

**SOUND TRANSIT
STAFF REPORT**

MOTION NO. M2002-136

**Geotechnical Engineering for the Final Design of the
D520 – Link Pine Street Stub Tunnel**

Meeting:	Date:	Type of Action:	Staff Contact:	Phone:
Finance Committee	12/5/02	Discussion/Possible Action to Recommend Board Approval	Ahmad Fazel, Link Director Stephanie Kirby, Line Section Manager C520	(206) 398-5389 (206) 689-3324
Board	12/12/02	Action	Isam Awad, Sr. Structural Engineer	(206) 689-3399

Contract/Agreement Type:	3	Requested Action:	3
Competitive Procurement	3	Execute New Contract/Agreement	
Sole Source		Amend Existing Contract/Agreement	3
Memorandum of Agreement		Contingency Funds Required	
Purchase/Sale Agreement		Budget Amendment Required	

4 Applicable to proposed transaction.

OBJECTIVE OF ACTION

- To authorize a contract amendment with Shannon & Wilson, Inc., contract to include the performing of the geotechnical engineering for the final design of the Pine Street Stub Tunnel.

ACTION

- Authorize the Executive Director to execute a contract amendment with Shannon & Wilson, Inc., to provide geotechnical services necessary for final design of the Link Pine Street Stub Tunnel in the amount of \$200,000, with a 10% contingency of \$20,000, for a total of \$220,000, and a new total authorized contract amount not to exceed \$10,801,601.

KEY FEATURES

- Provides for additional funding for geotechnical engineering and soils boring along Pine Street from 8th Street to Interstate 5 in downtown Seattle relating to the northern terminus for the Initial Segment.
- The geotechnical information collected from the borings, and recommendations based on that information, will be provided to the DS520 Pine Street Stub Tunnel final designer, who will be selected in spring 2003.
- The Pine Street Stub Tunnel next to Convention Place Station is a key element of the Link Initial Segment Project and will provide traction power and systems

equipment rooms, as well as, light rail vehicle turnback and storage capability as the northern terminus.

- Expedited geotechnical engineering for the Pine Street Tunnel will allow for the civil/structural design to proceed on a schedule consistent with the approved construction schedule of March 2004.

BUDGET IMPACT SUMMARY

Project Description: Central Link Initial Segment

Current Status: Final Design

Project Completion Date: 2009

Action Outside of Adopted Budget	Y/N	Y Requires Comment
This Line of Business	N	
This Project	N	
This Phase	N	
This Task	Y	Scope and budget are included under D520 final design, and will be transferred to D520 geotech
Budget Amendment required	N	
Key Financial Indicators	Y/N	Y Requires Comment
Contingency funds required	N	
Subarea impacts	N	
Funding required from other parties other than what is already assumed in financial plan	N	

N = Action is assumed in current Board-adopted budget. Requires no budget action or adjustment to financial plan.

BUDGET DISCUSSION

The total adopted budget for the Initial Segment, as amended, is \$2,070 million. Within that budget, the activities considered within this motion are identified within the Final Design Phase under Contract D520 final design. To ensure that design and construction of the Pine Street Tunnel proceed as planned and agreed to by King County Metro, the geotechnical services, which are normally performed by the designer, are being separately awarded to be performed in advance. The task budget will be transferred within the final design phase to D520 geotech.

REVENUE, SUBAREA AND FINANCIAL PLAN IMPACTS

The proposed action is consistent with the current board adopted budget, and is affordable within the agency’s current long-term financial plan and sub-area financial capacity. The action will have no new revenue impact on Sound Transit.

SUMMARY FOR BOARD ACTION

Summary for Board Action (Year of Expenditure \$000)

Action Item: Shannon & Wilson (amend contract to add geotechnical engineering for final design of Pine Street Stub Tunnel)

Initial Segment	Proposed FY2003 Budget (A)	Committed To Date (B)	This Action (C)	Total Committed & Action (D)	Uncommitted (Shortfall) (E)
1 Agency Administration	226,780	108,656		108,656	118,124
2 Preliminary Engineering	35,000	33,375		33,375	1,625
3 Final Design	123,000	84,674	220	84,894	38,106
4 Right of Way	233,016	61,815		61,815	171,201
5 Construction	1,172,633	5,618		5,618	1,167,015
6 Construction Services	82,464	1,120		1,120	81,344
7 Third Party Agreements	58,800	12,845		12,845	45,955
8 Vehicles	138,307	-		-	138,307
9 Contingency				-	-
10 Total Current Budget	2,070,000	308,104	220	308,324	1,761,676

Phase Budget Detail

11 Segment D520 Geotech	220	-	220	220	-
12 Other Segments	122,780	84,674	-	84,674	38,106
13 Total Phase	123,000	84,674	220	84,894	38,106

Contract Budget (note 1)	Current Approved Contract Value (F)	Spent to Date (G)	Proposed Action (H)	Proposed Total Contract Value (I)
14 Contract Amount	9,640	9,203	200	9,840
15 Contingency	941	0	20	961
16 Total	10,582	9,203	220	10,802
17 Percent Contingency	9%	0%	9%	9%

(1) Current Approved Contract Value reflects prior agreement amendments for Shannon & Wilson to provide geotechnical services as authorized by Board motions M99-17, M2000-19, M2000-40, M2000-46, M2000-107.

M/W/DBE – SMALL BUSINESS PARTICIPATION

Shannon & Wilson's goal for M/W/DBE participation in their contract which was signed in 1999 was 25%. This participation stands at 24.2% as of their last payment invoice.

Shannon & Wilson will be utilizing two M/W/DBE subcontractors to perform this work. Their participation of the work of this amendment will be 23.2%.

HISTORY OF PROJECT

Sound Transit, King County Metro and the City of Seattle signed an agreement in 2002 regarding the joint use of the DSTT by Sound Transit light rail operations and King County Metro bus following modifications of the tunnel by Sound Transit. The modifications will be consistent with the joint use of the tunnel by light rail vehicles and buses.

The Pine Street Stub Tunnel construction will provide light rail vehicle (LRV) turnback and storage capability. It will serve as the northern terminus of the Initial Segment from CPS to S. 154th Street. The storage is required during revenue operations to provide 1) for interfacing and sequencing of the light rail operation with that of King County Metro's bus operation and 2) to provide a relief location for the light rail vehicle operation.

Key elements of the LRT/bus signaling and radio equipment are located within the Pine Street tunnel structure. These equipment and ventilation fans will be powered through the Traction Power substation also located in the Stub Tunnel structure.

Previous geotechnical borings are historical and incomplete. Additional soils data is required to complete the final design of the cut-and-cover tunnel in C520. Therefore, this change will provide timely geotechnical engineering and design information to the Pine Street Stub Tunnel final designer. The final design contract is scheduled to be selected in spring 2003.

Shannon & Wilson was contracted in 1999 to perform the geotechnical investigation for the tunnel segments from the University district to the bus tunnel in Seattle, and for the Beacon hill tunnel. The firm has accumulated a large amount of information on the subject of tunneling through geological formation in the Puget Sound area. They were responsible for the geotechnical work when KC Metro designed the existing bus tunnel, and for the LB235 project of which the Pine Street Stub tunnel was also a part. Shannon and Wilson also conducted a literature search of existing geotechnical data for the LB235 project.

Motion or Resolution Number	Summary of Action	Date of Action
M2000-107	Authorized the Executive Director to execute an amendment to contract RTA/LR 106-98F with Shannon & Wilson, Inc., for geotechnical engineering services of the Central Link light rail project. The action extends the contract period to June 30, 2001 and establishes a contract amendment amount of \$1,093,250 and a 10% contingency of \$109,325 for a total contract amendment amount not to exceed \$1,202,575 and for a total contract amount not to exceed \$10,581,601	10/26/00
M2000-46	Authorized the Executive Director to execute a contract amendment with Shannon & Wilson, Inc., to proceed with additional professional geotechnical engineering boring, lab work and reports for the north corridor in the amount of \$192,931 plus a 10%	6/22/00
M2000-40	Authorized the Executive Director to execute a contract amendment with Shannon & Wilson, Inc., adding a 10% contingency of \$131,790 to a previously approved contract amendment of \$1,317,898 for a total authorized amount not to exceed \$1,449,688 for geotechnical engineering services on the Central Link Light Rail project	5/18/00
M2000-19	Authorized the Executive Director to execute a contract amendment to Contract No. RTA/LR 106-98B for geotechnical engineering services with Shannon and Wilson, Inc., and to	2/24/00

M99-17	<p>proceed with professional geotechnical engineering work on the Northgate segment in an amount of \$1,317,898, with a 20 percent contingency of \$260,000 for a total amount not to exceed \$1,577,898.</p> <p>Authorized the Executive Director to execute a contract with Shannon and Wilson, Inc. for geotechnical engineering services for design support on the Central Link Light Rail Project in an amount not to exceed \$7,736,407, which includes a 10% contingency.</p>	3/25/99
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CONSEQUENCES OF DELAY

This change will help to ensure the Pine Street Tunnel design and subsequent construction is completed on a schedule consistent with the approved Master Schedule provided to the FTA.

REGIONAL PARTNERSHIP COOPERATION

King County Metro and Sound Transit have signed a joint use agreement for the modification and use of the DSTT by the light rail. This action will allow the provisions of the design and construction to be as per the agreement.

PUBLIC INVOLVEMENT

N/A

LEGAL REVIEW

JDW 11/21/02

SOUND TRANSIT

MOTION NO. M2002-136

A motion of the Board of the Central Puget Sound Regional Transit Authority authorizing the Executive Director to execute a contract amendment with Shannon & Wilson, Inc., to provide geotechnical services necessary for final design of the Link Pine Street Stub Tunnel in the amount of \$200,000, with a 10% contingency of \$20,000, for a total of \$220,000, and a new total authorized contract amount not to exceed \$10,801,601.

Background:

Sound Transit, King County Metro and the City of Seattle signed an agreement in 2002 regarding the joint use of the Downtown Seattle Transit Tunnel (DSTT) by Sound Transit light rail operations and King County Metro bus following modifications of the tunnel by Sound Transit. The modifications will be consistent with the joint use of the tunnel by light rail vehicles and buses.

The Pine Street Stub Tunnel construction will provide light rail vehicle (LRV) turnback and storage capability. It will serve as the northern terminus of the Initial Segment from CPS to S. 154th Street. The storage is required during revenue operations to provide 1) for interfacing and sequencing of the light rail operation with that of King County Metro's bus operation and 2) to provide a relief location for the light rail vehicle operation.

Key elements of the LRT/bus signaling and radio equipment are located within the Pine Street tunnel structure. These equipment and ventilation fans will be powered through the Traction Power substation also located in the Stub Tunnel structure.

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Shannon & Wilson was contracted in 1999 to perform the geotechnical investigation for the tunnel segments from the University district to the bus tunnel in Seattle, and for the Beacon hill tunnel. The firm has accumulated a large amount of information on the subject of tunneling through geological formation in the Puget Sound area. They were responsible for the geotechnical work when King County Metro designed the existing bus tunnel, and for the LB235 project of which the Pine Street Stub tunnel was also a part. Shannon and Wilson also conducted a literature search of existing geotechnical data for the LB235 project.

Motion:

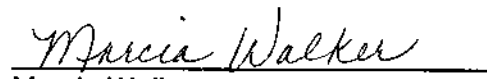
It is hereby moved by the Board of the Central Puget Sound Regional Transit Authority that the Executive Director is authorized to execute a contract amendment with Shannon & Wilson, Inc., to provide geotechnical services necessary for final design of the Link Pine Street Stub Tunnel in the amount of \$200,000, with a 10% contingency of \$20,000, for a total of \$220,000, and a new total authorized contract amount not to exceed \$10,801,601.

APPROVED by the Board of the Central Puget Sound Regional Transit Authority at a regular meeting thereof held on December 12, 2002.

A handwritten signature in black ink, appearing to read "Ron Sims", written over a horizontal line.

Ron Sims
Board Chair

ATTEST:

A handwritten signature in black ink, appearing to read "Marcia Walker", written over a horizontal line.

Marcia Walker
Board Administrator