TR-070591

"Dave Hilderbrant " <dhilderbrant @parametrix .com>
04/18/2007 12:20 PM

To <khunter@wutc.wa.gov>
cc <SethB@ci.puyallup.wa.us>, "Christy Pope" <cpope@parametrix.com>, "Dan McReynolds" <Dmcreynolds@parametrix.com>
bcc
Subject Fwd: SHAW ROAD PDF'S RR crossing

Attached are several PDF files depicting work required at the Meeker Southern RR crossing for Phase 1 of the Shaw Road Extension.

These details show 200 linear feet of rail replacements and 200 feet of future second track to be installed at this new crossing.

Also included are the specifications for this replacement.

This work is to construct a temporary RR crossing for use during construction of Phase 1 which is just the fills and walls for shaw road. This crossing is for construction only and will be fenced and gated while not in use for construction. The Public will **not** have access over this crossing. Phase 1 will begin in June and extend over several months.

Phase 2 is scheduled for Spring of 2008 and will include the completion of the Shaw Road Extension and all roadway features necessary to complete the facilty and open to traffic. Phase 2 will include the RR protection equipment including gates and cantilever signals. The signals will be interconnected with the City owed traffic Signal equipment. At this time final design for the RR signal protection is not complete so details needed for your final approval are not provided. We anticipate that this will be complete later this summer.

David B. Hilderbrant
Parametrix
P.O. Box 460
Sumner WA 98390

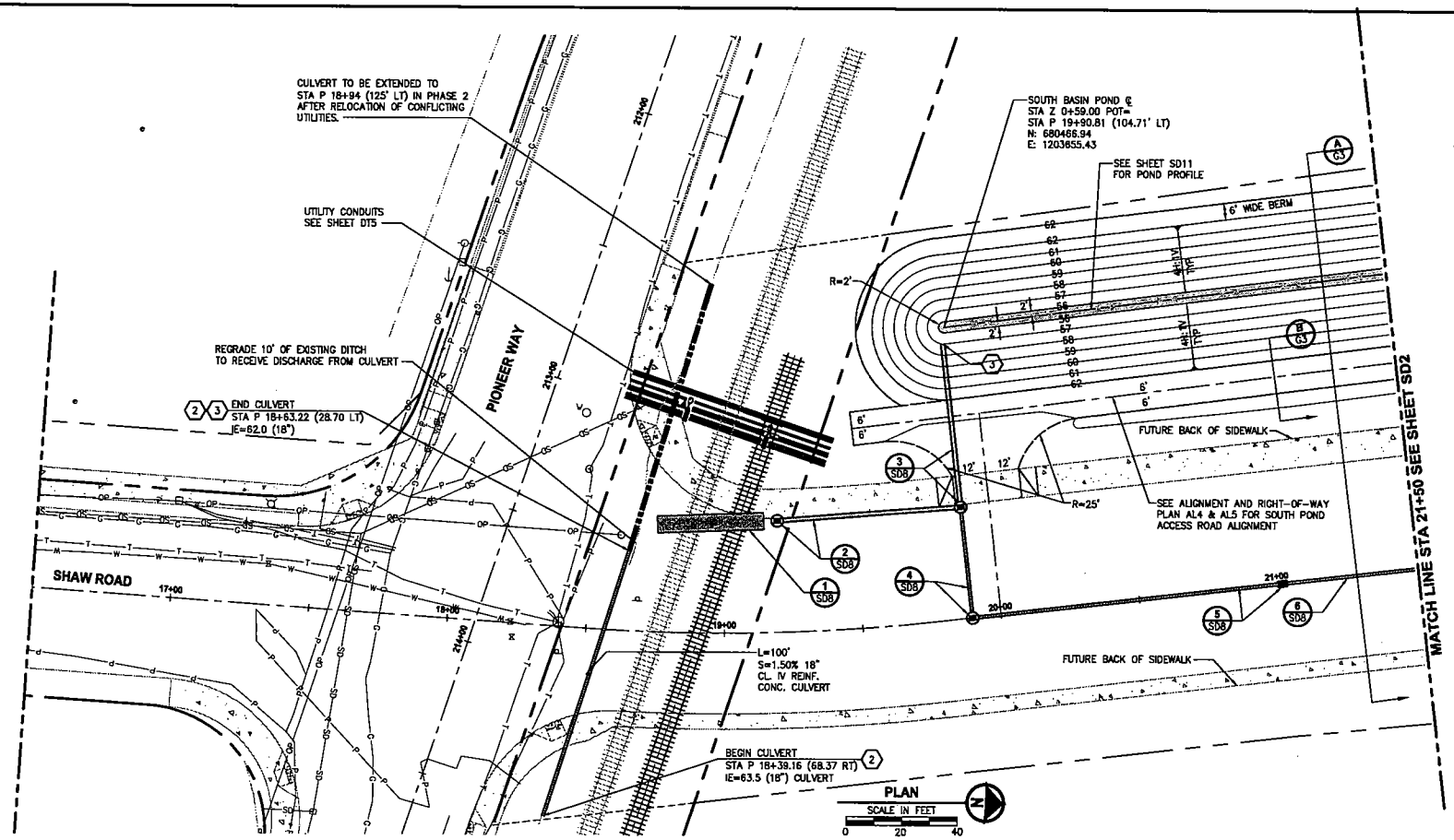
Located at
2913 5th Ave NE Suite 202
Puyallup, WA 98372

(253) 501-5103

----- Message from "Vladislav Rubashka" <VRubashka@parametrix.com> on Wed, 18 Apr 2007 11:55:45 -0700 -----

To: "Dave Hilderbrant" <dhilderbrant@parametrix.com>
Subject: SHAW ROAD PDF'S


SD1.pdf
AL1.pdf
DM1.pdf
DT5.pdf
Special Provisions Shaw.doc



CONSTRUCTION NOTES:

1. INSTALL NEW 48" CATCH BASIN TYPE 2 W/SOLID RING & COVER PER WSDOT STANDARD PLAN 8-30.20-00
2. INSTALL TRASH RACK PER CITY STANDARD DETAIL 209.
3. INSTALL QUARRY SPALL DITCH PROTECTION PER CITY STANDARD DETAIL 206.

DETAIL AND SECTION DESIGNATION

- 1/4 — INDICATES DETAIL NUMBER; INDICATES DRAWING/SHEET WHERE DETAIL IS SHOWN
- 15123 — STANDARD DETAIL
- SUBTITLE DETAIL SCALE — INDICATES DETAIL NUMBER; INDICATES DRAWING/SHEET WHERE DETAIL IS REFERRED TO
- A/5 — INDICATES SECTION LETTER; INDICATES DRAWING/SHEET WHERE SECTION IS SHOWN
- 2/— DETAIL OR SECTION APPEARS ON THE SAME DRAWING/SHEET
- SUBTITLE SECTION SCALE — INDICATES SECTION LETTER; INDICATES DRAWING/SHEET WHERE SECTION IS REFERRED TO

90 % REVIEW SUBMITTAL
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY

DESIGNED O. KIKUTA
DRAWN V. RUBASHKA
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME SU1885048P01T14C-SD
JOB NO. 214-1885-048 (01/14)
DATE JANUARY 2007

DAVID B. HILDEBRAND — REGISTERED PROFESSIONAL ENGINEER — STATE OF WASHINGTON — EXPIRES: 11/06/08

Parametrix — ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

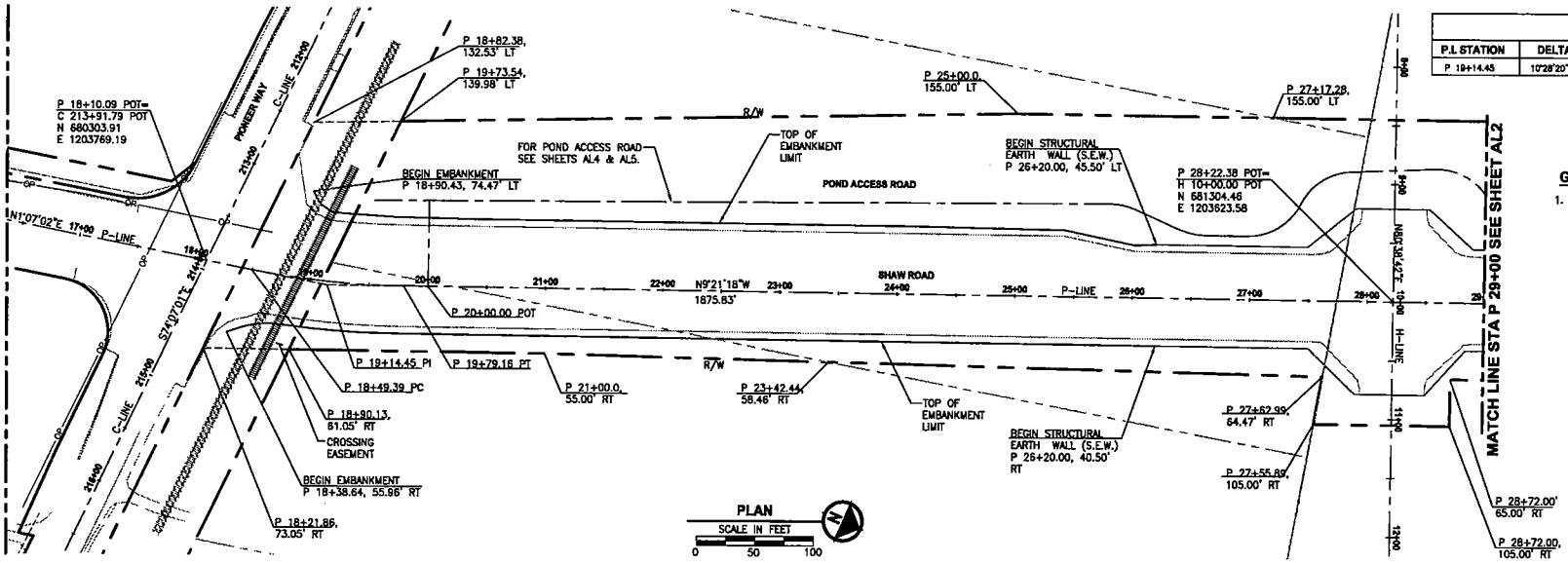
PROJECT NAME
CITY OF PUYALLUP
SHAW ROAD EXTENSION PS&E
PHASE 1
PUYALLUP, WASHINGTON

SHAW ROAD STORM DRAIN PLAN AND PROFILE PIONEER WAY TO STA 21+50

DRAWING NO. 27 OF 65

SD1

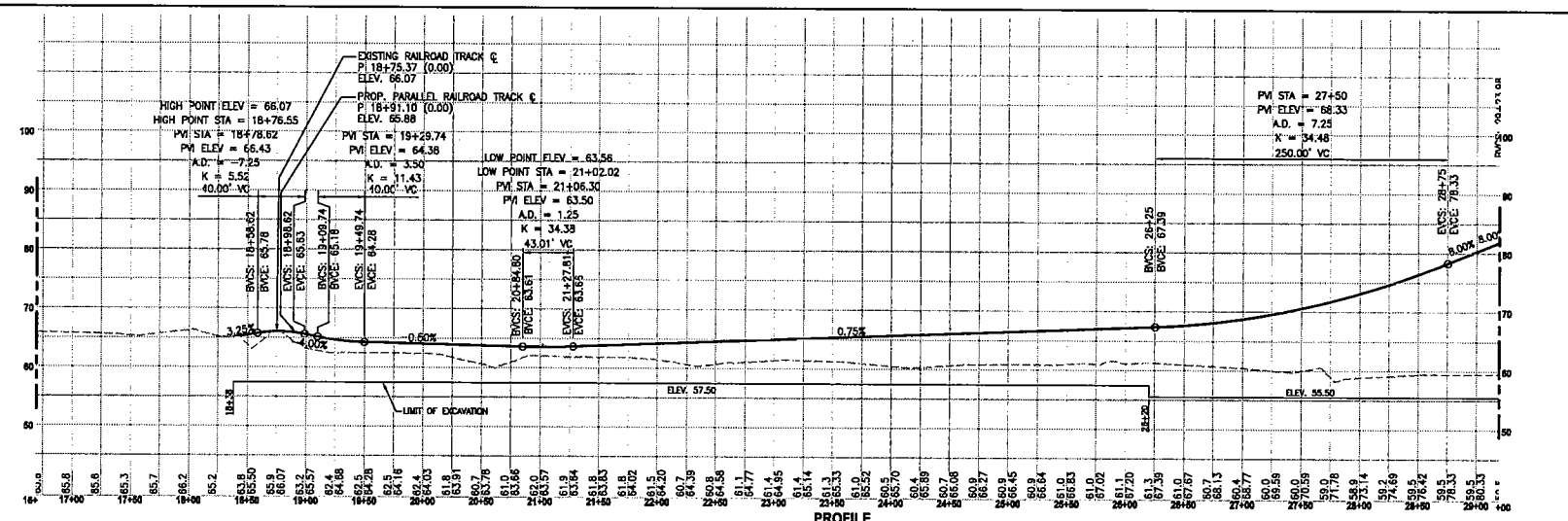
DATE: Apr 18, 2007 - 11:46am PLOTTED BY: mbanks
MAGES: 12005830
XREFS: SU1885048P01T14C-DE | SU1885048P01T14C-SA | SU1885048P01T14C-SD_PH | 0927-SD-HTS | P-Contour AM 12.12.06 | 0084-PE



CURVE DATA				
P.I. STATION	DELTA	RADIUS	TANGENT	LENGTH
P 19+14.45	10°28'20" LT	710.00'	65.06'	129.77'

GENERAL NOTES:

1. FOR EMBANKMENT AND STRUCTURAL EARTH WALL STATION AND OFFSET LOCATIONS, SEE DETAIL SHEET WD1-WD8.



PROFILE
HORIZ: 1=50
VERT: 1=10

90 % REVIEW SUBMITTAL
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY

DESIGNED O. KIKUTA
DRAWN V. RUBASHKA
CHECKED
APPROVED

ONE INCH AT FULL SCALE.
IF NOT, SCALE ACCORDINGLY
FILE NAME SU1895048P01T14C-AL
JOB NO. 214-1895-048 (01/14)
DATE JANUARY 2007

DAVID B. HILDEBRANDT
SIGN OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER

Parametrix
ENGINEERING, PLANNING, ENVIRONMENTAL SCIENCES

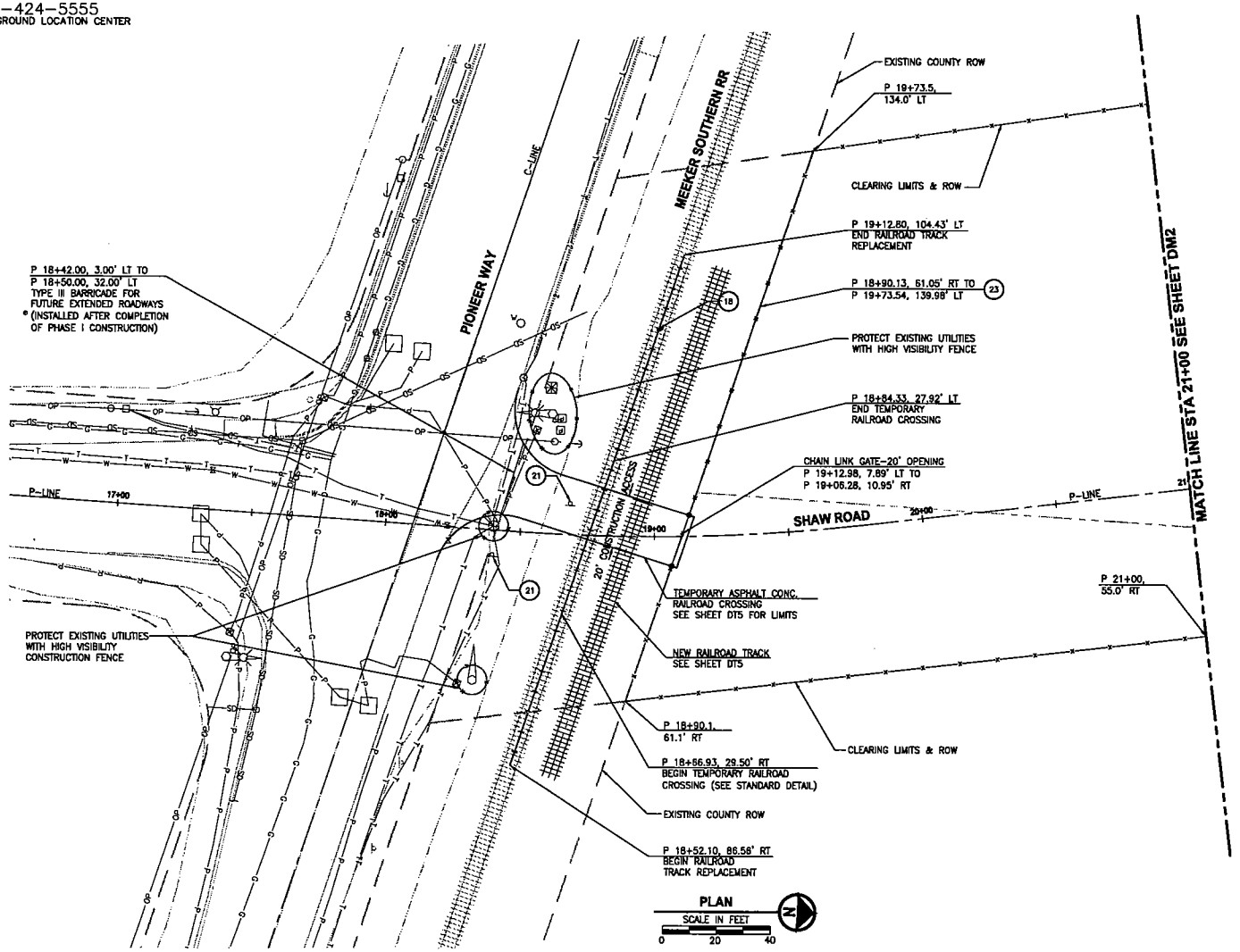
PROJECT NAME
CITY OF PUYALLUP
SHAW ROAD EXTENSION PS&E
PHASE 1
PUYALLUP, WASHINGTON

SHAW ROAD ALIGNMENT AND RIGHT-OF-WAY PLAN STA P 16+50 TO STA P 29+00

DRAWING NO. 13 OF 65

AL1

CALL TWO WORKING DAYS
BEFORE YOU DIG
1-800-424-5555
UTILITIES UNDERGROUND LOCATION CENTER



DEMOLITION NOTES:

1. ABANDON MONITORING WELL. SEE SPECIAL PROVISIONS.
2. SAWCUT AND REMOVE ASPHALT CONCRETE PAVEMENT AT LIMITS ILLUSTRATED ON PLANS.
3. SAWCUT AND REMOVE CEMENT CONCRETE PAVEMENT/SIDEWALK AT LIMITS ILLUSTRATED ON PLANS.
4. REMOVE CEMENT CONCRETE CURB AT LIMITS ILLUSTRATED ON PLANS.
5. REMOVE MANHOLE, CATCH BASIN, OR STRUCTURE. BACKFILL WITH CSTC.
6. REMOVE STORM SEWER. - / / / / / / / / / / / /
7. REMOVE WATER MAIN/SERVICE TO ROW LINE. CAP UTILITY AND BACKFILL WITH CSTC.
8. SALVAGE EXISTING WATER METER AND METER BOX. DELIVER TO LOCATION SPECIFIED BY COP.
9. REMOVE SANITARY SEWER/SIDE SEWER. CAP UTILITY AND BACKFILL WITH CSTC.
10. REMOVE TREE. 5-INCH TO 8-INCH TYPICAL DIAMETER.
11. REMOVE FENCE AT LIMITS ILLUSTRATED ON PLANS.
12. GAS MAIN AND SERVICES TO BE RELOCATED BY PSE.
13. NOT USED
14. UTILITY POLE TO BE RELOCATED BY OTHERS.
15. NOT USED
16. REMOVE BUILDING STRUCTURE AND ALL ASSOCIATED SURFACE AND UNDERGROUND FEATURES. SEE SPECIAL PROVISIONS.
17. TELEPHONE UTILITY TO BE RELOCATED BY OTHERS.
18. MEEKER SOUTHERN RAILROAD RAIL, TIES, AND SUBGRADE TO BE MODIFIED/REPLACED PRIOR TO CONSTRUCTION. SEE SHEET DT5 FOR TEMPORARY RAILROAD CROSSING.
19. REMOVE ROCKERY/WALL AT LIMITS ILLUSTRATED ON PLANS.
20. REMOVE IRRIGATION VALVE AND ALL ASSOCIATED FEATURES.
21. REMOVE AND RELOCATE SIGN.
22. ADJUST UTILITY TO FINISHED GRADE.
23. CHAIN LINK FENCE OR PRECAST CONCRETE BARRIER TO BE INSTALLED AFTER COMPLETION OF PHASE 1 CONSTRUCTION.
24. SAVE EXISTING TREES.

GENERAL NOTES:

1. CONTRACTOR TO SUBMIT TRAFFIC CONTROL PLAN TO COP FOR APPROVAL PRIOR TO CONSTRUCTION.

LEGEND:

- ASPHALT CONCRETE REMOVAL
- CEMENT CONCRETE REMOVAL
- SAW CUT LINE
- CLEARING LIMITS
- COATED CHAIN LINK FENCE TYPE 1

90 % REVIEW SUBMITTAL
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY

DESIGNED A. MERGES
DRAWN A. MERGES
CHECKED
APPROVED

ONE INCH AT FULL SCALE
IF NOT, SCALE ACCORDINGLY
FILE NAME SU1895048P01T14C-DM
JOB NO. 214-1895-048 (01/14)
DATE JANUARY 2007

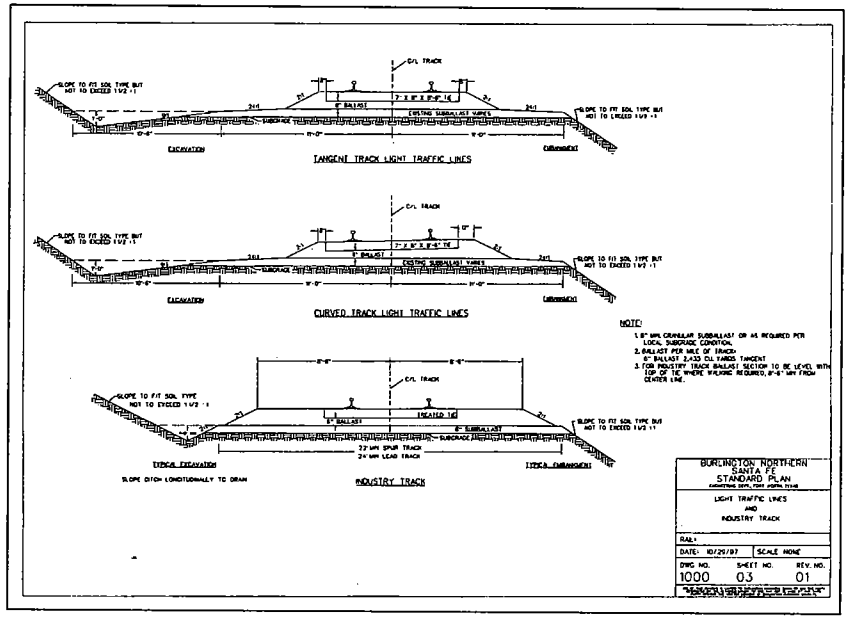
DATED: 11/28/06

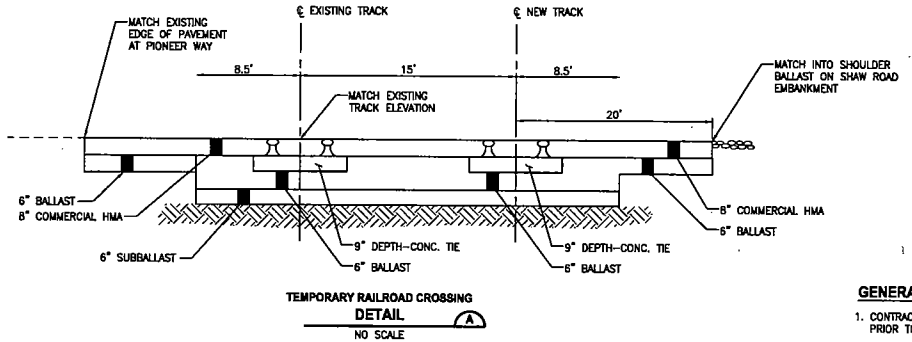
Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

PROJECT NAME
CITY OF PUYALLUP
SHAW ROAD EXTENSION PS&E
PHASE 1
PUYALLUP, WASHINGTON

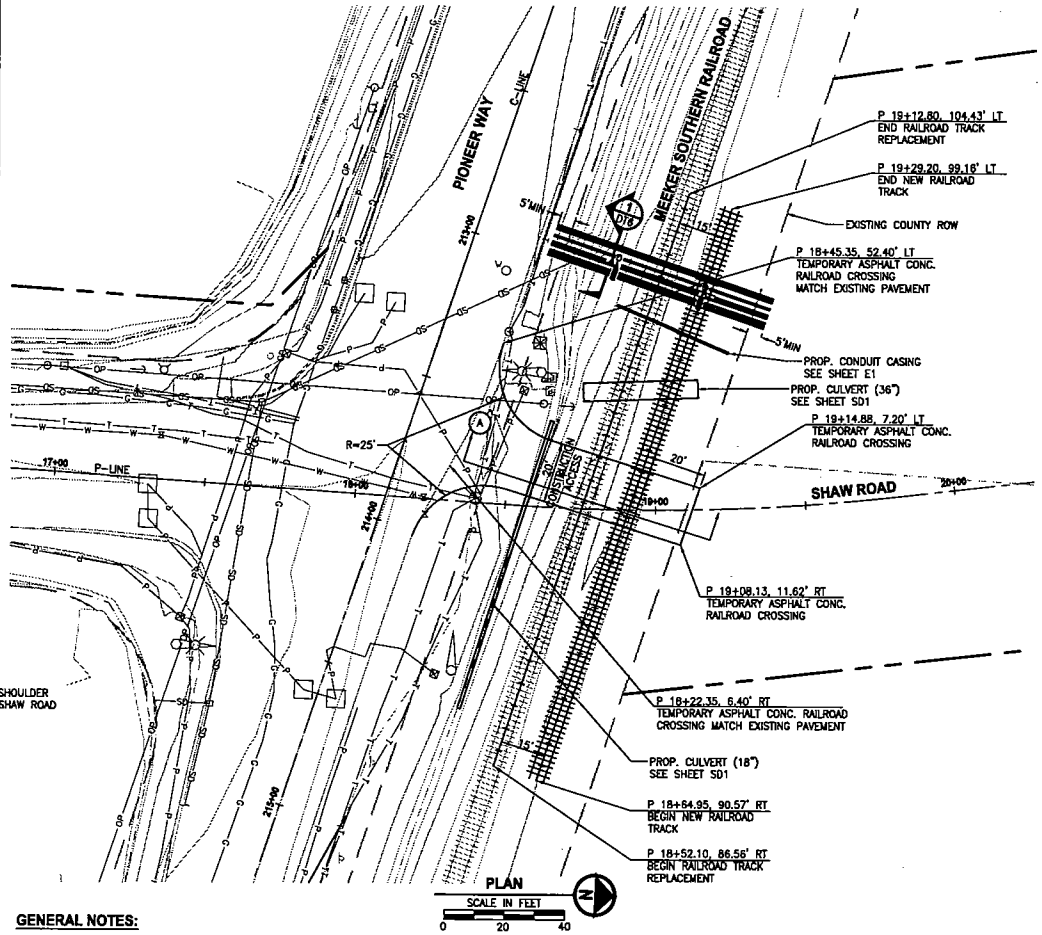
SHAW ROAD
DEMOLITION PLAN
PIONEER WAY TO STA 21+00

DRAWING NO. 5 OF 65
DM1





TEMPORARY RAILROAD CROSSING DETAIL (A)
NO SCALE



GENERAL NOTES:

1. CONTRACTOR TO SUBMIT TRAFFIC CONTROL PLAN TO COP FOR APPROVAL PRIOR TO CONSTRUCTION.
2. 200' OF RAILROAD TRACK TO BE REPLACED BETWEEN STA P 18+52.10, 86.56' RT AND STA P 19+12.80, 104.43' LT, AND 200' OF NEW PARALLEL RAILROAD TRACK TO BE INSTALLED 15' NORTH OF EXISTING TRACK CENTERLINE, STA P 18+64.95, 90.57' RT TO STA P 19+29.20, 99.16' LT. ABOVE STATION/OFFSETS ARE APPROXIMATE AND ACTUAL REPLACEMENT OF EXISTING RAILROAD TRACK SHALL BE JOINT TO JOINT EXACTLY MATCHING THE EXISTING RAIL HORIZONTALLY AND VERTICALLY.
3. RAILROAD TRACK TYPICAL SECTION SHALL MEET THE 'INDUSTRY TRACK' STANDARD SHOWN IN BNSF STANDARD DETAIL DRAWING NO. 1000 SHOWN ON THIS SHEET.
4. FOR THE TEMPORARY RAILROAD CROSSING, HMA SHALL BE PLACED UP TO THE RAILS. IMMEDIATELY AFTER HMA PLACEMENT, MEEKER SOUTHERN WILL RUN THEIR TRAIN OVER THE RAILS TO CREATE SEPARATION BETWEEN THE HMA AND RAILS.

90 % REVIEW SUBMITTAL
NOT FOR CONSTRUCTION

REVISIONS	DATE	BY

DESIGNED: G. KIKUTA
DRAWN: C.D. CLARK
CHECKED:
APPROVED:

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME: SU1695048P01T14-DT
JOB NO.: 214-1695-048 (01/14)
DATE: JANUARY 2007

DAVID B. HILDEBRANT — SEAL OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER
EXPIRES: 11/06/08

Parametrix — ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES
CITY PIPING AVENUE
SUMNER, WASHINGTON 98390
T. 253.863.1234 F. 863.863.2345
www.parametrix.com

PROJECT NAME
CITY OF PUYALLUP
SHAW ROAD EXTENSION PS&E
PHASE 1
PUYALLUP, WASHINGTON

TEMPORARY RAILROAD CROSSING DETAILS

DRAWING NO. 65 OF 65
DT5

DATE: Apr 18, 2007 - 11:45am PLOTTED BY: mbowie
MASTER: 113-5 | 120-1 | 201 | 202-1 | 202-2 | 203 | 204 | 205A | 205B | 206-1 | 206-2 | 207 | 208 | 209 | 210 | 211 | 212 | 213-1 | 213-2 | 903 | 904-1 | 904-2 | 905 | 910.40-00.dgn | 925.00-00.dgn | 930.20-00.dgn | BNSF Timber Crossing | 3DLang | ftl_ang | ftl_
XREFS: 3D\1695048P01T14-TB | T&M | 1695048P01T14-DT | 1695048P01T14-DT

SPECIAL PROVISIONS

STANDARD SPECIFICATIONS

The *2006 Standard Specifications for Road, Bridge, and Municipal Construction* prepared by the Washington State Department of Transportation (WSDOT) and all amendments thereto, shall be hereinafter referred to as the "Standard Specifications" together with the laws of the state of Washington; and the Ordinances, Special Provisions, and Standard Details of the City of Puyallup, so far as applicable, are hereby included in these Specifications and shall apply as though quoted in their entirety.

A copy of these Standard Specifications is on file in the office of the Engineer at 1231 Fryar Avenue, Sumner, Washington 98390, where they may be examined by any interested party.

SPECIAL PROVISIONS

The following Special Provisions are made part of this Contract and supersede any conflicting provision of the Standard Specifications and Amendments included herein.

DIVISION 1

GENERAL REQUIREMENTS

DESCRIPTION OF WORK

City of Puyallup Shaw Road Extension Phase 1 Project including, clearing and grubbing, removing obstructions, excavation and embankments, structural earth walls, stone columns for fill stabilization, drainage and stormwater ponds, railroad crossing, and bridge foundations for Piers 1 and 4 of the bridge over the Burlington Northern Santa Fe Railroad.

8-26 MEEKER SOUTHERN RAILROAD CONSTRUCTION NEW SECTION

8-26.1 Description

This work consists of constructing approximately 200 linear feet of double railroad track at approximate Sta. 18+75 in accordance with the Plans and Special Provisions to the satisfaction of the railroad owner – Meeker Southern Railroad.

All references contained in Section 8-26 to railroad owners, or representatives shall be to Mr. Byron Cole of the Meeker Southern Railroad. These provisions are intended to meet Burlington Northern specifications for track work as stated in "Design Guidelines for Industrial Track Projects" March 2004.

8-26.1(1) Existing Railroad Operations

The Contractor shall be allowed to close the Meeker Southern Railroad once for a period of 6 calendar days for the purpose of replacing the existing tracks as shown in the Plans. The 6 days shall begin at 6 p.m. Monday and end at 6 p.m. the following Sunday. On or before the following Sunday at 6 p.m. the Contractor shall notify the City and the Railroad that the crossing is complete and open for train use. The Contractor shall provide 30 days' advance notice of the closing by letter to the City of Puyallup listing the dates and times for which the closure is requested.

Failure to open the Meeker Southern Railroad to train operations within the time specified above will result in penalties in accordance with Section 1-08.9.

8-26.2 Construction and Materials

8-26.2(1) Grading

The work covered by this section of the Specifications consists of furnishing all labor, material and equipment and performing all operations in connection with construction of track roadbed, including clearing and grubbing, excavation, construction of embankments and incidental items, all in accordance with the Contract Drawings and Specifications.

The Contractor shall excavate and remove all materials including soils, vegetation, existing rails and wooden ties, and existing ballast and subballast.

The Contractor shall load, haul, spread, place, and compact gravel borrow in embankments and shall finish the embankments to the grade, slope, and alignment as shown in the Plans. Embankment slopes shall be compacted and dressed to provide a uniform and dense slope.

At all times, the Contractor shall operate sufficient equipment to compact the embankment at the rate at which it is being placed. Compaction shall be accomplished by sheep's foot rollers, pneumatic-tired rollers, steel-wheeled rollers, vibratory compactors, or other approved equipment. Use construction procedures and drainage design that will provide a stable roadbed.

All embankments shall be compacted to a density of not less than 95 percent of the maximum standard laboratory density, and not more than plus 4 percentage points above the optimum moisture content. The standard laboratory density and optimum moisture content shall be the maximum density and optimum moisture as determined in accordance with ASTM Designation: D698 (Standard Proctor Test).

On top of the embankment fill, the Contractor shall place a minimum of 6 inches of granular subballast which meets the criteria for shoulder ballast per Section 4-04.2 except fracture requirement for two fractured faces.

8-26.2(2) Roadbed and Ballast Section

Minimum roadbed and ballast section for track shall conform to the Industry Track Section of Light Traffic Lines," BNSF Drawing No. 1000, included in the Plans.

8-26.2(3) Curvature and Grades

Tracks will be staked and constructed as shown on the approved Plans. Any changes to the approved design need to be reviewed by Meeker Southern RR or appointed representative.

8-26.2(4) Material

Meeker Southern representative will inspect all track materials prior to placement to avoid removal of substandard material. Meeker-Southern RR personnel will also inspect the track before placing it into service.

8-26.2(4)A Rail

Trackage minimum acceptable rail shall be standard 132-pound rail with a 5-1/2-inch base. Rail shall be standard full lengths or cropped with not more than 10 percent short lengths and shall be free from defects. Minimum length shall not be less than 27 feet except in turnouts. Rail should be minimum full ball relay rail, not exceeding 3/16-inch wear on any surface.

8-26.2(4)B Anchors

Rail anchors shall be new or reconditioned, sized to fit the rail section, and shall be provided per industrial track design criteria.

8-26.2(4)C Ties

Hardwood ties shall be 7″ x 8″ (AREMA No. 4) or 7″ x 9″ AREMA No. 5), 8 feet-6 inches long, placed on 21.5-inch centers.

8-26.2(4)D Tie Plates

Tie plates may be new or secondhand, free of injurious defects and foreign material, conforming to AREMA Specifications, and shall fit rail being used. All plates will be double-shouldered.

8-26.2(4)E Joints

New or secondhand joints, free of foreign material and without injurious defects, and with four- or six-bolt holes, conforming to AREMA requirements, may be furnished to fit rail section for which they are designed.

New or secondhand compromise joints of manufactured type (welded or homemade not acceptable), free of foreign material and without injurious defects, shall be furnished and used where rail section (weight or design) changes. Rail section by weight shall not be compromised where difference in weight is in excess of 25 pounds. When this becomes necessary, a rail of some weight between the two different rail sections, in excess of 25 pounds, shall be used and the compromise made in two steps.

8-26.2(4)F Spikes

5/8-inch by 6-inch cut track spikes shall be installed. All spikes shall conform to AREMA requirements.

8-26.2(4)G Track Bolts and Nuts

Track bolts and nuts shall be installed conforming to AREMA Specifications. Bolts will be correct size and length to fit rail.

8-26.2(4)H Lock Washers

One lock washer conforming to AREMA Specifications shall be installed on each track bolt.

8-26.2(4)I Ballast

Ballast shall be minimum of AREMA size 5 (1″-3/8″). Ballast shall be free from loam, dust, and other foreign particles and shall not have less than 75 percent crushed particles with two or more fractured faces, unless otherwise approved by the Railroad.

8-26.2(5) Track Construction

8-26.2(5)A General

All work shall conform in every respect with the Specifications and Plans.

8-26.2(5)B Ties

Ties will be unloaded and handled in such a manner as to not damage ties, using approved handling equipment.

Ties to be placed at design spacing of 21.5-inch center to center (22 ties/39 feet) for wood, and 28-inch centers for concrete, on the finished subgrade, perpendicular to center line of track with the right-hand ends of ties being parallel. Exception: On curves, align the ties to the inside of the curve. All joints are to be suspended.

Top surface of ties shall be clean and smooth to provide full bearing for tie plates.

Wood ties shall be placed with heartwood face down, and if not possible to determine position of the heartwood, lay the widest surface of the tie down.

If spikes are pulled from any tie, hole shall be filled by driving in a treated wood tie plug the full depth of the hole.

Boring or adzing of ties shall be kept to a minimum.

8-26.2(5)C Tie Plates

Tie plates will be used on all ties and set in position with cant surface sloping inward, making sure they are firmly seated and have full bearing. After rails are in place, shoulder of plates shall be in full contact with outside edge of rail base.

8-26.2(5)D Rails

Assemble joints before fastening rails to ties, using joint bars with full number of track bolts and spring washer for each bolt, first removing loose mill scale and rust from contact surfaces or joint bars and rails.

If necessary to force joint bar into position, strike lower edge of bar lightly with 4-pound maul. Do not drive bolts in place.

Tighten bolts in sequence, beginning at joint center and working out to ends. Bolts to be tightened to a range of 20,000- to 30,000-pounds tension. If a bolt tightening machine is not used, a standard track wrench with a 42-inch-long handle may be used.

In laying secondhand rail, care must be taken to rail end mismatch at the joints.

Under no circumstances must rail be struck in web with tool or any metal object.

The right-hand rail facing in direction of increasing construction shall be spiked to ties, and the opposite rail shall be brought to gauge of 4 feet-8-1/2 inches, measured at right angles between the rails, in a place 5/8-inch below top of rail. Gauge to be checked at every third tie.

Rail shall be laid with staggered joints. Joint shall be located as nearly as possible to the middle of the opposite rails with the following variation: (a) except through turnouts, the staggering of the joints on one side shall not vary more than 6 feet in either direction from the center of the opposite rail.

8-26.2(5)E Joints

At the time of installation, rail expansion shims of softwood not over 1 inch in width shall be placed between the ends of adjacent rails to insure proper space allowance for expansion required by the rail temperatures in the following table, and shall be left in place:

39-Foot Rail Rail Temperature Degrees F	33-Foot Rail Temperature Degrees F	Expansion
Over 85	Over 85	None
66 to 85	60 to 85	1/16
46 to 65	35 to 59	1/8
26 to 45	15 to 34	3/16
6 to 25	-10 to 14	1/4
Below 6	Below -10	5/16

8-26.2(5)F Connecting to Existing Rail

New rails shall be attached to existing trackage at existing track joints. No cutting of existing rails will be permitted. The Contractor shall submit plans for approval for joining new rail to existing rails, including detailed drawings of joints necessary for tying different weight rails together.

The Contractor shall allow 30 days for approval by the Engineer for all submittals.

8-26.2(5)G Spiking to Wood Ties

Rails shall be spiked to every tie, using not less than two spikes for each rail at each tie. Drive spikes through tie plate holes into ties, located diagonally opposite each other but not less than 2 inches from edge of tie. Start and drive spikes vertically and square with rail. Take care to avoid slanting, bending, or causing sideways movement of spike. Do not strike rail directly with a maul, either on top when driving, or on side to obtain track gauge. Spikes should not be placed in the slots on skirted joint bars when such practice can be avoided by providing other plates with a hole pattern that will clear the skirts. When spikes are driven by machine, work shall be closely supervised to see that they are driven with hammer centered exactly over each spike head and spike driven vertically. Set stop bolt on the machine to prevent over-driving.

Withdraw spikes that are incorrectly driven and fill hole by driving a tie plug to full depth of hole. Locate replacement spike at another hole in tie plate and tie.

8-26.2(5)H Ballast and Surfacing

Raise track by means of jacks placed close enough together to prevent excessive bending of rails or strain on joint. Lift both rails simultaneously and as uniformly as possible. Power jack may also be used. Each track raise shall not exceed 4 inches with ties tamped prior to additional raise.

8-26.2(5)I Unloading and Tamping Ballast

Unload and level down ballast by most practical means, taking care not to disturb grade stakes. Perform tamping, using power tamping machines wherever possible, or manually, using approved AREMA tamping tools appropriate for type of ballast being placed. Tamp each layer of ballast from a line 15 inches inside each rail, on both sides of and to the ends of ties. Center area between these limits shall be filled lightly with ballast but not tamped. At turnouts and crossovers, tamp ballast uniformly for full length of ties. Tamping shall proceed simultaneously at both ends of same tie, making sure ballast is forced directly under the ties and against sides and ends of ties.

8-26.2(5)J Finishing and Dressing

Dress ballast in conformance with dimensions shown on Drawings, placing additional ballast material as necessary.

8-26.2(5)K Final Inspection

After ballasting and surfacing are completed, inspect track to see that joints are tight and rail attachments to ties are secure.

Meeker Southern, or designate, will inspect the finished trackwork and complete a standard punch list. After the Roadmaster's approval, the track will be placed in service by the Division's General Manager and can then accept rail cars.

8-26.3 Measurement

No unit of measure shall apply for the lump sum price for Meeker Southern Railroad construction.

8-26.4 Payment

Payment will be made in accordance with Section 1-04.1 for the bid item "Meeker Southern Railroad Crossing" per lump sum.

END OF DIVISION 8