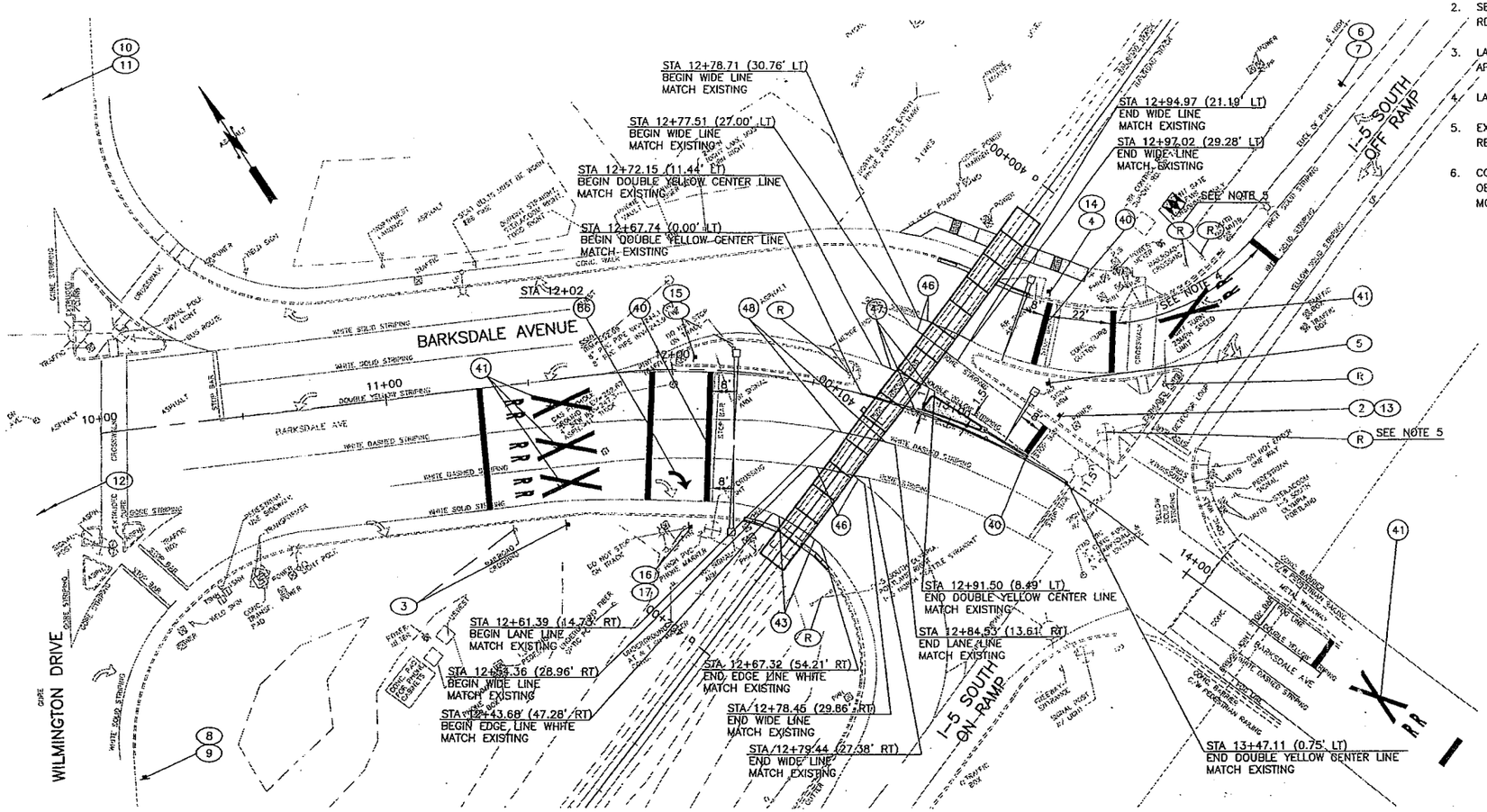
RDCN

SHEET OF SHEETS

C:\PWworking\SEA\dms51116\PD_RDCN.dwg, 1/7/2009 11:59:55 AM, eberger, 1:2

GENERAL NOTES:

1. SEE DRAWING RDCHCN FOR CHANNELIZATION NOTES AND ADDITIONAL GENERAL NOTES.
2. SEE DRAWING RDS115 FOR SIGN SCHEDULE AND RDS110A FOR NOTES.
3. LANE AND SHOULDER WIDTHS SHOWN ARE APPROXIMATE. MATCH EXISTING.
4. LAYOUT PER WSDOT STD. PLAN M-11.10-01.
5. EXISTING RAILROAD ADVANCE SIGN (W10-1) TO REMAIN.
6. COORDINATE SIGN LOCATIONS IN FIELD TO AVOID OBSCURING RAILROAD WARNING LIGHTS FROM MOTORISTS' VIEW.



FILE NAME	PD_RDCH118.dwg				REGION NO.	STATE	SOUNDER COMMUTER RAIL, M STREET TO LAKEWOOD TRACK AND SIGNAL IMPROVEMENTS		RDCH118
TIME	12:03pm				10	WASH			
DATE	Jan 07, 2009				JOB NUMBER 43088		BARKSDALE AVENUE		SHEET OF SHEETS
PLOTTED BY	eberger				CONTRACT NO. RTA/CP 16-08				
DESIGNED BY	CLG						CHANNELIZATION AND SIGNING PLAN		
ENTERED BY	ETP								
CHECKED BY	CR								
PROJ. ENGR.	BB								
REGIONAL ADM.		REVISION	DATE	BY					

SOUNDTRANSIT

EUGENE MILES EBERGER, STATE OF WASHINGTON, 42263, REGISTERED PROFESSIONAL ENGINEER, EXPIRES 11/09/

HDR ENGINEERING INC.

Washington State Department of Transportation

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(x) ROADWAY CHANNELIZATION NOTES

14. PAINTED TWO WAY LEFT TURN STRIP WITH RAISED PAVEMENT MARKERS PER C.O.T. CHANNELIZATION DETAILS, RAISED PAVEMENT MARKERS AND PAINT STRIPING STD. PLAN.
15. PAINTED 4" LANE STRIPE WITH RAISED PAVEMENT MARKERS PER C.O.T. CHANNELIZATION DETAILS, RAISED PAVEMENT MARKERS AND PAVEMENT STRIPING STD. PLAN.
21. PLASTIC PAVEMENT "ONLY" PER C.O.T. PLASTIC PAVEMENT "ONLY" STD. PLAN.
22. THERMOPLASTIC TRAFFIC ARROW PER C.O.T. TYPICAL THERMOPLASTIC TRAFFIC ARROW STD. PLAN.
40. PLASTIC TYPE D STOP BAR PER WSDOT STD. PLAN M-11.10-01.
41. PLASTIC TYPE D RAILROAD CROSSING SYMBOL PER WSDOT STD. PLAN M-11.10-01, WITH EXCEPTIONS TO STANDARD LAYOUT DIMENSIONS AS NOTED IN PLAN VIEW.
42. PLASTIC TYPE D EDGE LINE YELLOW PER WSDOT STD. SPECIFICATIONS.
43. PLASTIC TYPE D EDGE LINE WHITE PER WSDOT STD. SPECIFICATIONS.
44. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC ARROW TYPE 2SR PER WSDOT STD. PLAN M-24.40-01.
45. PLASTIC TYPE D CROSSWALK LINE PER WSDOT STD. PLAN M-15.10-01.
46. PLASTIC TYPE D WIDE LINE PER WSDOT STD. SPECIFICATIONS.
47. PLASTIC TYPE D DOUBLE YELLOW CENTER LINE PER WSDOT STD. SPECIFICATIONS.
48. PLASTIC TYPE D LANE LINE PER WSDOT STD. SPECIFICATIONS.
49. CITY OF LAKEWOOD DURABLE MARKING RAILROAD CROSSING SYMBOL PER WSDOT STD. PLAN M-11.10-01, WITH EXCEPTIONS TO STANDARD LAYOUT DIMENSIONS AS NOTED IN PLAN VIEW.
50. CITY OF LAKEWOOD DURABLE MARKING STOP BAR PER WSDOT STD. PLAN M-11.10-01.
51. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC ARROW TYPE 2SL PER WSDOT STD. PLAN M-24.40-01.
52. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC LETTTERS "ONLY", DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
53. CITY OF LAKEWOOD DURABLE MARKING EDGE LINE YELLOW, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
54. CITY OF LAKEWOOD DURABLE MARKING 24" STOP BAR PER CITY OF LAKEWOOD STD. PLAN CH-1.
55. (NOT USED)
56. PLASTIC TYPE D TRAFFIC LETTERS "ONLY" PER WSDOT STD. SPECIFICATIONS.
57. CITY OF LAKEWOOD DURABLE MARKING BICYCLE LANE SYMBOL PER WSDOT STD. PLAN M-9.50-01.
58. CITY OF LAKEWOOD DURABLE MARKING EDGE LINE WHITE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
59. CITY OF LAKEWOOD DURABLE MARKING WIDE LINE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
60. CITY OF LAKEWOOD DURABLE MARKING DOUBLE YELLOW CENTER LINE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
61. (NOT USED)
62. RAISED PAVEMENT MARKER TYPE 1Y DOUBLE YELLOW CENTER LINE PER WSDOT STD. PLAN M-20.50-01.
63. RAISED PAVEMENT MARKER TYPE 1W AND LANE LINE PER DETAIL SHEET RDDET112.
64. RAISED PAVEMENT MARKER TYPE 1Y AND TWO WAY LEFT TURN LINE PER DETAIL SHEET RDDET112.
65. PLASTIC TYPE D TRAFFIC ARROW TYPE 6SL. DIMENSIONS PER WSDOT STD. PLAN M-24.40.01.
66. PLASTIC TYPE D TRAFFIC ARROW TYPE 2SR PER WSDOT STD. PLAN M-24.40-01.
67. CITY OF LAKEWOOD DURABLE MARKING CROSSWALK PER CITY OF LAKEWOOD STD. PLAN CH-1.
68. CITY OF LAKEWOOD DURABLE MARKING LANE LINE PER SPECIFICATION SECTION 01900, REVISIONS TO WSDOT STD. SPECIFICATION 8-22 AND 9-34. DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
69. PLASTIC TYPE D STOP LINE PER WSDOT STD. PLAN M-15.10-01.
70. PAINT TOP AND EXPOSED SIDES CURB YELLOW, WITH GLASS BEADS, PER SPECIFICATION SECTION 01900.
71. PAINTED ACCESS PARKING SPACE SYMBOL PER WSDOT STD. SPECIFICATIONS.
72. PAINT LINE EDGE LINE WHITE PER WSDOT STD. SPECIFICATIONS.
73. WHEEL STOP (PER WSDOT STD. PLAN M-17.10-00).

GENERAL NOTES – ROADWAY CHANNELIZATION

1. ALL UNITS ARE IN FEET UNLESS OTHERWISE SPECIFIED.

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FILE NAME	PD_RDCHCN.dwg				REGION NO.	STATE	
TIME	11:46am				10	WASH	
DATE	Jan 07, 2009				JOB NUMBER		
PLOTTED BY	eberger				43088		
DESIGNED BY	RDH				CONTRACT NO.		
ENTERED BY	RDH				RTA/CP 16-08		
CHECKED BY	XXX						
PROJ. ENGR.							
REGIONAL ADM.		REVISION	DATE	BY			

SOUNDTRANSIT

EUGENE MILES BERGER — STATE OF WASHINGTON — 12263 — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 11/09/

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SOUNDER COMMUTER RAIL, M STREET TO LAKEWOOD TRACK AND SIGNAL IMPROVEMENTS

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RDCHCN

SHEET OF SHEETS