2018

OUTSTANDING HIGHWAY CONSTRUCTION AWARDS

For Contracts ≤ $25 M

LARGE STRUCTURE CATEGORY

(> $2,000,000 Actual Construction Cost for a Single Structure within a Project)

General Project Information:

ID(s):	1517-07-80
Title:	USH 10 – USH 10/STH 441; COUNTY CB – ONIEDA ST
	I 41 INTERCHANGE RAMPS
County:	WINNEBAGO County
Region:	Northeast Region

(as shown on the Title Sheet of the plan)

Contractor Representatives:

	Prime Contractor	Structure Contractor*
Representing	Michels Corporation	Zenith Tech, Inc.
Name	Chad Wondra	Travis Sonnentag
Phone/Cell Phone	920-948-5937	262-366-5470
Email	cwondra@michels.us	Tsonnentag@zenithtechinc.com
Mailing Address	PO Box 128 817 Main Street Brownsville, WI 53006	PO BOX 1028 N6 W23633 Bluemound Rd. Waukesha, WI 53187-1028

**(only if different from the Prime Contractor)*

Construction Oversight Staff:

	Project Engineer*	LPMC Project Manager**	Project Manager	Project Supervisor
Representing	WisDOT		WisDOT	WisDOT
Name	Marc Roesler		Kurt Peters	Tammy Rabe
Phone/Cell Phone	920-362-1632		920-362-1157	920-445-9072
Email	marc.roesler@dot.wi.gov		kurt.peters@dot.wi.gov	tammy.rabe@dot.wi.gov
Mailing Address	944 Vanderperren Way Green Bay, WI 54304		944 Vanderperren Way Green Bay, WI 54304	944 Vanderperren Way Green Bay, WI 54304

**(indicated firm if consultant) **(if applicable)*

Project Description:

Summarize the overall scope of the project in 300 words. Highlighting attributes that explain why this project should be selected for an Outstanding Highway Construction Award for a Large Structure.

I41 interchange project is the final project on the WIS 441 corridor west of Lake Butte des Morts. This project constructs 1100 feet of I41 southbound, 1050 feet of I41 northbound, and completes the remaining work on US10 eastbound and westbound. This project also adds the two missing ramp movements from the old existing I41/WIS 441 interchange. The new US10 eastbound to I41 northbound ramp is 4,225 feet in length with B-70-409 (553 feet in length) spanning I41 and the I41 north to east and I41 north to west ramps. The new I41 northbound to US10 westbound ramp is 2,050 feet in length with B-70-407 (450 feet in length) spanning I41 and the I41 south to US10 east ramp. Thirteen bridge decks (total of 92,141 SY) received polymer overlays as part of this project. Noise walls N-70-100, N-70-101, and N-70-110 were constructed along US10 eastbound and westbound east of Lake Butte des Morts. A portion of Tayco Street in the Village of Fox Crossing was reconstructed as part of this project as well. The project contained a wide variety of items including lighting, ITS, and permanent shoulder repairs/replacements for the final interchange.

Structure B-70-407 was constructed as part of the new I41 north to US10 west ramp. This structure is a steel plate girder bridge with both horizontal and vertical curves, skewed abutments (61.62 degrees and 23.37 degrees), and built with a 6% super elevation. The steel plate girders were 54-Inch and the structure was supported on HP 12x53 steel piling. Due to the high elevation of bedrock at the structure location, piers 1 and 3 had pre-bored piles. Modified HPC concrete was used to construct the bridge, with the structure containing both architectural surface treatment and concrete staining for aesthetics.

Project Schedule:

	Start Date		Completion Date (Open to Traffic)	
	Scheduled	Actual	Scheduled	Actual
Entire Project	3/3/17	3/2/17	9/30/18	9/29/18
Structure	3/3/17	3/2/17	9/8/17 (Bridge Complete) 7/15/18 (Open to traffic)	10/12/17 (Bridge Complete) 7/9/18 (Open to traffic)

If the contract included interim completion dates, were the dates met? ☒Yes ☐No ☐N/A

What role did the structure have in meeting, or not meeting, the interim completions dates or the project completion date?

Structure B-70-407 was constructed in 2017 with the concrete staining and polymer overlay being applied in 2018. There was no interim date for the completion of this structure, however the structure needed to be completed by the end of 2017 in order for the other contractors to use this structure for access across I41 in early 2018 for the remaining construction operations, including grading, breaker run, base aggregate, concrete paving, HMA shouldering, etc.) on the I41 north to US10 west ramp. The new ramp needed to be completed and opened by July 15, 2018, which meant that it was critical that B-70-407 was completed by the end of 2017 for early construction access in 2018. With the structure completion in 2017, this allowed other work on the ramp to begin immediately in 2018 and in turn, the I41 north to US10 west ramp opened early on July 9, 2018.

Was the structure contractor effective in planning and scheduling work throughout the project? Were the construction schedules provided accurate? Describe any special efforts, or processes, that the structure contractor made to ensure the project schedule was met?

Zenith Tech did a great job scheduling their construction work throughout the structure construction. After bid letting, they ordered the steel girders so that fabrication could begin immediately and not delay their schedule girder setting. From the beginning of the project until June 2, 2017 the work zones of B-70-407 and project ID 1517-07-77 had overlapping work zones. Since the previous project had equipment and materials in the way for construction of some of the substructure units, the structures contractor revised their schedule to work on other substructure units to continue progress on the structure construction. Due to the high traffic volumes on I41, the structure contractor set the steel girders, completed the deck pour, and other operations as necessary at night as to not cause delays and backups of I41 traffic during the day when traffic volumes are much greater.

Project Budget:

Original Contract Amount for the Entire Project	$14,701,114.19
Original Contract for the Structure Only	$2,326,769.10
Final Contract Amount for the Entire Project	$15,958,610.80 (as of 11/12/18)
Final Contract Amount for the Structure Only	$2,334,918.72

	Total Quantity	Unit	Unit Cost
Concrete Masonry Bridges	1,163	CY	$560.00
H.S. Bar Steel Reinforcement, Bridges	194,075	LB	$0.90
H.S. Structural Steel	531,198	LB	$1.60
Prestressed Girder	0	LF	$0.00
Piling, (HP 12-Inch x 53 LB)	1,716	LF	$45.00
Other (Pre-Boring)	413	LF	$150.00

Discuss significant changes to the structure. What were the impacts on the budget?

The plans had bill of bars tables for Bar Steel Reinforcement HS Coated Structures for the bearing pedestals, light standards, single sloped parapet 32SS modified, and single slope parapet 42SS modified but these quantities were not shown in the quantities. These bars needed to be ordered and overran the plan quantity by $19,142. The rebar omissions were caught early, so they could be ordered in a timely fashion and prevent any potential delays.

Electrical items for the lighting running through the parapets was revised to prevent the conduits from breaking through the expansion joints. The lighting conduits were changed to come down through the bridge deck and run along the wing walls to the nearest pull boxes. There electrical item changes added an additional $5,471 to the cost of the structure.

Bedrock elevations were higher than the plan had anticipated. With the higher bedrock elevation, this decreased the quantity for pre-boring (measured from bottom of the footing to 3.5' into the bedrock). This reduced the cost of the structure by $8,100.

Project Complexity:

Project Attributes	
Obstruction the structure spans (FT)	230 LF (over I41 and the I41 south to US10 east ramp)
Length of the Structure (FT)	450 LF
Number of Spans	4 spans
Length of the Spans (FT)	90 LF to 135 LF
Type of Substructure	Steel HP 12-Inch X 53 LB piles pre-bored into bedrock with a concrete foundation
Type of Superstructure	54-Inch steel plate girder, 8-Inch deck
Area of deck (SF)	11,826 SF
Geometrics	Horizontal and Vertical curves. 6% super elevation
Aesthetic Requirements	Ashlar Slate architectural surface treatment with Latte base stain and Hopsack reveals, lighting

Describe any other items which contributed to the complexity of the project. (construction staging, special contract requirements, restricted work hours, utilities, railroad restrictions, etc.)

Overlapping work zones with project ID 1517-07-77 created the need to have continuous communications between the two projects. The structure contractor worked well with adjusting their schedules and work operations, in order to continue construction operations.

Pier 2 was constructed under a previous contract, as the work zone was available. The structure contractor needed to survey and verify the pier's horizontal and vertical locations to ensure the pier would fit the structure plans for this project. Bearings for pier 2 were constructed under this project.

Two rows of battered piling for the north abutment had to be carefully driven to straddle and avoid hitting existing storm sewer pipe.

High bedrock in the area required piles to be pre-bored into the rock. Occasionally the boring rig had a hard time reaching the required depth for the pre-bored piles in a few instances due to limitations of the boring machine. Direct communication with WisDOT Bureau of Structures allowed for efficient and timely decisions to be made when these issues arose.

Lanes of I41 could only be closed at night so all girder setting, and bolt tightening were done during the night in tight time frames.

Pier construction was performed during the day in the median of highway 41 and near live traffic. This greatly limited the space the contractor could work with and tightened up the crane's swing radius.

Innovation:

Describe innovative cost reduction measures that were implemented concerning the structure and the resulting benefits. (incentives/disincentives, use of recycled materials, modifications in staging, Cost Reduction Incentives (CRI), partnering, etc.)

The contractor scheduled girder setting and deck pouring operations during night time lane closures on I41 in order to not affect/delay traffic and to increase their production. For the deck pour the contractor used two pump trucks instead of one to eliminate any downtime it would take for the pump truck to relocate during the night. Through partnering with WisDOT the allowable lane closure times could be extended if necessary, in order to complete the deck pour in one operation instead of two.

The plan quantity for incentive strength was $7,206. The contractor received $2,430 in strength incentives for this structure. The structure did not have any disincentive strength credits.

Describe any modifications to the equipment, materials or the means and methods used by the structure contractor. Explain the affect these modifications had on the project quality, safety, budget, or contractor's efficiency.

During the deck pour the contractor hired two pump trucks to pour the deck. This allowed the contractor to finish the deck pour with less down time for resetting one pump truck multiple times. This also allowed the contractor to reopen I41 within the contract's closure timeframes. This increased the quality of construction and prevented the possibility of having a cold joint in the bridge deck.

Prior to setting the steel girders, the contractor had pre-lift safety meetings. The contractor followed their steel erection plan accurately, to ensure safety during the heavy lifts. The contractor also utilized lane closures and full closures on I41 to ensure that there was no danger to the traveling public during girder operations.

Structure Smoothness:

Describe the overall smoothness and ride quality of the bridge deck.

The large skew at the south abutment and overall curvature of B-70-407 presented challenges to the contractor during bridge deck construction. The contractor was persistent in making conscious decisions during the deck pour to benefit the final quality of the deck surface. Adjusting and controlling the speed of the paver during the deck pour allowed the contractor to minimize surface bumps by limiting the amount of required hand-finishing.

B-70-407 also included construction of strip seal joints and structural approach aprons at both the north and south abutments. Strip seal joint installations were temperature dependent and were set by the contractor to the dimensions and requirements indicated in the structure plans. Construction of the approach aprons occurred after bridge deck construction and the contractor improved ride quality across transitions from aprons to bridge by string-lining back off the deck. A two-layer polymer overlay was also applied across the entire bridge deck area upon structure completion (installation of the polymer overlay was completed by a separate contractor).

Was grinding of the deck necessary? ☐Yes ☒No

If Yes, How many square feet of the deck were ground? _____

Were there bumps at the bridge approaches? Yes_____

Were there bumps at any joints? Yes_____

Quality Control:

Discuss the formwork and false work for the structure. Were the contractor's plans adequate? Did the plans perform as expected? Did the actual dead load deflections match the plan values?

The contractor's formwork and falsework for the project were adequate and performed as they had planned. There were no issues with them during construction. The dead load deflections matched the deflections called out in the plans. No issues were encountered due to the formwork and falsework.

Discuss the concrete cover over the deck steel. What was the minimum cover maintained? Was the cover checked before the deck pour using a dry run? Was the cover checked during the deck pour?

Concrete cover over the deck steel was checked during the dry run as well as during the deck pour. Measurements during the deck pour show a minimum cover of 2 ½" or greater over the entire bridge deck.

Discuss the process(s) used to properly cure the deck. (timely fogging, placement of burlap, soaker hose system, continuous wetting for required duration, etc.)

Crews poured the deck at night due to traffic restrictions on I41. This in turn helped keep the anticipated evaporation rates low. After brooming the bridge deck, one layer of wetted burlap was placed over the deck within 10 minutes of finishing. A second layer of wetted burlap was placed over the bridge deck after the deck pour was completed. When the contractor was able to walk on the deck, they set up a soaker hose system. After 48 hours they covered the deck and soaker hose system with a layer of polyethylene sheeting to help prevent moisture evaporation. The bridge deck moisture was monitored daily and the bridge deck was continuously wet cured for 14 days. The wet cure process went extremely well with no dry spots on the deck during the duration, and no surface damage occurred during the wetted burlap placement.

Discuss the consistency and uniformity of the materials used in the structure. Was the air content and slump consistent without major fluctuations? Were the values within specified ranges?

For all the substructure pours the material was consistent, air contents ranged from 5.0% to 7.2% and slumps were 2 ½" to 4". During the superstructure pour the contractor elected to use pump trucks to place the concrete, in some cases while pumping concrete there are air content issues. We had issues with air content gaining air going through the pump truck which is not the usual case in pumping, as it usually loses air content. During the pumping operation the air content was running from 5.9% to 9.2%. In the case of a high air content test the quality control tester would cast cylinders. All the cylinders that were cast for high air content broke above the specified requirement of 4,000 psi (cylinder breaks ranged from 4,520 psi and 5,135 psi. When the air content is on the higher end slumps usually run to the upper limit of the specifications as well. The slump tests on the superstructure pours ranged from 2 ¼" to 5", with only one slump test out of specifications (5"). A credit to the Department for $851.20 was assessed for the 9.5 CY of concrete that was above the specification limits.

Discuss the contractor's performance relative to obtaining a quality structure as it relates to:

- accuracy of substructure placement and beam seat elevations,
- the concrete surface finish on the deck curbs parapets and substructure,
- formwork
- joint placement and fit,
- condition and fit of the structural members,
- galvanizing and painting,
- rail alignment, field welding drains riprap and other appurtenances.
-

Project staff worked directly with the contractor daily to double check every elevation and alignment shot for the project. Occasionally, there would be a discrepancy between the I41 corridor surveying staff and the contractor's surveyor and on-site meetings were held to quickly resolve the issues prior to anything being constructed incorrectly.

The contractor's formwork was constructed with precise T-values. Edge of deck forms and rails were set properly and securely.

The contractor sack rubbed the structure with approved materials including acrylic bonding admixtures for concrete staining. All sack rubbing, pigmented surface sealer work, and attention to detail by the contractor was noteworthy.

Joints lined up properly and installed using the temperature table as shown in the plan set.

The steel girders were delivered to site in very good condition. All splice plates were labeled properly, and all structural members fit together properly. Care was taken to avoid

damaging/nicking the structure steel members. Only minimal touchups were required to the girder painting. All galvanizing and painting of the structural members was exceptional.

The rails were set properly and secured. During dry run operations, the rails did not deflect, and the required adjustments were minimal.

All field welding was preformed by certified welders. The pile splice welds were preformed according to the details and inspected by the contractor's certified welders. Certified welders also properly welded the shear studs to the girders. One floor drain and downspout were installed on the structure and was installed per the plan detail. Riprap was installed at the discharge of the downspout to properly drain the deck water to the ditch bottom. Select crushed material was placed at both abutments as shown in the plans.

Discuss the cooperation from the contractor's material representative throughout the project. Were all required material submittals/documentation submitted in a timely manner so they could be reviewed and approved prior to installation? Discuss any materials not meeting project requirements. Were Buy America Certifications provided in a timely manner?

The prime contractor provided the contractor's materials representative. The QMP plan, hot weather concrete plan, shop drawings, evaporation rates, and other materials submittals were submitted prior to the materials being incorporated into the work. Any additional material submittals that were not submitted, but required, were quickly submitted the Department's materials representative for review. All materials provided for B-70-407 met specifications except for the bridge deck concrete air content and slump tests described earlier. Materials for all steel incorporated into the structure met the requirements of the Buy America provisions.

General Appearance:

Describe the overall appearance of the structure. Include details such as construction joints, handwork areas, surface finish, raised medians pedestrian accommodations, and aesthetics.

The contractor's attention to detail for this structure was very good. They put a lot of effort into forming and constructing both the substructure and superstructure, installing the strip seal joints properly, installing the floor drain properly, and final rubbing of the structure. This structure also features 2 light standards for the lighting of the bridge.

Structure B-70-407 has ashlar slate architectural surface treatment on the parapets, piers, and abutments that are stained with a base coat of latte and reveals are stained with hopsack. The surface treatment and staining on the structure matches all the surrounding

structures that were built on the WIS 441 corridor. This makes the structure fit the surrounding landscape very well.

Finally, a polymer overlay was placed on the bridge deck to complete the structure. The lighting items and polymer overlay were completed by other contractors.

Contractor Performance:

Describe the structure contractor's outstanding performance in completing the structure construction operations. Include significant challenges and the structure contractor's role in resolving these challenges.

The structure contractor attention to detail was fantastic. During all phases of construction, the contractor went out of their way to ensure quality and flawless aesthetical appearance. The contractor worked diligently with the project staff to resolve any issues that arose during construction of the structure. The contractor asked questions during construction early as to give the project team time to investigate and provide answers, which in turn eliminated any delays to the construction operations.

During the beginning stages of construction, the contractor had to deal with coordinated with project 1517-07-77 since the work zones of the two projects overlapped. The contractor coordinated with project 1517-07-77 continuously during the periods of overlapping work zones. They adjusted their schedule and staging areas as needed in order to progress on construction B-70-407. As plan oversights and errors for rebar were encountered, the contractor expedited the ordering of steel to get the materials on site and not delay construction operations. The contractor utilized two pump trucks for the deck pour, so there was not down time while a pump truck was relocated on the site. The allowed the deck pour to be completed in one night and minimized the inconveniences to the travelling public in I41 and adjacent ramps.

Describe the structure contractor's involvement with additional stakeholders such as community members, business owners, municipal utilities, private utilities, and contractors to ensure successful outcomes for the project. Attach letters of commendation from any of these groups, as appropriate.

The structure contractor worked very well with the other contractors on the project. The structures contractor was good with scheduling other work for the structure such as excavation, backfilling, and electrical lighting work. The structure contractor has a representative at every weekly meeting and gave a detailed schedule for the upcoming weeks. They also scheduled their work operations that required lane closures extremely well. They maximized the amount of work that they did during these lane closures, which minimized the number of lane closures required. This helped to minimize inconveniences to the traveling public.

Since this project had an overlapping work zone with another corridor project, it was vital that the structure contractor coordinated efforts with the other project's contractor in order to complete their work as well as not interfere with the other projects schedule as well. A lot of extra effort went into this coordination, which made the project run smoothly.

Please attach the Report of Contractor's Performance evaluations for both the prime contractor and the structure subcontractor.

Construction and Project Complete Photos:

Photos may be inserted into the above write-ups, to better illustrate the issue being discussed, or attached as an exhibit to the award submittal.

As part of the submittal include five (5) JPG images that highlight the achievements of the construction project.

List of Exhibits

Exhibit A: Title Sheet *(8.5" X 11")*

Exhibit B: List of Contract Modifications *(Summary from Project Tracking)*

Exhibit C: Report of Contractors Performance *(both Prime and Subcontractor)*

Exhibit D: Construction Photos

Exhibit E: Completed Project Photos

Contact Information:

Contact person for any questions or requests for additional information.

Name: Marc Roesler Ph No.: 920-362-1632 Email: Marc.Roesler@dot.wi.gov

Award Recipient:

Project Engineer: Marc Roesler

Project Manager (MCLP): *(if applicable)* N/A

Project Manager: Kurt Peters

Project Supervisor: Tammy Rabe

Prime Contractor: Michels Corperation

Subcontractor: *(if applicable)* Zenith Tech Inc. (Structures Contractor)

Exhibit A

GRE

DECEMBER 2016

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 940

PROJECT ID: 1517-07-80

WITH:

COUNTY: WINNEBAGO

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

USH 10 - USH 10/STH 441

COUNTY CB - ONEIDA STREET

USH 10

WINNEBAGO COUNTY

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1517-07-80	WISC 2016481	1

SUBCONTRACTORS:

Bodart Electrical Service
Century Fence Company
Con-Cor Company
Elmstar Electric Corporation
Geotest
Hard Rock Sawing and Drilling
Louis-Company
Martell Construction
Mega Rentals
Midwest Drilled Foundations
Northeast Asphalt
SPE
Surface Preparation Technologies
West-Land Restoration
Wisconsin Land Surveying
Zenith Tech

I 41 INTERCHANGE RAMPS

STATE PROJECT NUMBER
1517-07-80

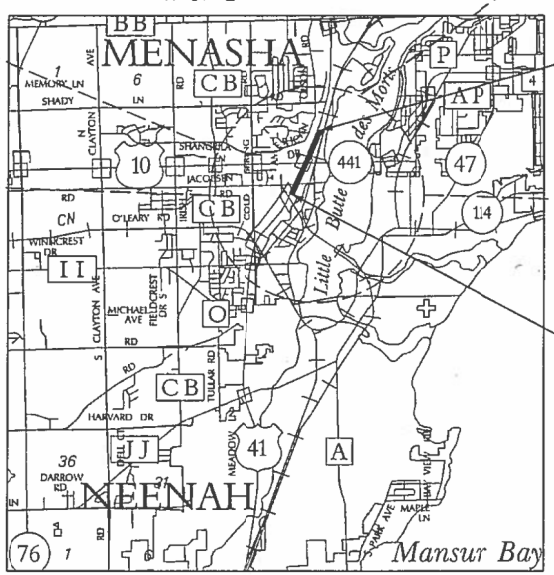
N

BRIDGES
B-70-407
B-70-409

SIGN STRUCTURES
S-70-257

NOISE WALLS
N-70-100
N-70-101
N-70-110

R-17-E



END PROJECT ID 1517-07-80
STA 1356NB+51.54

POLYMER OVERLAY
B-70-61
B-70-400
B-70-401
B-70-402
B-70-403
B-70-405
B-70-406
B-70-410
B-70-411
B-70-420
B-70-421

BEGIN PROJECT
ID 1517-07-80
STA 1310NB+84.86
X=809434.306
Y=544449.109

T-20-N

DESIGN DESIGNATION USH 41 USH 10

A.A.D.T.	2020	=	96,100	31,500
A.A.D.T.	2038	=	113,800	41,000
D.H.V.		=	11,610	9,500
D.D.		=	51%	57%
T.		=	12.5%	11.0%
DESIGN SPEED		=	70 MPH	70 MPH
ESALS		=	22,125,000	11,772,000

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- COMMUNICATION OVERHEAD — OH
- COMMUNICATION UNDERGROUND — C
- ELECTRIC OVERHEAD — OH
- ELECTRIC UNDERGROUND — FO
- GAS — G
- SANITARY SEWER — SAN
- STORM SEWER — SS
- WATER — W
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE — O

LAYOUT
SCALE 0 0.75 MI

TOTAL NET LENGTH OF CENTERLINE = 0.865 MI.

-COORDINATES ON THIS PLAN ARE REFERENCED TO THE WISCONSIN COUNTY COORDINATE SYSTEM (WCCS), WINNEBAGO COUNTY NAVD 83 (1991).
-ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD29).

AS-BUILT PLAN

SUPERVISOR: Tammy Rabe
PROJECT MANAGER: Kurt Peters
PROJECT LEADER: Marc Roesler
CONTRACTOR: Michels Corperation
WORK STARTED: 3/2/17
WORK COMPLETED: 9/29/18

ORIGINAL PLANS PREPARED BY
KAPUR & ASSOCIATES, INC.
CONSULTING ENGINEERS
MILWAUKEE, WISCONSIN
414.751.7200

WISCONSIN
JUSTIN M. ARNDT
E-37695
ONTARIO, WI.
PROFESSIONAL ENGINEER

9/1/16 (Date) (Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

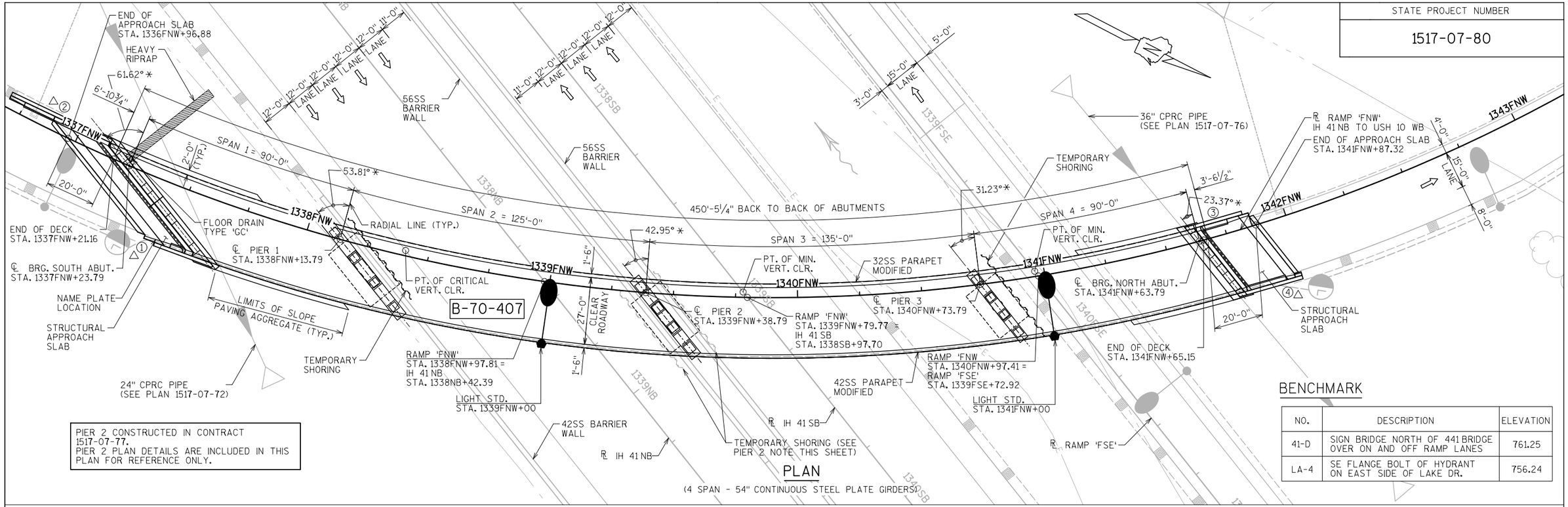
PREPARED BY

Surveyor	WISDOT/TCP
Designer	KAPUR & ASSOCIATES
Project Manager	SCOTT EBEL
Regional Examiner	
Regional Supervisor	CHAD DEGRAVE

APPROVED FOR THE DEPARTMENT
DATE: 9/1/16 (Signature)

E

STATE PROJECT NUMBER
1517-07-80



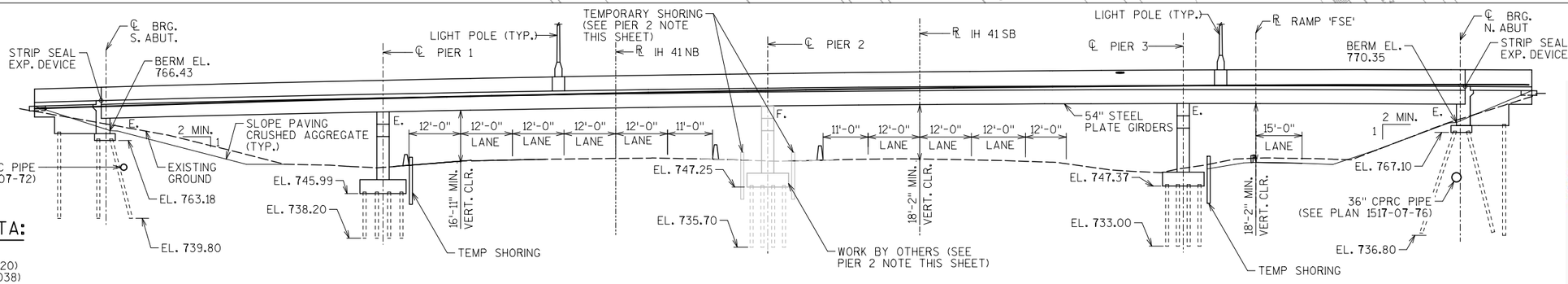
PIER 2 CONSTRUCTED IN CONTRACT 1517-07-77.
PIER 2 PLAN DETAILS ARE INCLUDED IN THIS PLAN FOR REFERENCE ONLY.

PLAN

(4 SPAN - 54" CONTINUOUS STEEL PLATE GIRDERS)

BENCHMARK

NO.	DESCRIPTION	ELEVATION
41-D	SIGN BRIDGE NORTH OF 441 BRIDGE OVER ON AND OFF RAMP LANES	761.25
LA-4	SE FLANGE BOLT OF HYDRANT ON EAST SIDE OF LAKE DR.	756.24



ELEVATION

(LOOKING SOUTHWEST)

TRAFFIC DATA:

IH 41:
A.D.T. = 96,100 (2020)
A.D.T. = 113,800 (2038)
R.D.S. = 70 M.P.H.

RAMP FNW:
A.D.T. = 1,700 (2038)
R.D.S. = 45 M.P.H.

RAMP FSE:
A.D.T. = 10,300 (2038)
R.D.S. = 30 M.P.H.

NOTES

SPAN LENGTHS AND ASSOCIATED LENGTH DIMENSIONS SHOWN ARE MEASURED ALONG ℄ FNW.

FOR CURVE DATA SEE SHEET "CROSS-SECTION."

THE UTILITY INFORMATION SHOWN ON THESE DRAWINGS CONCERNING TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR CONSIDERED ALL-INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING THEIR OWN DETERMINATION AS TO TYPE AND LOCATION OF UNDERGROUND UTILITIES.

LEGEND

△ ANCHOR ASSEMBLY FOR STEEL PLATE BEAM GUARD ATTACHMENT.

① INDICATES WINGWALL NUMBER.

* ANGLES BETWEEN RADIAL LINE AND ℄ BRG. OF ABUTMENT OR ℄ OF PIER.

DESIGN DATA

LIVE LOAD:

DESIGN RATING: HL-93
INVENTORY RATING FACTOR: 1.28
OPERATING RATING FACTOR: 1.66
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 250 KIPS

THE DESIGN PROVIDES FOR AN ADDITIONAL LOAD DUE TO A FUTURE WEARING SURFACE EQUAL TO 20 PSF AND A POLYMER OVERLAY EQUAL TO 5 PSF.

ULTIMATE DESIGN STRESSES:

CONCRETE MASONRY
ALL CONCRETE (HPC) ..... F'C = 4,000 PSI

BAR STEEL REINFORCEMENT,
HIGH STRENGTH, GRADE 60 .....FY = 60,000 PSI

54-INCH STEEL PLATE GIRDERS,
HIGH STRENGTH, GRADE 50.....FY = 50,000 PSI

FOUNDATION DATA

ABUTMENTS AND PIERS 1, 2, AND 3 TO BE SUPPORTED ON HP 12x53 STEEL PILING WITH PILE POINTS AND PRE-BORED PILES. REQUIRED DRIVING RESISTANCE FOR DRIVEN PILES AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA:

SOUTH ABUTMENT..... 170 TONS PER PILE
PIER 1..... 170 TONS PER PILE
PIER 3 .....220 TONS PER PILE
NORTH ABUTMENT..... 140 TONS PER PILE

THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.
ESTIMATED PILE LENGTHS:

SOUTH ABUTMENT..... 24 FEET
PIER 1..... 9 FEET
PIER 2 ..... 13 FEET
PIER 3 ..... 16 FEET
NORTH ABUTMENT..... 31 FEET

LIST OF DRAWINGS

NE REGION CONTACT - SCOTT EBEL (920) 492-2240
BUREAU OF STRUCTURES CONTACT - WILLIAM DREHER (608) 266-8489
CONSULTANT CONTACT - MICHAEL ARNOLD (414) 944-6142

WISCONSIN PROFESSIONAL ENGINEER
MICHAEL J. ARNOLD
E-41717
GREENDALE
WI
10/6/2016

NO.	DATE	REVISION	BY

AECOM
1555 North Rivercenter Drive, Suite 214
Milwaukee, WI 53212
(414) 944-6080

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

ACCEPTED William C. Dreher SDR 10/10/16
CHIEF STRUCTURES DESIGN ENGINEER — DATE

STRUCTURE B-70-407

IH 41 NB TO USH 10 WB- RAMP 'FNW'

COUNTY	TOWN ~~CITY/VILLAGE~~
WINNEBAGO	MENASHA

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

DESIGNED BY	DESIGN CK'D.	DRAWN BY	PLANS CK'D.
JRS	LKH	DNJ	MJA

GENERAL PLAN AND ELEVATION

SHEET 1 OF 47
642

DATE: 10/6/2016
I.D.

FILE= P:\Transportation\US 10 WIS 441\CADD\sheets\Structures\B-70-407\Sheets\07-80 Plan Set\01-B-70-407_gp.dgn

8

8

Exhibit B

Contract Modifications Summary

Wisconsin Department of Transportation

11/8/2018 10:59 AM

FieldManager 5.3c

Contract: 20161213021, USH 10/STH 441

Contractor	Awarded Contract Amt	Current Contract Amt	Net Amount Pending
MICHELS CORPORATION	$14,701,114.19	$15,742,612.32	($19,438.42)

Cont. Mod. No.	Rev. No.	Cont. Mod. Date	Status	Increase Amount	Decrease Amount	Net Change Amount	Short Description
1		3/27/2017	Approved, 3/31/2017	19,169.00	-2,000.00	17,169.00	Add CPM schedule, Remove/reinstall lighting wire, Cold patch, Remove/add revised plan sheets
2		4/12/2017	Approved, 4/17/2017	62,574.62	-6,750.00	55,824.62	Add Stand Pipe language, Arrow Boards, Noise Barrier, Lighting Cabinet, Ramp Redesign
3		5/11/2017	Approved, 5/11/2017	17,996.56	-17,615.31	381.25	Add Backfill Structure Type B, Seeding Mixture No. 40
4		6/14/2017	Approved, 6/15/2017	19,875.00		19,875.00	Vertical Impact Recovery Panels and Bases, ITS items, Spec Change for Noisewall Bases
5		6/27/2017	Approved, 6/28/2017	94,012.46		94,012.46	Mill and Overlay Approach Aprons
6		8/8/2017	Approved, 8/8/2017	53,350.00		53,350.00	Expansion Bearing Assemblies Language, Crash Cushions Permanent Low Maintenance
7		8/16/2017	Approved, 8/18/2017	86,221.46		86,221.46	Approach Slab Replacement, Revise IRI Ride Spec Language, Add/Remove Plan Sheets
8		9/6/2017	Approved, 9/7/2017	20,438.70	-13,020.00	7,418.70	Parapet Electrical Items
9		11/6/2017	Approved, 11/10/2017	73,950.16		73,950.16	I41 Median Repairs, Revised Plan Sheets
10		11/6/2017	Approved, 11/10/2017	17,504.74		17,504.74	Storm Sewer Repair at N-70-110, Temporary Storm Sewer Connection
11		11/16/2017	Approved, 11/28/2017	4,580.00		4,580.00	Erecting State Owned Signs Type II, Reinstalling Salvaged Vertical Panels and Bases
12		12/13/2017	Approved, 12/13/2017		-851.20	-851.20	Modified High Performance Concrete (HPC) Masonry Bridges - Nonconforming Material - Slump (16%)
13		5/2/2018	Approved, 5/9/2018	37,174.10	-13,500.00	23,674.10	Lighting, ITS, and Signing items. Breaker Run method of measurement revision.
14		3/14/2018	Approved, 3/19/2018	893,250.85	-539,920.00	353,330.85	Noise Barrier N-70-110 extra work items
15	1	4/19/2018	Approved, 5/9/2018			0.00	Optimized Aggregate Gradation; Flexural Strength for Concrete Mix Design; AMG for Concrete Pavement
16		5/29/2018	Approved, 6/4/2018	33,393.40	-40,209.95	-6,816.55	Permanent Signing Items, Pavement Marking Diagonals
17		5/29/2018	Approved, 6/4/2018	78,763.45		78,763.45	Chain link fence items, EBS administrative items
18		5/29/2018	Approved, 6/4/2018	3,000.00		3,000.00	Removing Asphaltic Surface Milling, Stand Pipe System materials language revision

Contract Modifications Summary

Wisconsin Department of Transportation

11/8/2018 10:59 AM

FieldManager 5.3c

Contract: 20161213021, USH 10/STH 441

Cont. Mod. No.	Rev. No.	Cont. Mod. Date	Status	Increase Amount	Decrease Amount	Net Change Amount	Short Description
19		7/31/2018	Approved, 8/2/2018	32,016.18	-899.75	31,116.43	PB Covers, Rem. Drains, MGS items, Delineators, Culv. Markers, PB's, Coring SS, SB Repair, Brackets
20		11/2/2018	Approved, 11/7/2018	111,201.66		111,201.66	B-70-403 Abutment Bearing Repairs
21	1	8/8/2018	Approved, 8/21/2018	22,126.00	-4,334.00	17,792.00	PM Grooved Epoxy, Posts Wood, Drilling Rock, Lowering Conduit, Riser Rings, Additional Fills
22		9/7/2018	Draft	68,453.31	-23,520.00	44,933.31	Storm Sewer, BAD 1 1/4", Pvmt Grinding, Signing, Electrical/ITS, Polymer Overlay, Slope Paving
23		10/17/2018	Draft			0.00	CRI #1 - Revised Stage D Grading
24		10/17/2018	Draft			0.00	MGS Guardrail, Concrete Base Type 5, Asphaltic Curb, Signs, Mow Strip, Cleaning Culverts
25		10/29/2018	Pending		-19,438.42	-19,438.42	Nonconforming Thickness Concrete Pavement, Disincentive IRI Ride
Totals				$1,749,051.65	($682,058.63)	$1,066,993.02	

Exhibit C

Report of Contractor's Performance

Wisconsin Department of Transportation

11/12/2018 12:52 PM
FieldManager 5.3c

Contract: 20161213021, USH 10/STH 441

Submit separate reports for prime contractor and each subcontractor upon completion of contract.

Report Date	Project	District
March 06, 2017	1517-07-80 : USH 10/STH 441 CTH CB - Oneida St	NE
		County
Contractor Completion Date	**Road Name**	
November 08, 2018	I41 Interchange Ramps	**Highway**
		I41/WIS 441

Contract Amount	Amount Subcontracted	Prime Contractor or Sub Being Rated (if applicable)
$15,742,612.00		MICHELS CORPORATION

Type of Construction Performed by this Firm
Grading, Breaker Run, Base Aggregate, Concrete Pavement, Storm Sewer

(●) Prime Contractor ( ) DBE
( ) Subcontractor ( ) WBE

Entered By	Revised By	Revision Date	Revision No.
JAL, Jeffery A Laning	JAL, Jeffery A Laning	11/12/2018 1:31 PM	2

Performance Factor (Whole Number)	Importance Factor	Rating	Indicate your appraisal of the contractor's (subcontractor's) performance using a scale from 10 (outstanding) to 5 (average) to 0 (totally inadequate) to establish a 'Performance Factor'. Give a brief explanation for ratings of 8 to 10 or 0 to 2 and otherwise as appropriate. Then apply the given 'Importance Factors' to establish each 'Rating' and the 'Overall Rating'
4	X 0.30	1.2	Quality of Work Consider: construction methods, materials, structural adequacy, appearance, workmanship, attention to detail Contractor could improve upon workmanship & attention to detail as some work was not constructed per project plans, spec
3	X 0.20	0.6	Prosecution and Progress Consider: schedule, prompt start, execution, maintenance of work site, erosion/environmental, timely completion Schedule was very seldom kept as to what was presented to project staff. Operations were idle for days/weeks at times.
2	X 0.15	0.3	Supervision Consider: availability, competence, coordination of work, control of work force/subcontractors, safety, traffic control, extra work (c. c. o.) CCO's required negotiations frequently, did improve later. Subcontractors relied on project staff to schedule work.
3	X 0.15	0.5	Cooperation/Control Compliance Consider: public relations, communications, paperwork, willing compliance, frequency of complaints, credibility, integrity, willingness to work out problems, coordination with other contractors Communication all around was subpar, many occurrences when all parties (Michels, WisDOT, subs) were not on the same page
4	X 0.10	0.4	Adequacy of Work Force Consider: size, competence, attitude Work operations were delayed at times due to work force being on other projects.
5	X 0.10	0.5	Adequacy of Equipment Consider: type, number, operating condition, suitability Equipment provided was always in good operating condition and was of suitable type/amount to complete their work.
		3.5	District Comments
Overall Rating (Sum the above 6 ratings)			

X _____
(Project Engineer Signature)

X _____
(District Construction Engineer Signature)

Report of Contractor's Performance

Wisconsin Department of Transportation

11/12/2018 12:58 PM
FieldManager 5.3c

Contract: 20161213021, USH 10/STH 441

Submit separate reports for prime contractor and each subcontractor upon completion of contract.

Report Date	Project	District
March 06, 2017	1517-07-80 : USH 10/STH 441 CTH CB - Oneida St	NE
		County
Contractor Completion Date	**Road Name**	
November 01, 2018	I41 Interchange Ramps	**Highway**
		I41/WIS 441

Contract Amount	Amount Subcontracted	Prime Contractor or Sub Being Rated (if applicable)
$15,742,612.00	$5,009,555	ZENITH TECH., INC. - WAUKESHA

Type of Construction Performed by this Firm	
Bridges, Noise Walls	○ Prime Contractor ○ DBE ● Subcontractor ○ WBE

Entered By	Revised By	Revision Date	Revision No.
JAL, Jeffery A Laning	JAL, Jeffery A Laning	11/12/2018 12:54 PM	1

Performance Factor (Whole Number)	Importance Factor	Rating	Indicate your appraisal of the contractor's (subcontractor's) performance using a scale from 10 (outstanding) to 5 (average) to 0 (totally inadequate) to establish a 'Performance Factor'. Give a brief explanation for ratings of 8 to 10 or 0 to 2 and otherwise as appropriate. Then apply the given 'Importance Factors' to establish each 'Rating' and the 'Overall Rating'
9	X 0.30	2.7	Quality of Work Consider: construction methods, materials, structural adequacy, appearance, workmanship, attention to detail Work was of high quality and rarely needed changes due to errors/problems.
7	X 0.20	1.4	Prosecution and Progress Consider: schedule, prompt start, execution, maintenance of work site, erosion/environmental, timely completion Contractor completed work as scheduled and adjusted schedule as needed to deal with overlapping work zones.
9	X 0.15	1.4	Supervision Consider: availability, competence, coordination of work, control of work force/subcontractors, safety, traffic control, extra work (c. c. o.) Supervisor was willing to work with project staff on issues and controlled the work of his staff & subcontractors well.
9	X 0.15	1.4	Cooperation/Control Compliance Consider: public relations, communications, paperwork, willing compliance, frequency of complaints, credibility, integrity, willingness to work out problems, coordination with other contractors Contractor was willing to work through issues. It was easy to see they wanted to build the project correctly.
8	X 0.10	0.8	Adequacy of Work Force Consider: size, competence, attitude Contractor had enough staff to complete the work. Workers were familiar with the plans and were educated in the work.
5	X 0.10	0.5	Adequacy of Equipment Consider: type, number, operating condition, suitability Equipment was appropriate for the work at hand and was in good working order.
Overall Rating (Sum the above 6 ratings)		8.1	District Comments

X _____
(Project Engineer Signature)

X _____
(District Construction Engineer Signature)

Exhibit D


Valley Express


TEREX

Exhibit E


TRUCKS
ENTERING
FROM
RIGHT