FISHERASSOCIATES

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March 8, 2006

Mr. Christopher Swartley
UPC Wind Management, LLC
100 Wells Avenue, Suite 201
Newton, Massachusetts 02459

Cohocton Wind Power Project
Steuben County, New York
Transportation Study

Dear Mr. Swartley:

Fisher Associates has completed the Transportation Study for the Cohocton Wind Power project and are pleased to present you with a synopsis of our findings. The information contained in this study will be included as an appendix to the Draft Environmental Impact Statement currently being completed by others. This letter summarizes the existing conditions and potential transportation deficiencies found in the study area and presents a list of potential mitigation techniques for each type of deficiency.

Existing Conditions & Potential Deficiencies

Safety

The safety information has been requested of the New York State Department of Transportation and will be included as an update to this report when available

The following table presents the number of accidents along each roadway:

Roadway Name	5-Year Injury Accidents	5-Year Non-Injury Accidents	5-Year Total Accidents	Accidents Per Year

Traffic Capacity

A review of the NYSDOT Highway Sufficiency Ratings indicates that the State routes in the project area are all operating below vehicle capacity. Field observation of the transportation network did not reveal any locations where traffic flow and/or capacity appeared to create undue delay for the traveling public.

Drainage Structures

The physical characteristics assessment completed as a part of the study included a review of the roadway widths, drainage structures, bridges, intersection geometry, and roadway alignments. Each bridge or drainage structure found in the field was inventoried for approximate location, type and size, approximate depth of cover over the structure, and roadway width at the structure.

Drainage structures with a span length of greater than twenty feet are considered bridges. There were 14 bridges within the study limits. A table has been included in the Appendix presenting the details of the bridges in the study area.

The DRAINAGE STRUCTURE KEY map presents the structure number that corresponds to the ID number in the Drainage Structure Inventory table.

The ROAD WIDTH and ROAD TYPE maps present the actual width of the roadway and roadway type at each drainage structure. The first figure indicates that many of the oil & stone and gravel roads have widths

less than 20 feet wide. The majority of the paved roadways in the project area have widths between 21 feet and 35 feet. Note that if the construction crane is anticipated to crawl along any public roadways, the roadway will likely need to be widened to approximately 40-feet. As shown in the ROAD TYPE map there is approximately an equal number of oil & stone / gravel and paved roads.

The CULVERT COVER MAP, CULVERT MATERIAL MAP and CULVERT DIAMETER MAP, present the drainage structure inventory completed for the assessment. We have also included a table presenting the data used to create the figures. This table highlights any locations were we have identified initial concerns with regard to insufficient cover, roadway width, and/or structure condition. These locations should be further analyzed to determine if improvements are necessary prior to construction of the turbines. Typical improvements that may be necessary to accommodate construction traffic include:

- **Insufficient cover over structures**
  - Add cover over structures
  - Reinforce structures with bracing
  - Use bridge jumpers to clear structures
  - Replace structure prior to construction
  - Replace structure during or after construction if damaged by construction activities
  - Re-route construction traffic to avoid structures
- **Poor structure condition**
  - Replace structure prior to construction
  - Replace structure during or after construction if damaged by construction activities
  - Use bridge jumpers to clear structures
  - Re-route construction traffic to avoid structures
- **Inadequate bridge capacity**
  - Use bridge jumpers to clear bridge
  - Replace bridge components that provide insufficient capacity
  - Reinforce bridge with additional longitudinal or lateral support beams
  - Re-route construction traffic to avoid bridges

The OVERHEAD WIRES map presents the location of overhead utilities along and across the project area roadways. Several roadways have a significant number of overhead utility crossings that may present difficulties for crane and construction equipment movement.

Roadway Geometry

The final portion of the transportation assessment was to review the roadway geometry throughout the study area with respect to the size of the anticipated construction vehicles. The HORIZONTAL CURVATURE AND ROADWAY GRADE CONCERNS MAP presents the areas that present difficulties for the turbine component transport vehicles. The transport vehicles are typically longer than tractor trailers and require large turning radii at intersections. Upon determination of the construction routing plan for the project, each intersection or area of horizontal curvature concern will need to be analyzed to determine what, if any, amount of widening or improvement is necessary to accommodate the vehicles.

In an effort to estimate the impacts at traditional intersection sizes, we ran an analysis of construction vehicle wheel paths through an average intersection size. Templates were created of average size construction vehicles used in wind power construction projects to determine if the vehicles would be able to traverse through the study area intersections.

The attached figures show how the current construction vehicles would travel through an average intersection. The template intersection is 20-feet wide with 15-foot corner radii. We ran the template for intersection angles of 90-degrees, 80-degrees, 70-degres, and 60-degrees. As shown in the diagrams, all intersections throughout the study area will need improvements to accommodate the construction vehicles.

Potential Mitigation Techniques

The following identifies potential deficiencies that may be encountered during the construction of the project and presents a list of possible mitigation techniques for each deficiency. Actual mitigation measures will require engineering design prior to implementation to ensure the technique will completely mitigate the deficiency.

- **Insufficient Roadway Width**
  - Widen roadway to accommodate construction vehicles
  - Re-route construction traffic to wider roadways
- **Insufficient cover over structures**
  - Add cover over structures
  - Reinforce structures with bracing
  - Use bridge jumpers to clear structures
  - Replace structure prior to construction
  - Replace structure during or after construction if damaged by construction activities
  - Re-route construction traffic to avoid structures
- **Poor structure condition**
  - Replace structure prior to construction
  - Replace structure during or after construction if damaged by construction activities
  - Use bridge jumpers to clear structures
  - Re-route construction traffic to avoid structures
- **Inadequate bridge capacity**
  - Use bridge jumpers to clear bridge
  - Replace bridge components that provide insufficient capacity
  - Reinforce bridge with additional longitudinal or lateral support beams
  - Re-route construction traffic to avoid bridges
- **Insufficient Roadway Geometry**
  - Construct appropriate turning radii at intersections where construction traffic is anticipated
  - Re-route construction traffic to avoid insufficient roadway geometry

Should you have any questions or comments to this Transportation Study please call me at 585-334-1310, ext. 239.

Sincerely,

FISHER ASSOCIATES, P.E., L.S., P.C.

Christopher Smith, P.E.
Project Engineer

cc: Richard Brauer, Fisher Associates

Drainage Structure Inventory

ID	TYPE	SIZE (in.)	COVER (in.)	LENGTH (ft.)	CONCERNS		
					Cover	Length	Bridge
5	CMP	18	12	34			
6	CMP	12	48	35			
7	CMP	39	24	86			
8	CMP	12	36	35			
9	CMP	12	24	35			
10	CMP	18	36	35			
11	CMP	18	24	36			
12	CMP	18	24	34			
13	CMP	18	24	35			
14	CMP	18	12	30			
15	STEEL	32	6	30			
16	STEEL	36	12	35			
17	CMP	18	24	35			
18	STEEL	18	12	24			
19	CMP	18	24	35			
20	SICPP	30	24	41			
21	CMP	18	24	35			
22	CMP	18	24	34			
23	CMP	18	24	34			
24	CMP	24	24	36			
41	CMP	30	24	35			
42	CMP	24	24	35			
43	CMP	18	36	35			
44	SICPP	18	24	30			
45	CMP	18	24	40			
46	CMP	18	12	34			
47	CMP	18	24	34			
48	CMP	18	24	41			
49	SICPP	18	24	48			
50	CMP	24	36	48			
51	STEEL	28	36	48			
52	STEEL	12	12	49			
53	CMP	18	24	36			
54	ELLIPTI	44	24	35			
55	CMP	12	24	31			
56	STEEL	14	24	0			
57	CMP	30	12	60			
58	SICPP	18	12	35			
59	CMP	24	12	35			
60	STEEL	18	24	33			
61	STEEL	18	24	33			
62	CMP	24	24	33			
63	CMP	24	24	33			
64	CMP	18	24	34			
65	STEEL	24	24	33			
66	STEEL	18	24	36			
67	STEEL	66	12	34			
68	STEEL	12	36	40			
69	CMP	12	24	38			
70	CMP	12	24	38			

Drainage Structure Inventory

ID	TYPE	SIZE (in.)	COVER (in.)	LENGTH (ft.)	CONCERNS		
					Cover	Length	Bridge
71	CMP	12	24	30			
72	CMP	12	24	30			
73	CMP	14	12	34			
74	CMP	12	24	34			
75	CMP	12	24	35			
76	STEEL	12	24	33			
77	STEEL	14	24	34			
78	CMP	12	24	31			
79	STEEL	12	24	32			
80	CMP	24	24	0			
81	CMP	12	24	30			
82	STEEL	24	6	26			
83	SICPP	24	24	35			
84	SICPP	12	8	34			
85	STEEL	28	24	33			
86	CMP	24	24	35			
87	WOOD	195	0	26			
89	CMP	15	24	33			
90	STEEL	12	36	28			
91	STEEL	12	24	26			
92	STEEL	14	6	29			
93	CMP	36	12	28			
94	SICPP	24	12	29			
95	ELLIPTI	24	24	33			
96	SICPP	12	12	36			
97	CMP	12	36	33			
98	CONCRET	12	24	31			
99	CMP	14	24	38			
100	STEEL	30	24	31			
101	CMP	12	24	40			
102	CMP	30	24	37			
103	CMP	30	24	34			
104	CMP	18	24	35			
105	CMP	30	24	35			
106	CMP	30	24	37			
107	CMP	30	24	42			
108	BRIDGE						
109	STEEL	30	24	32			
110	STEEL	36	12	29			
111	CMP	24	12	32			
112	CMP	18	24	34			
113	CMP	12	12	0			
114	CMP	24	24	35			
115	STEEL	20	12	35			
116	STEEL	20	12	34			
117	STEEL	15	12	36			
118	STEEL	15	12	41			
119	SICPP	24	36	0			
120	STEEL	18	12	26			
121	STEEL	18	12	25			

Drainage Structure Inventory

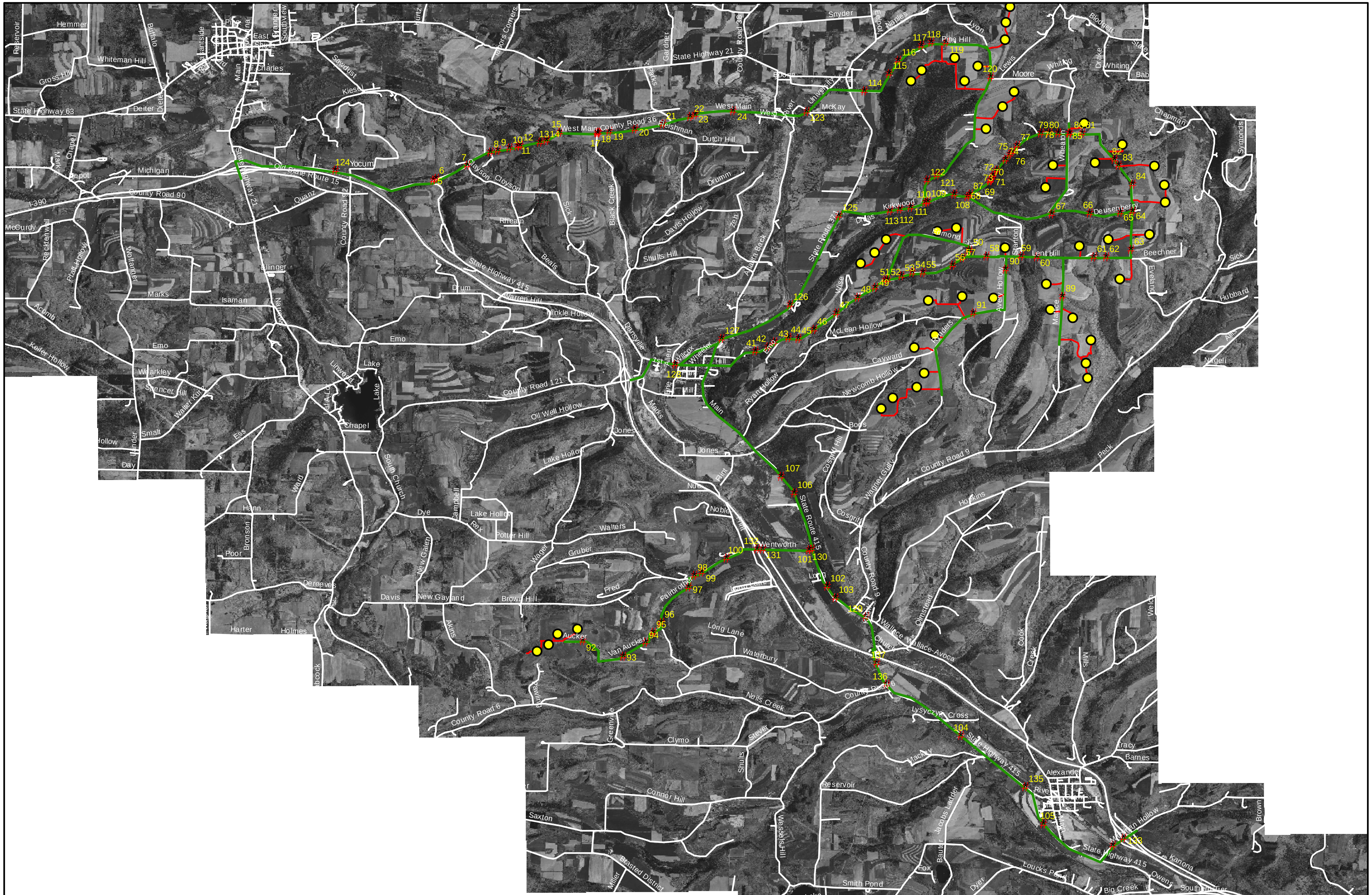
ID	TYPE	SIZE (in.)	COVER (in.)	LENGTH (ft.)	CONCERNS		
					Cover	Length	Bridge
122	STEEL	18	24	27			
123	BRIDGE						
124	CMP	36	144	65			
125	BRIDGE						
126	BRIDGE						
127	BRIDGE						
128	BRIDGE						
129	BRIDGE						
130	BRIDGE						
131	BRIDGE						
132	BRIDGE						
133	BRIDGE						
134	BRIDGE						
135	BRIDGE						
136	BRIDGE						
137	BRIDGE						

Project Area Bridges

Ref. No.	BIN	Feature Carried	Feature Crossed	Posted Load / Posting Year	Rating[1] Inv / Oper	Owner	Year Built (Rehab)	Clear Width (ft.)	Span Length(s) (ft.)	Description
123	3333590	County Road 36	Cohocton River	None	HS25 / HS42	County	1990	32	39	Stringer/Multi-Beam or Girder
125	1046900	Route 371	Kirkwood Creek	None	HS25 / HS42	NYSDOT	1946	35	42	Stringer/Multi-Beam or Girder
126	1046890	Route 371	Cohocton River	None	HS65 / HS109	NYSDOT	1994	38	137	Stringer/Multi-Beam or Girder
127	1046880	Route 371	Cohocton River	None	HS100 / HS167	NYSDOT	1994	38	114	Stringer/Multi-Beam or Girder
128	1011440	Route 415	Cohocton River	None	HS31 / HS51	NYSDOT	1949	42	75	Stringer/Multi-Beam or Girder
129	1011420	Route 415	Twelve Mile Creek	None	HS44 / HS74	NYSDOT	1970	49	94	Stringer/Multi-Beam or Girder
130	2216220	Wentworth Road	Cohocton River	None	HS41 / HS74	Town	1990	26	79	Box Beam or Box Girders
131	1090670	Wentworth Road	I-390	None	HS48 / HS136	NYSDOT	1976	36	104	Stringer/Multi-Beam or Girder
132	1090660	Wentworth Road	I-390	None	HS48 / HS136	NYSDOT	1976	36	104	Stringer/Multi-Beam or Girder
133	1090560	Michigan Hollow Road	I-390	None	HS44 / HS74	NYSDOT	1973	64	221	Stringer/Multi-Beam or Girder
134	1090570	Michigan Hollow Road	Railroad	None	HS35 / HS59	NYSDOT	1973	50	144	Box Beam or Box Girders
135	1011390	Route 415	Cohocton River	None	HS33 / HS55	NYSDOT	1938	42	276	Stringer/Multi-Beam or Girder
136	1011400	Route 415	Neil Creek	None	HS31 / HS59	NYSDOT	1961	44	80	Box Beam or Box Girders
137	1011410	Route 415	Cohocton River	None	HS44 / HS89	NYSDOT	2003	38	114	Box Beam or Box Girders

[1] Load Rating represents the capacity of the structure (in terms of an HS design vehicle) at the Inventory and Operating stress levels. Inventory Rating corresponds to the load which can safely utilize the structure for an indefinite period of time. Operating Rating is the absolute maximum permissable load to which the structure should be subjected. The HS design vehicle is a 3-axle vehicle (tractor truck with semi trailer). There are no tandem axles on the HS design vehicle; therefore, no direct correlation between structure capacity due to the HS design vehicle and structure capacity due to the tandem axle vehicles proposed on this project.

0



Legend

- Culvert/Bridge
- Study Roadways
- Access Roads

0.7 0.35 0 0.7 1.4 2.1 2.8 Miles

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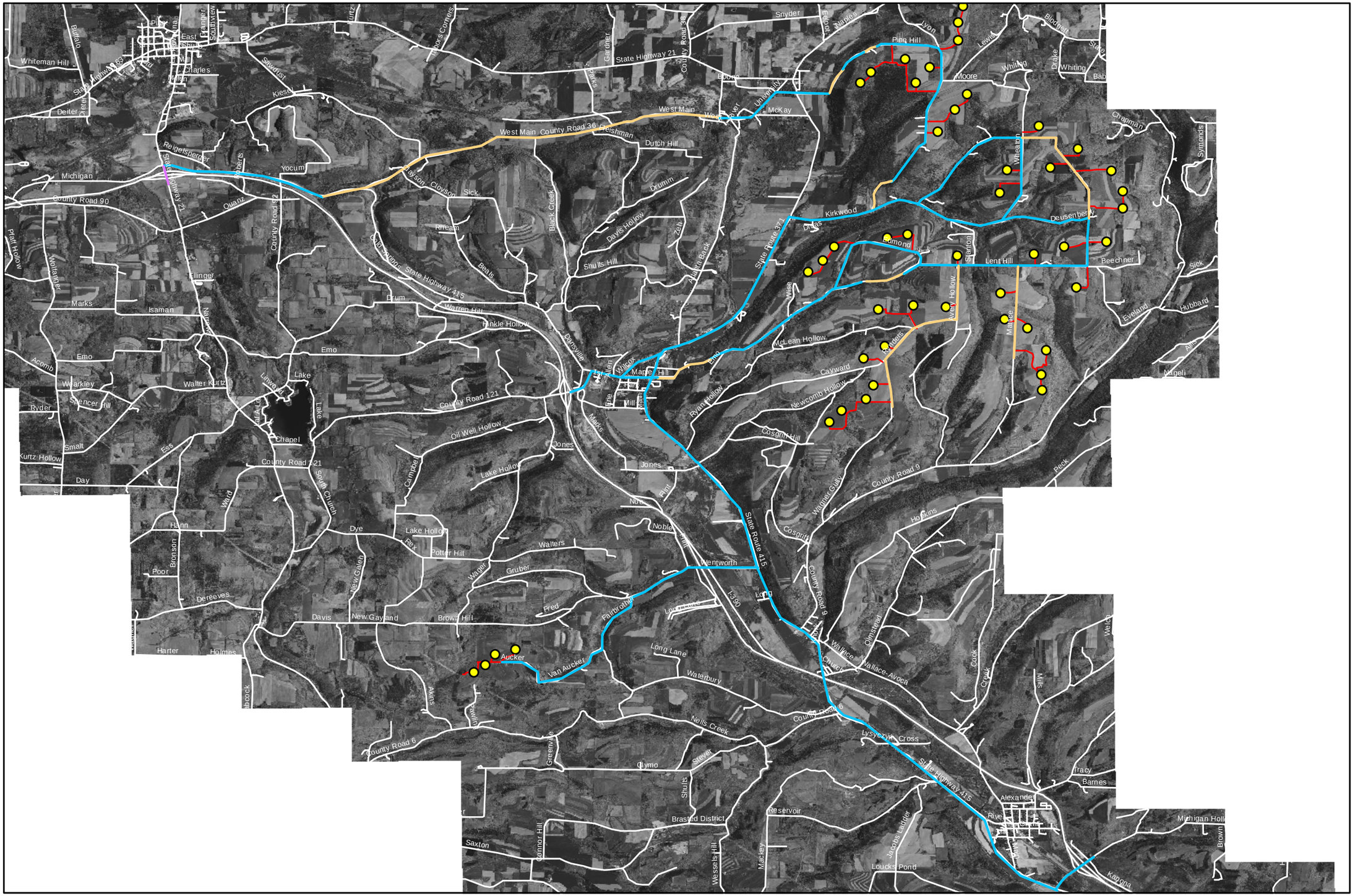
Cohocton Wind Farm

Drainage Structure Key Map



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Legend

- 0' - 20' Wide
- 21' - 35' Wide
- 36'+ Wide
- Access Roads

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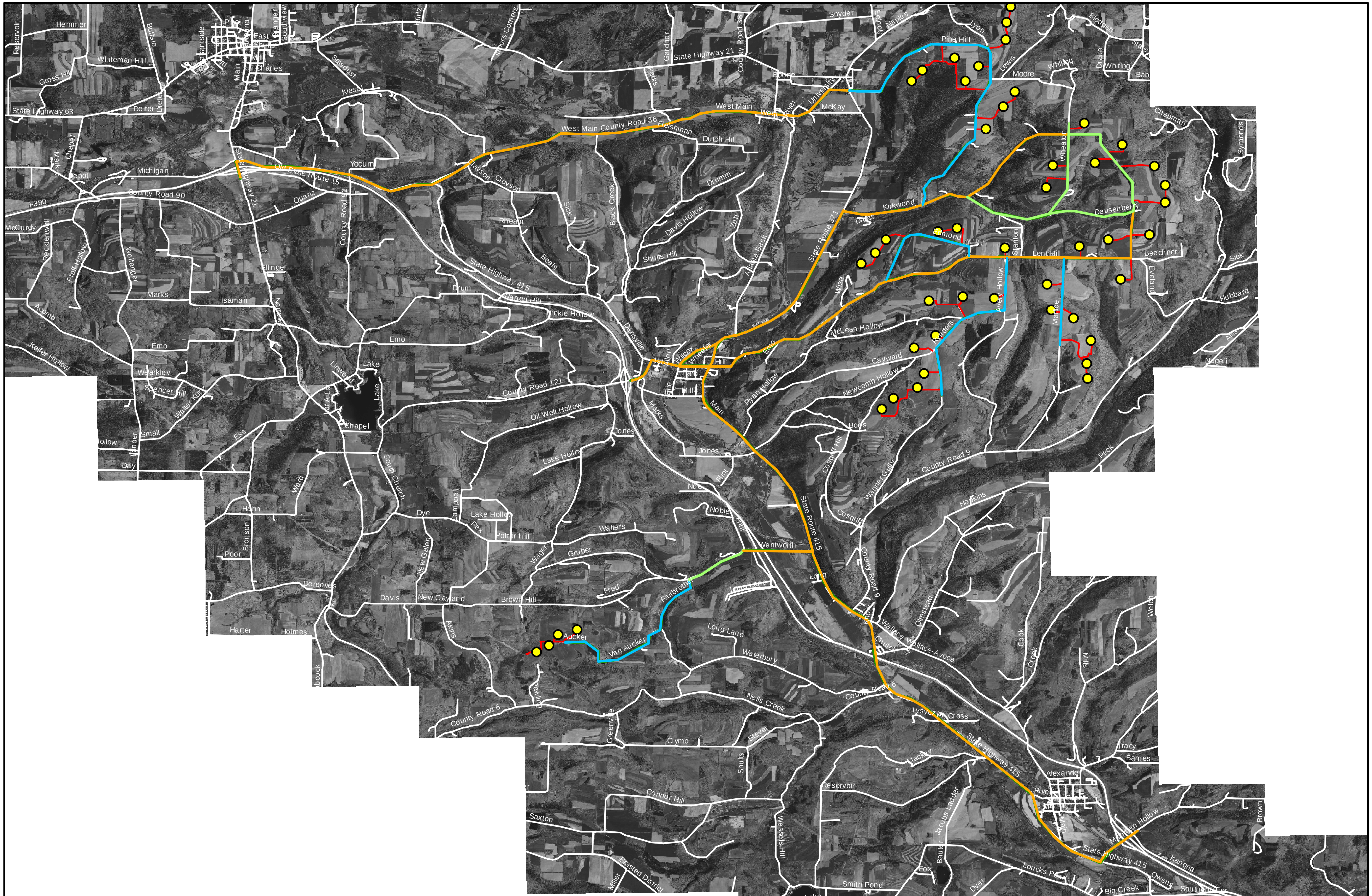
Cohocton Wind Farm

Road Width
(Including Shoulders)

1 0.5 0 1 2 3 4 Miles

0



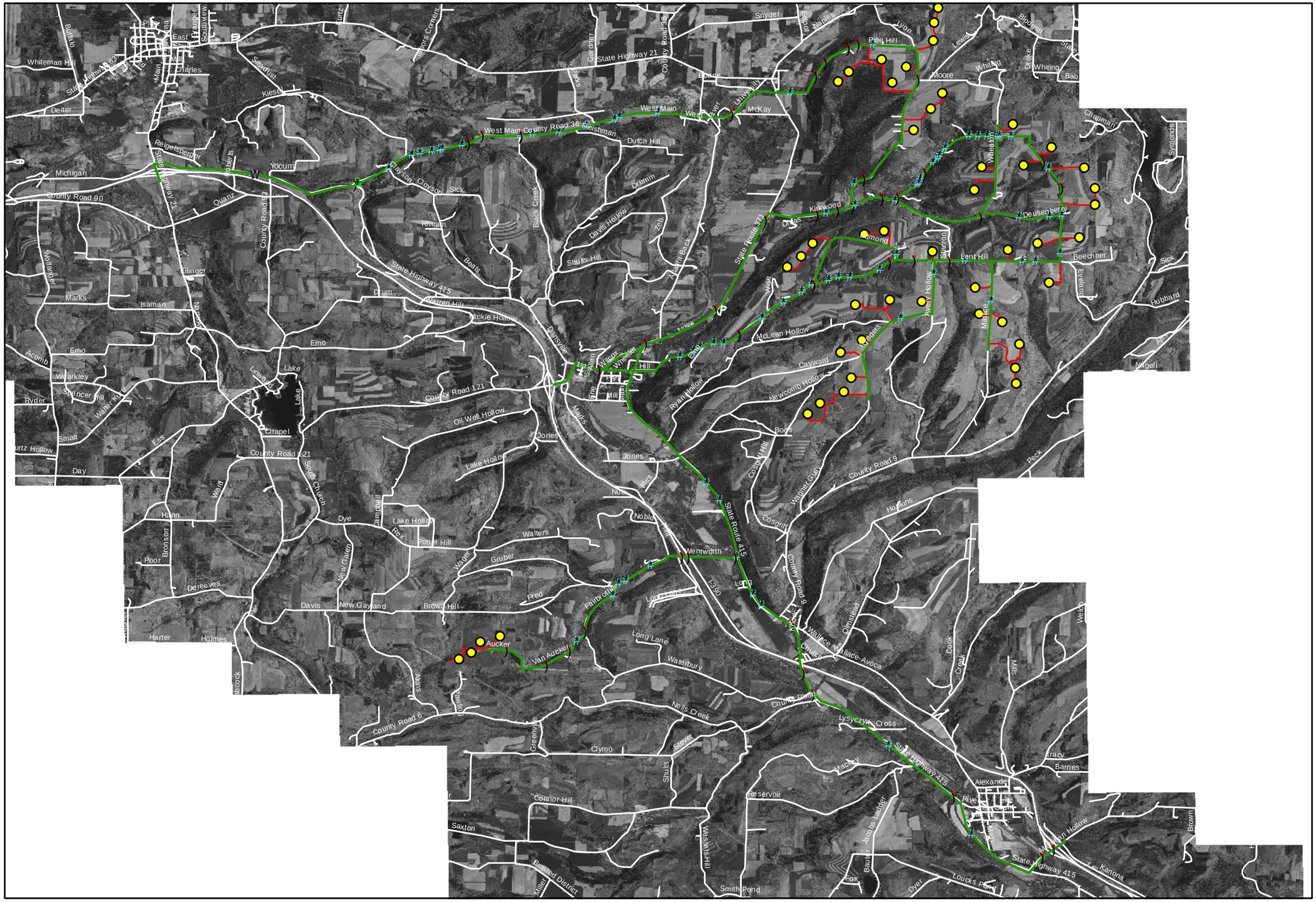
Legend

- Asphalt
- Gravel
- Oil + Stone
- Access Roads

Cohocton Wind Farm

Road Type
(At Drainage Structures)

1 0.5 0 1 2 3 4 Miles



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Legend

- 0' - 1' of Cover
- 2' - 3' of Cover
- 4' - 6' of Cover
- 6'+ of Cover
- Study Roadways
- Access Roads

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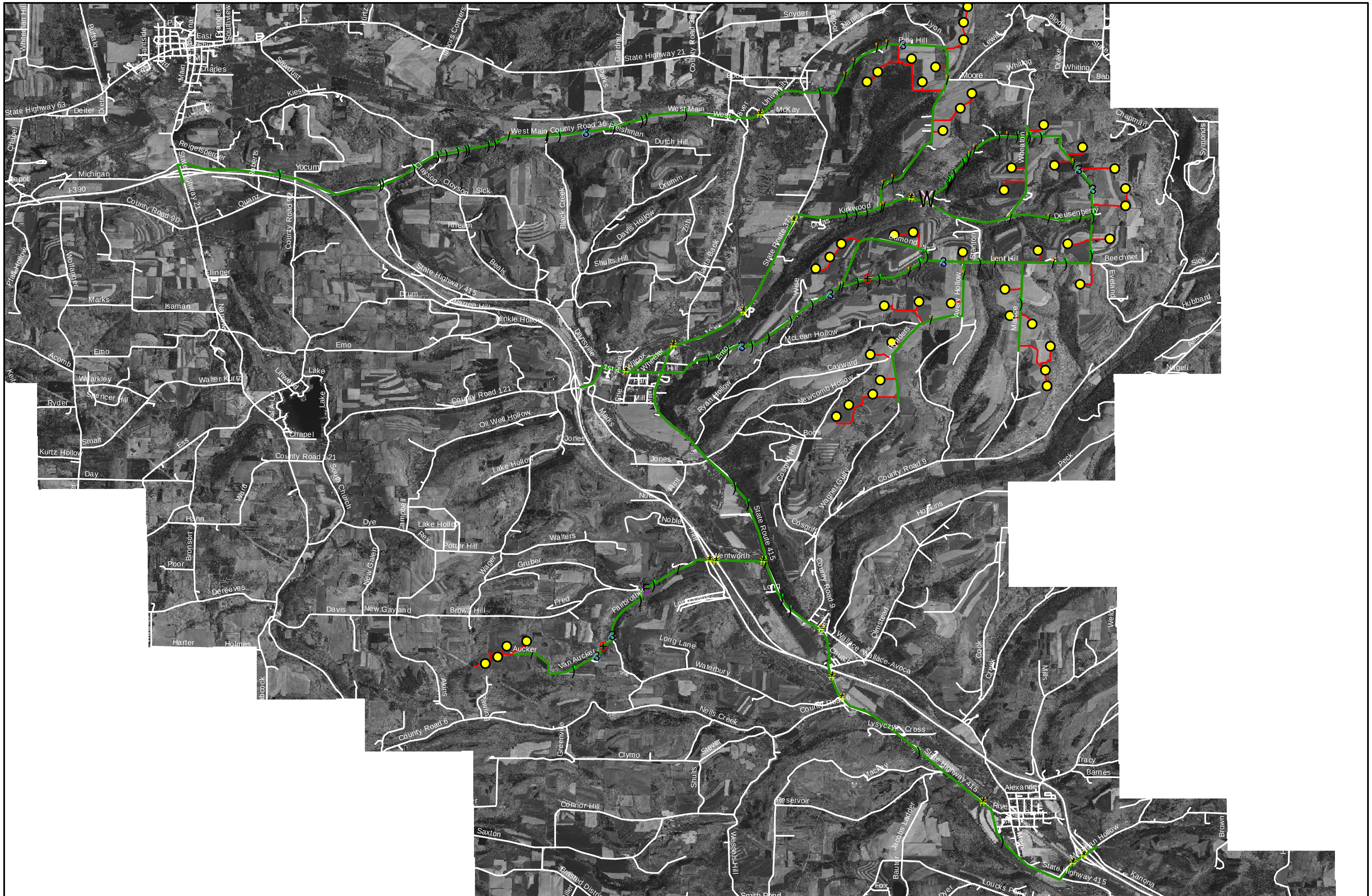
Cohocton Wind Farm

Culvert Cover Map
(in feet)

1 0.5 0 1 2 3 4 Miles



Legend

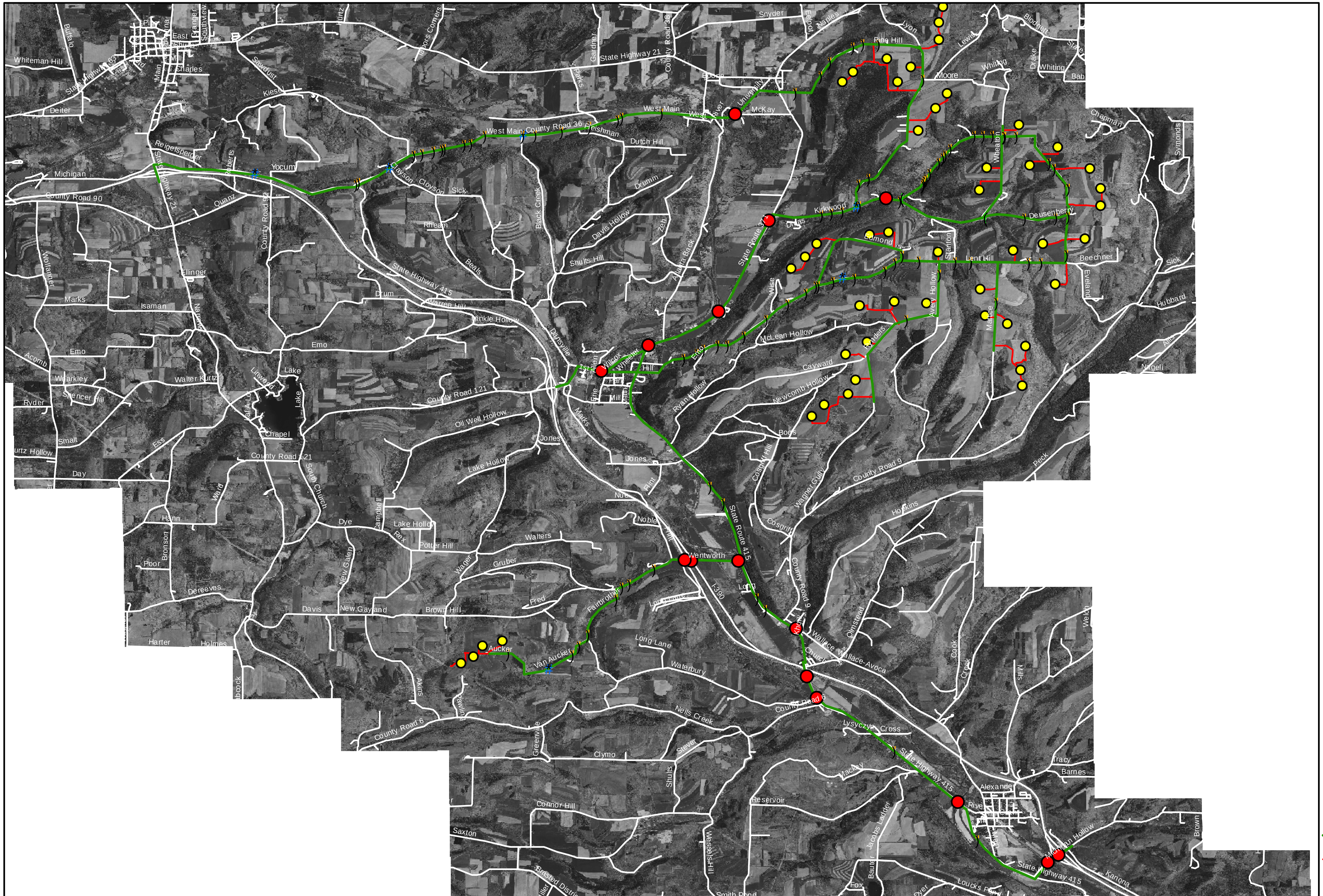
*	Bridge
)	Corrugated Metal
C	Concrete
$	Elliptical
3	SICPP
/	Steel
W	Wood
—	Study Roadways
—	Access Roads

1 0.5 0 1 2 3 4 Miles

FISHERASSOCIATES

Cohocton Wind Farm

Culvert Material Map



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Legend

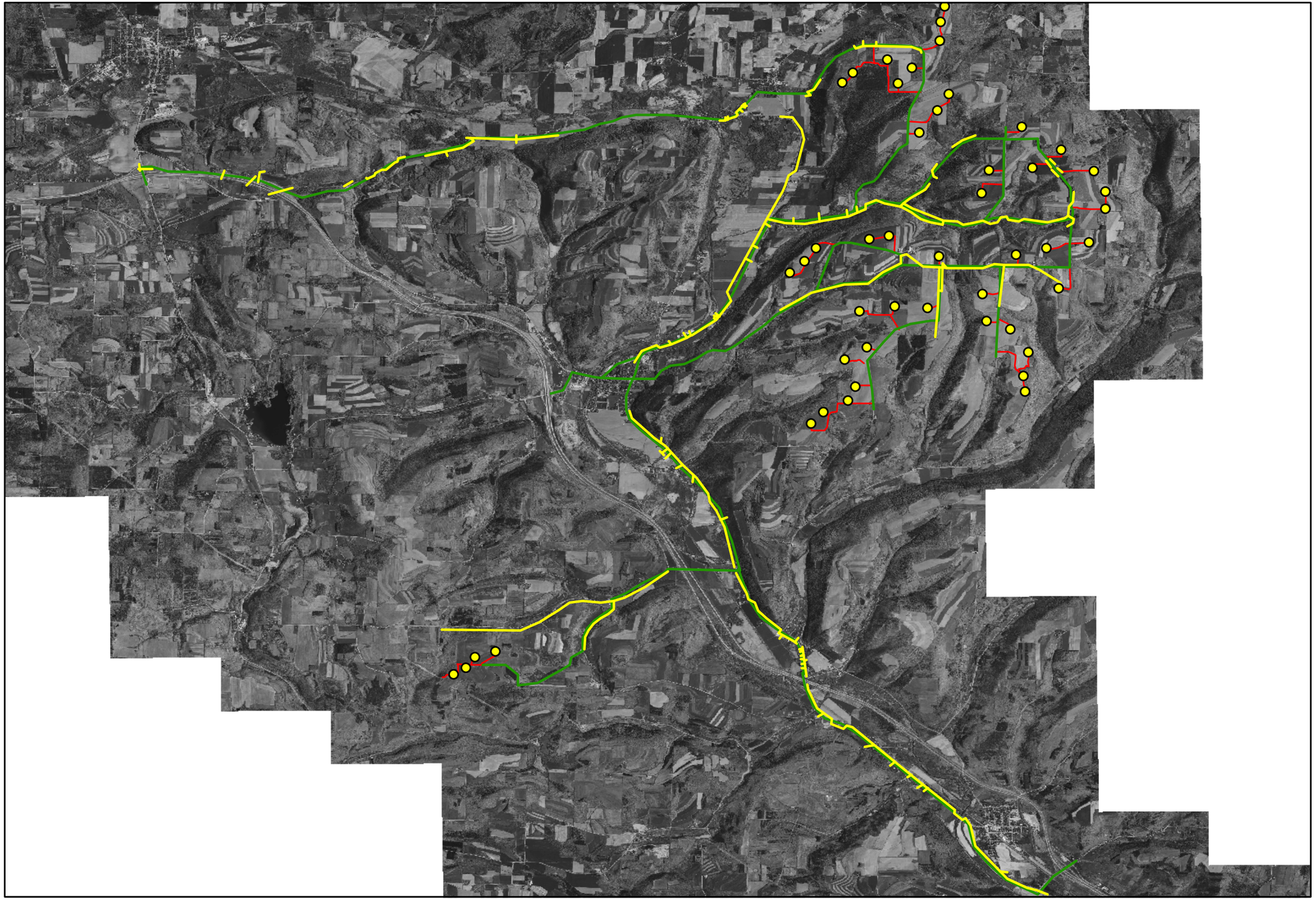
- Bridge
- 0" - 35" Diameter
- 36" - 47" Diameter
- 48"+ Diameter
- Study Roadways
- Access Roads

1 0.5 0 1 2 3 4 Miles

FISHERASSOCIATES

Cohocton Wind Farm

Culvert Diameter Map
(in inches)



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Legend

- Overhead Electric
- Study Roadways
- Access Roads

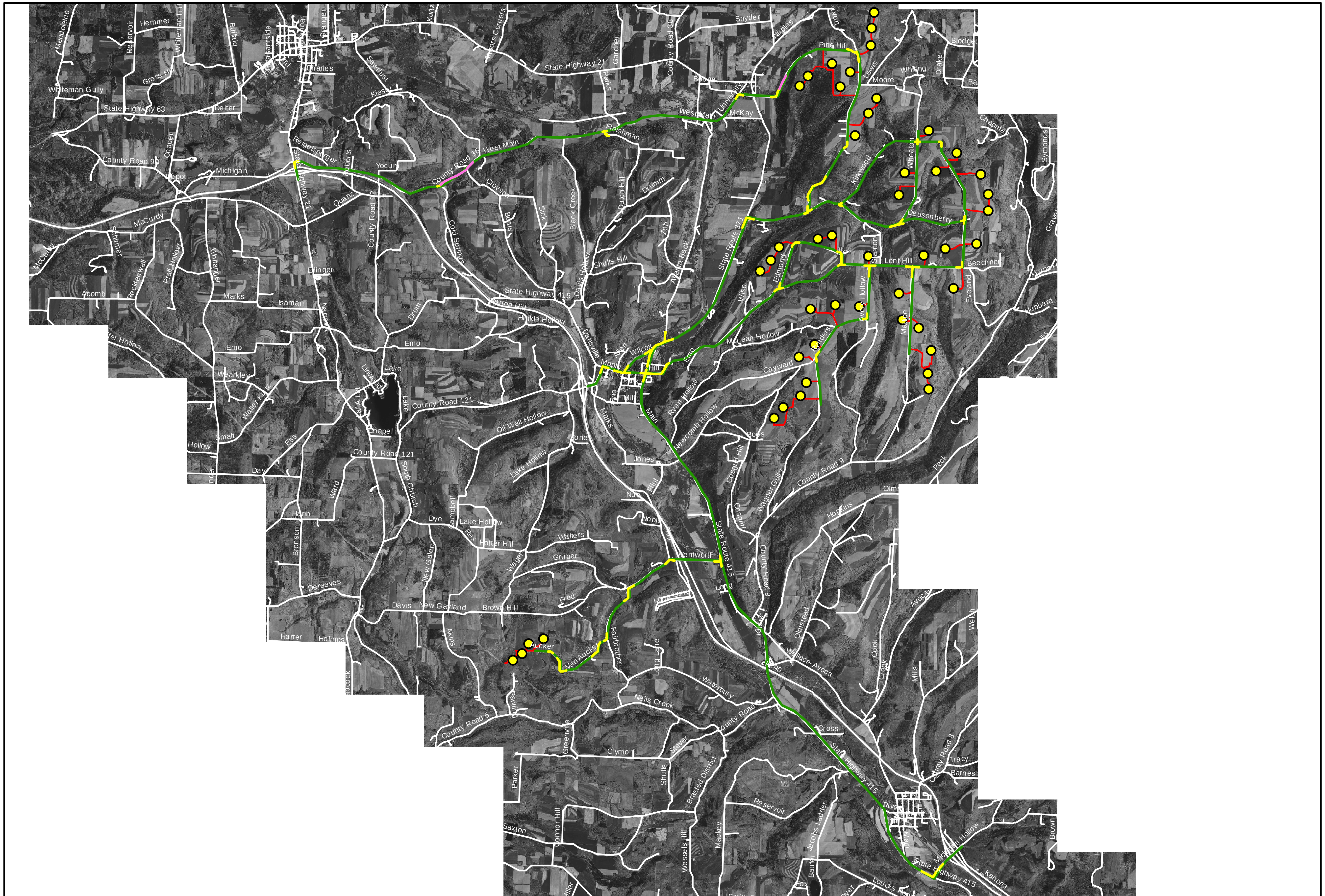
FISHERASSOCIATES

Cohocton Wind Farm

Overhead Electric Map

1 0.5 0 1 2 3 4 Miles

0



Legend

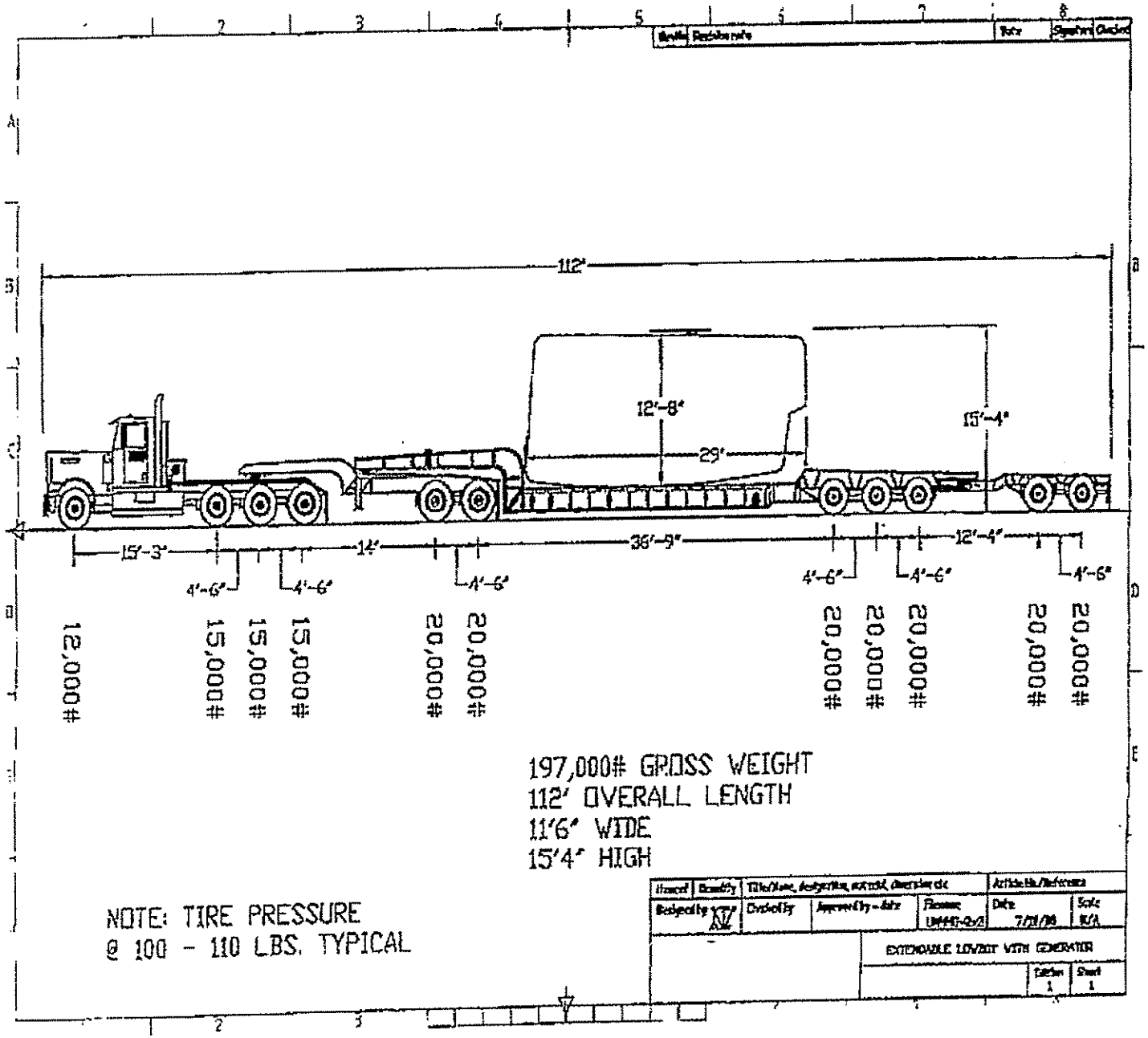
- Horizontal
- 7% or greater
- Study Roadways
- Access Roads

Cohocton Wind Farm

Horizontal Curvature and Roadway Grade Concerns

1 0.5 0 1 2 3 4 Miles

Typical Turbine Tran ort Requirements



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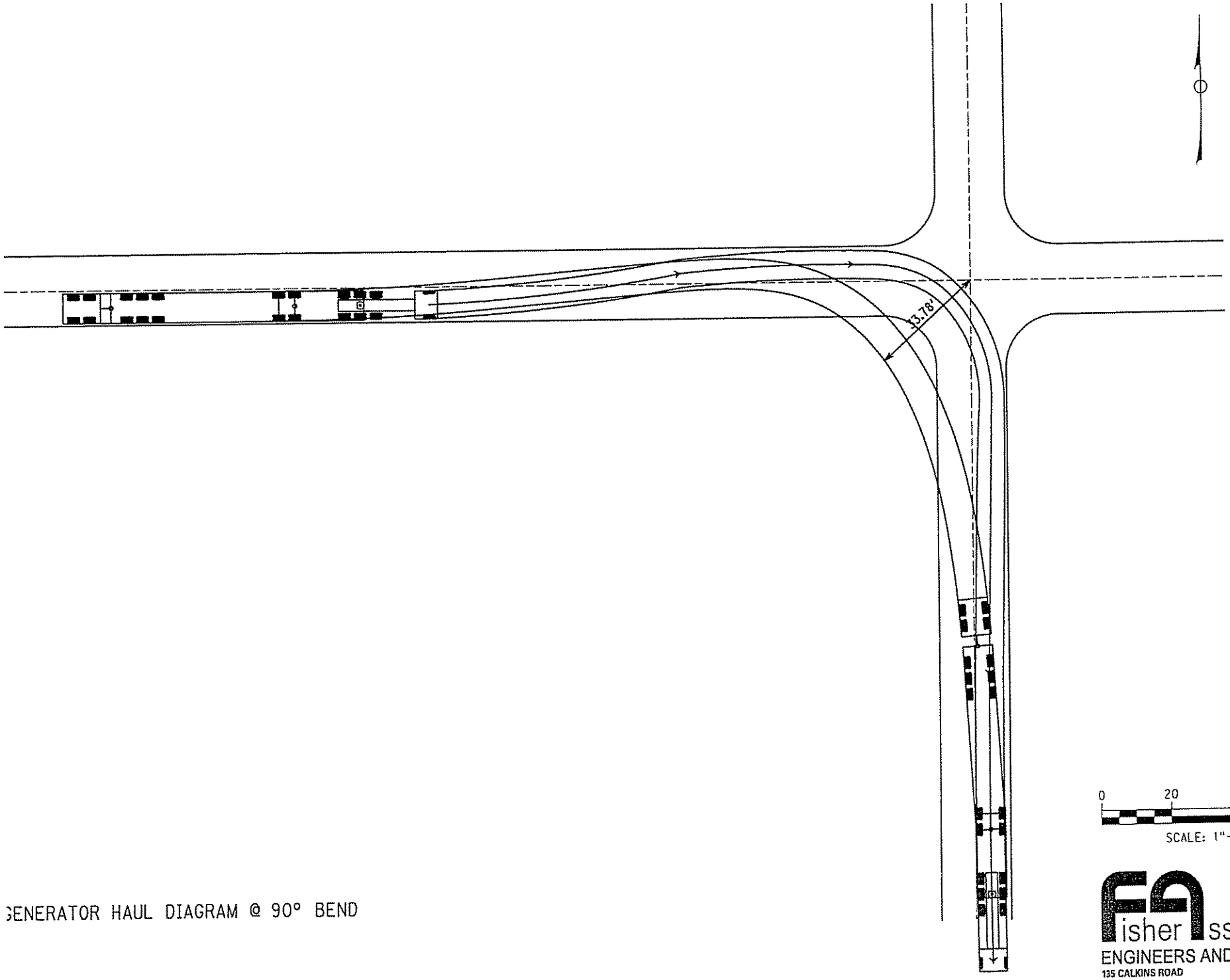
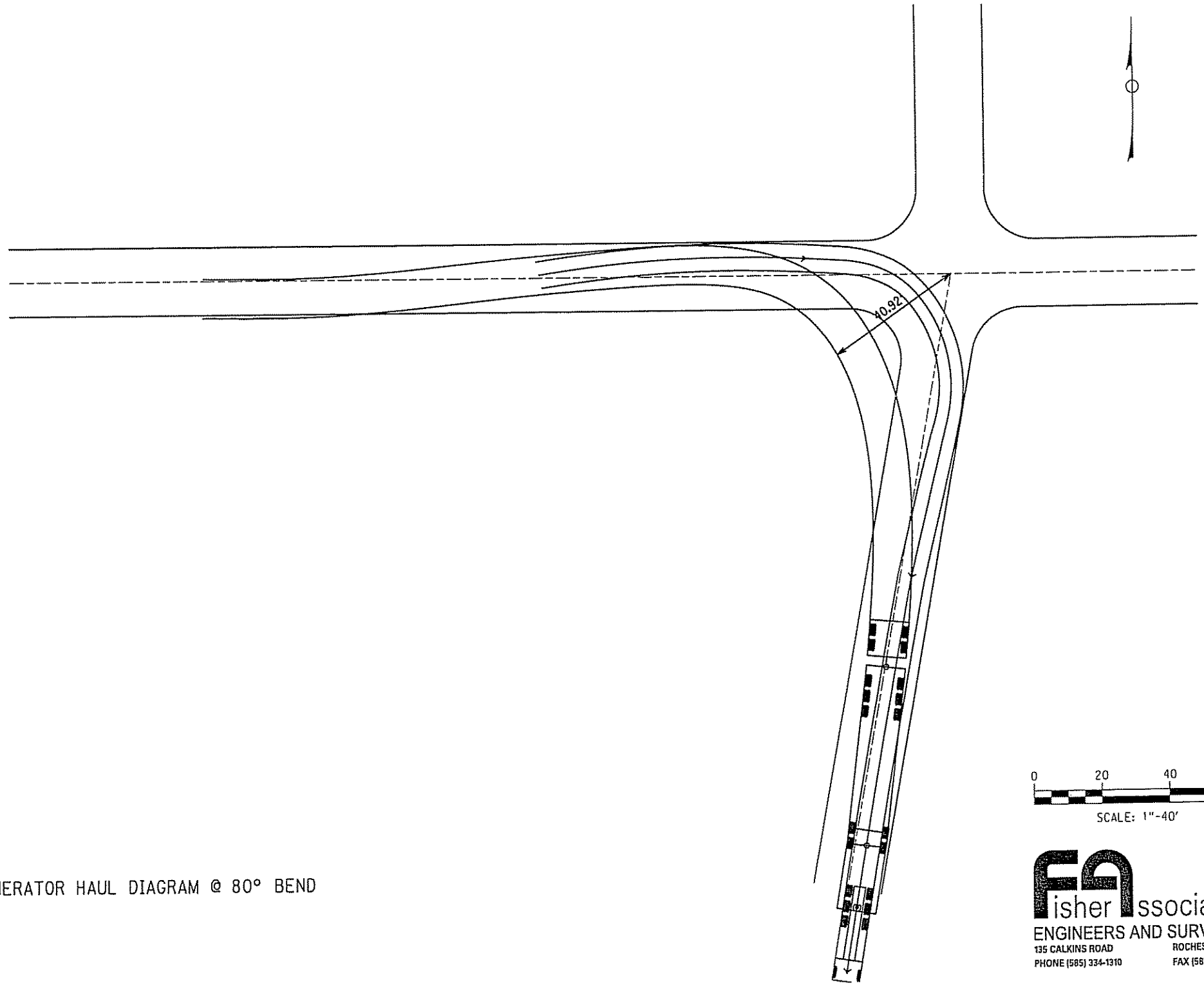


GENERATOR HAUL DIAGRAM @ 90° BEND

0 20 40 60

SCALE: 1"=40'

Fisher Associates
ENGINEERS AND SURVEYORS
135 CALKINS ROAD ROCHESTER, N.Y. 14
PHONE (585) 334-1310 FAX (585) 334-1361



GENERATOR HAUL DIAGRAM @ 80° BEND

0 20 40 60

SCALE: 1"=40'

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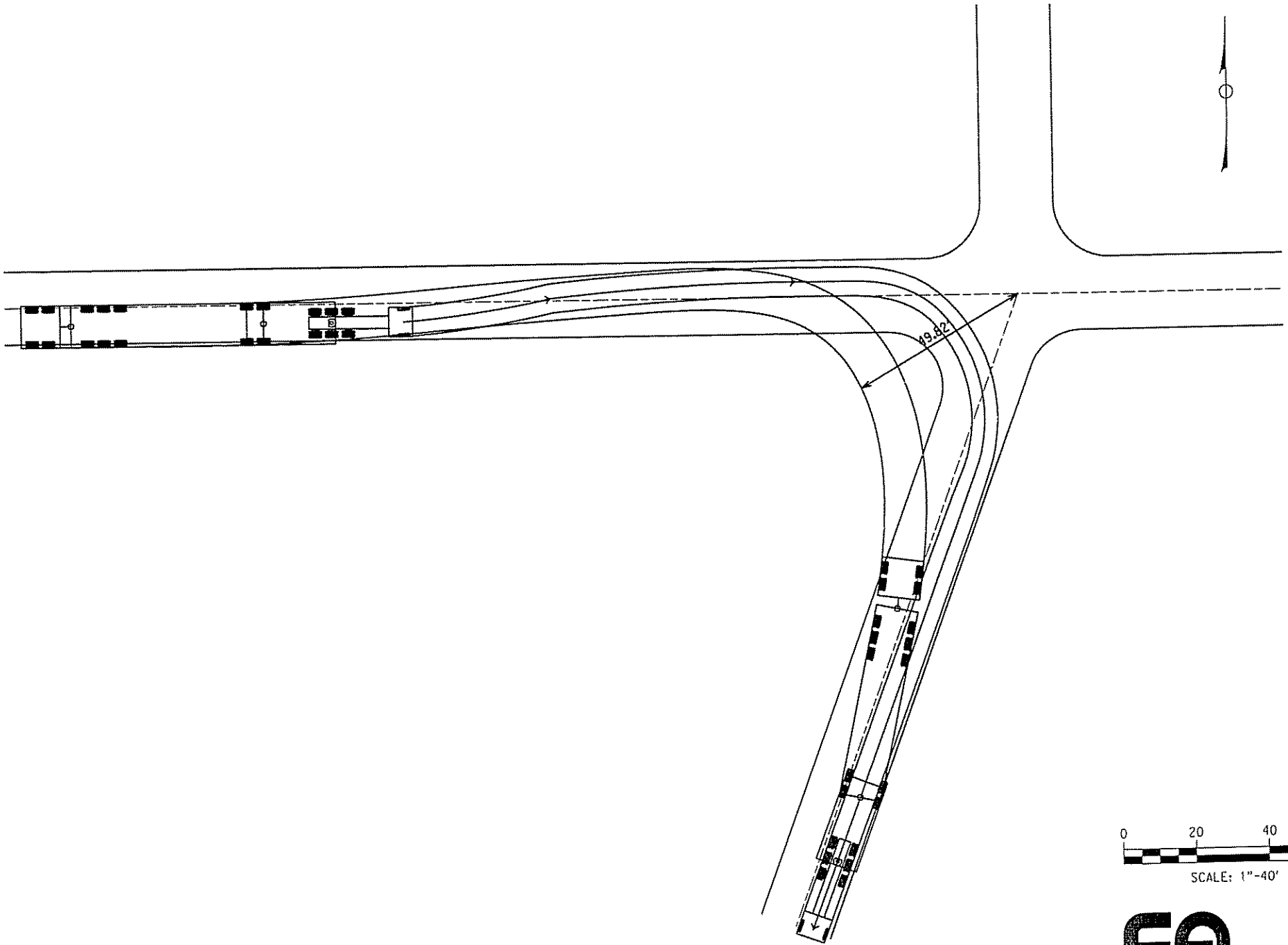

0 20 40 60

SCALE: 1"=40'

ENERATOR HAUL DIAGRAM @ 70° BEND

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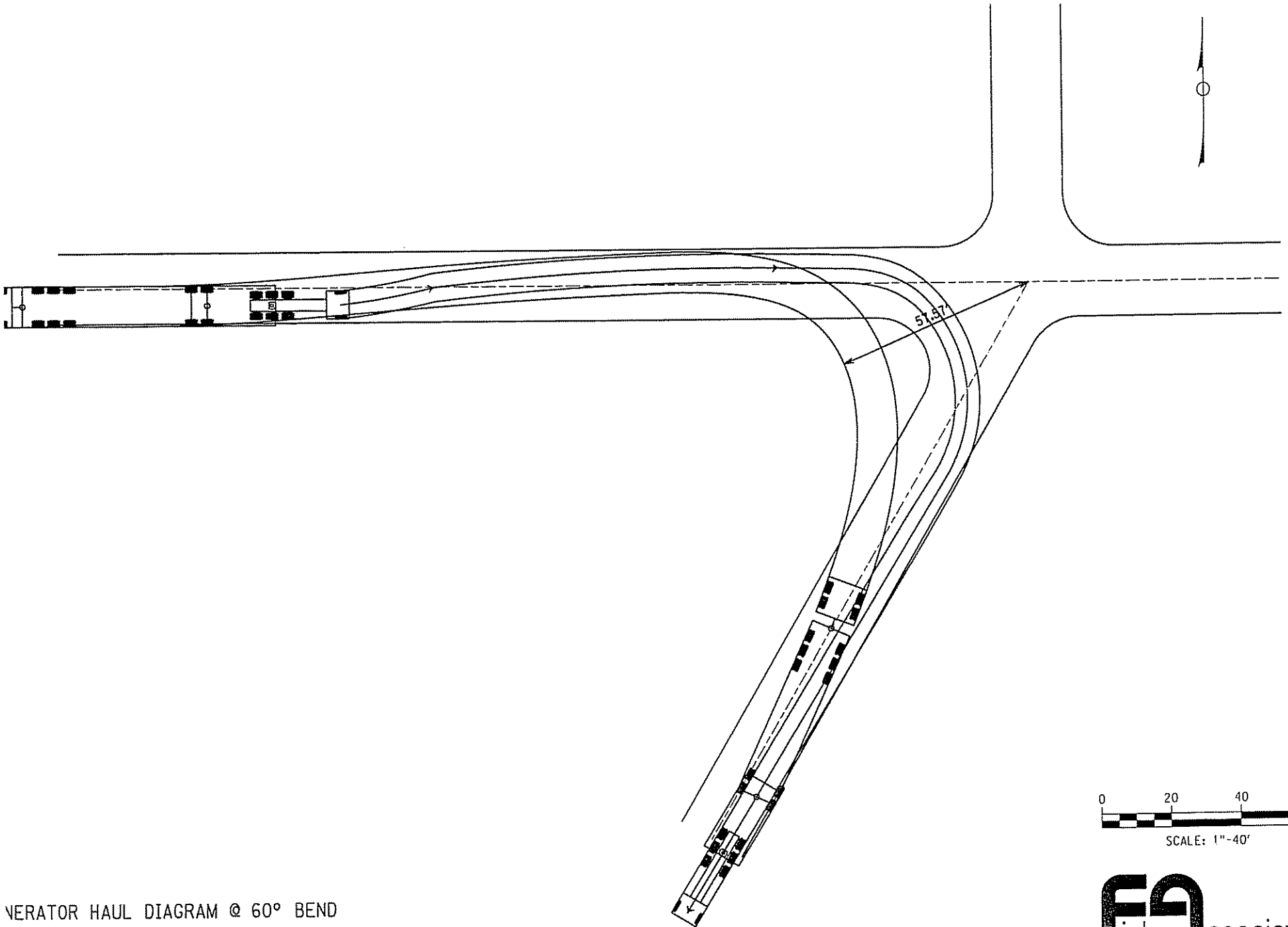

VERATOR HAUL DIAGRAM @ 60° BEND

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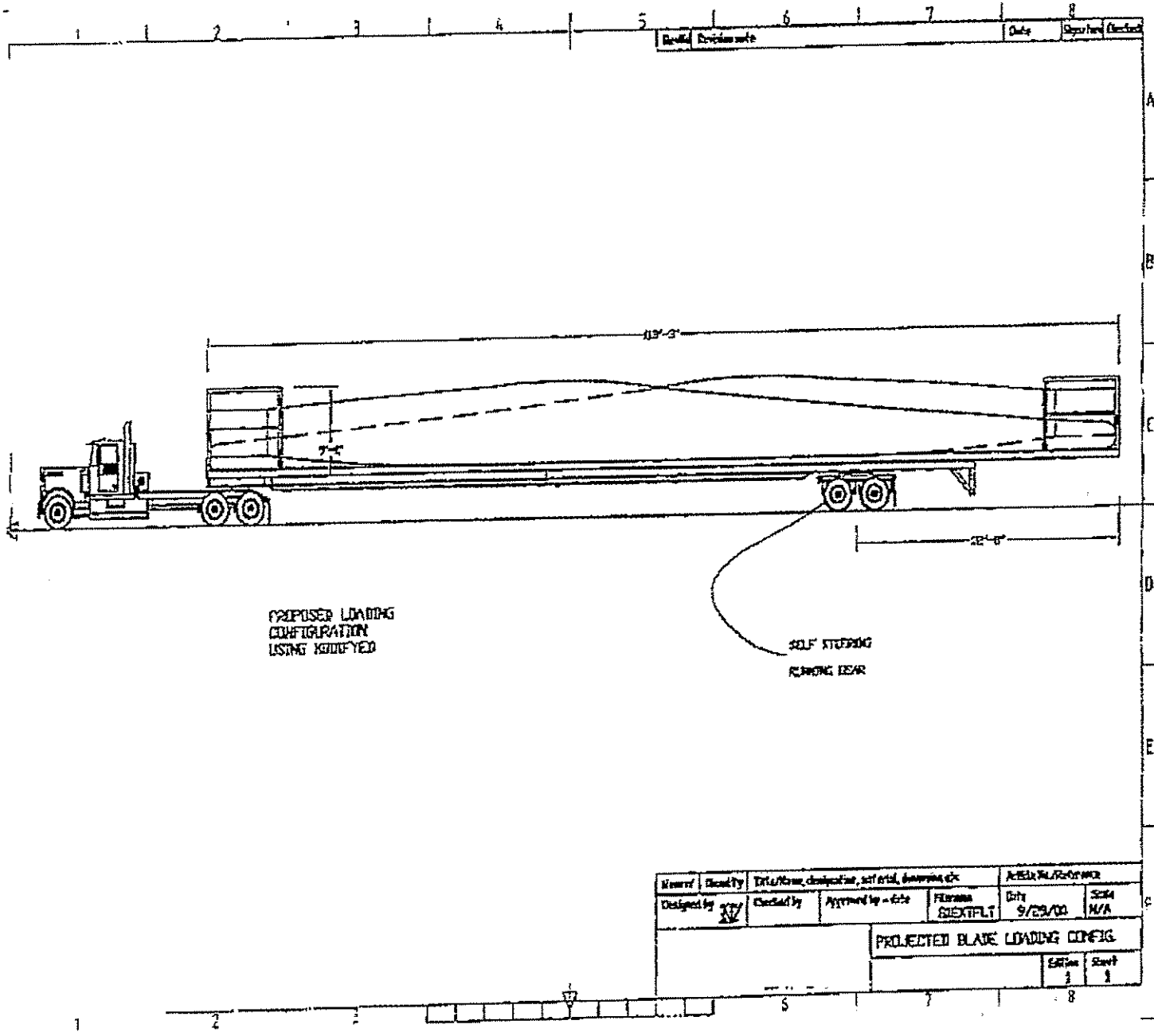
Typical Blade Transp rt Requirements



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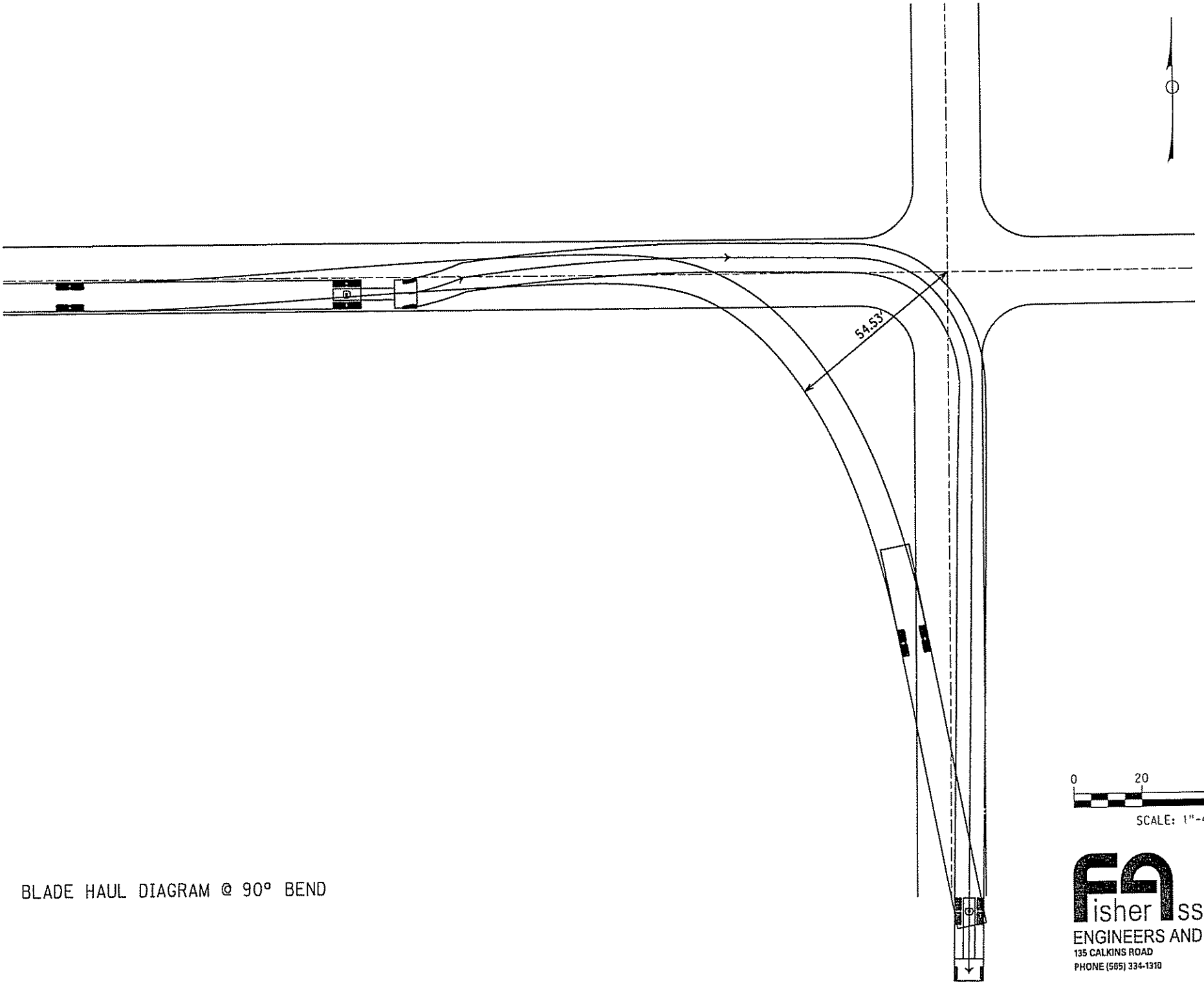

BLADE HAUL DIAGRAM @ 90° BEND

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ENGINEERS AND SURVEYORS
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ROCHESTER, N.Y. 14
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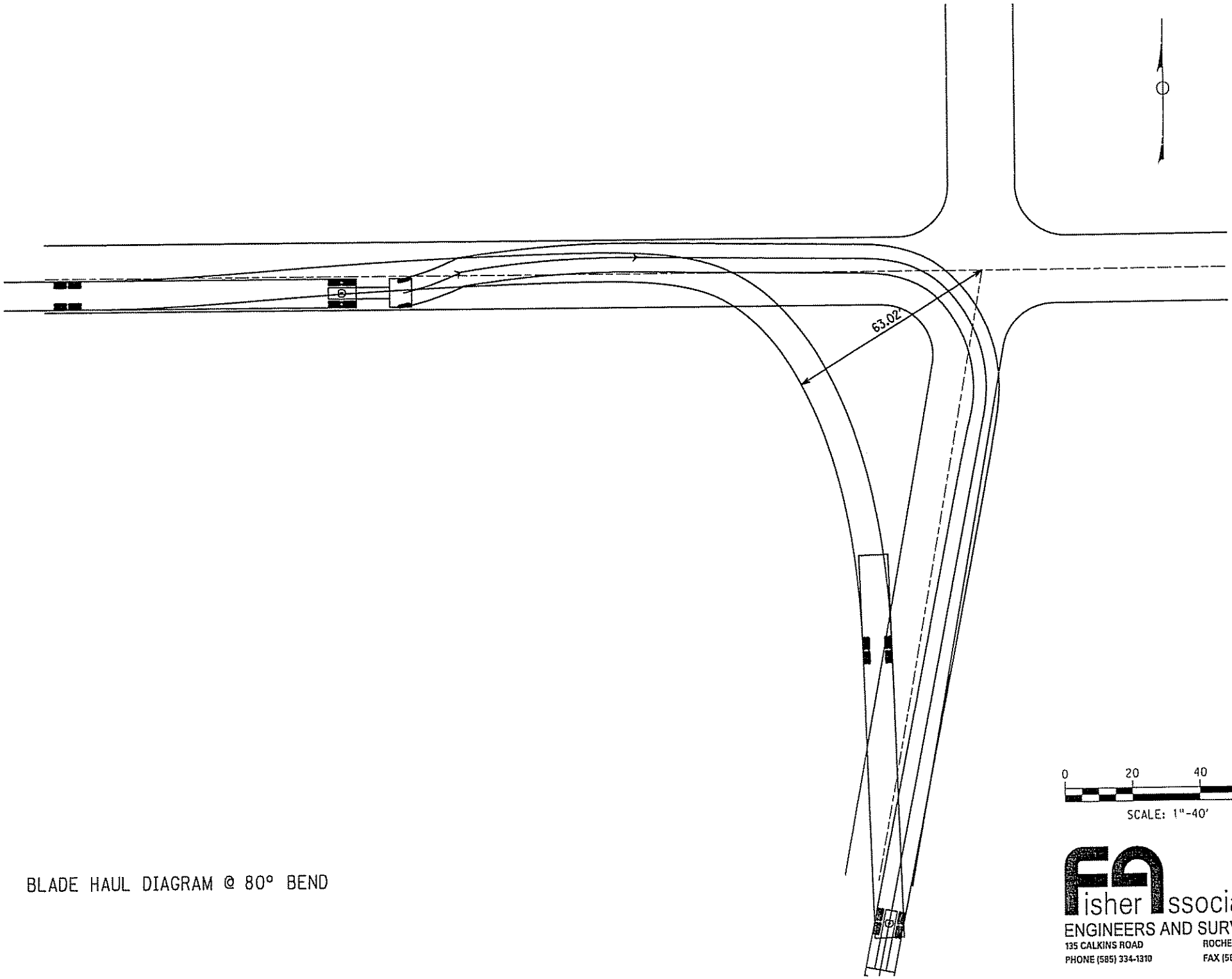

BLADE HAUL DIAGRAM @ 80° BEND

0 20 40 60

SCALE: 1"=40'

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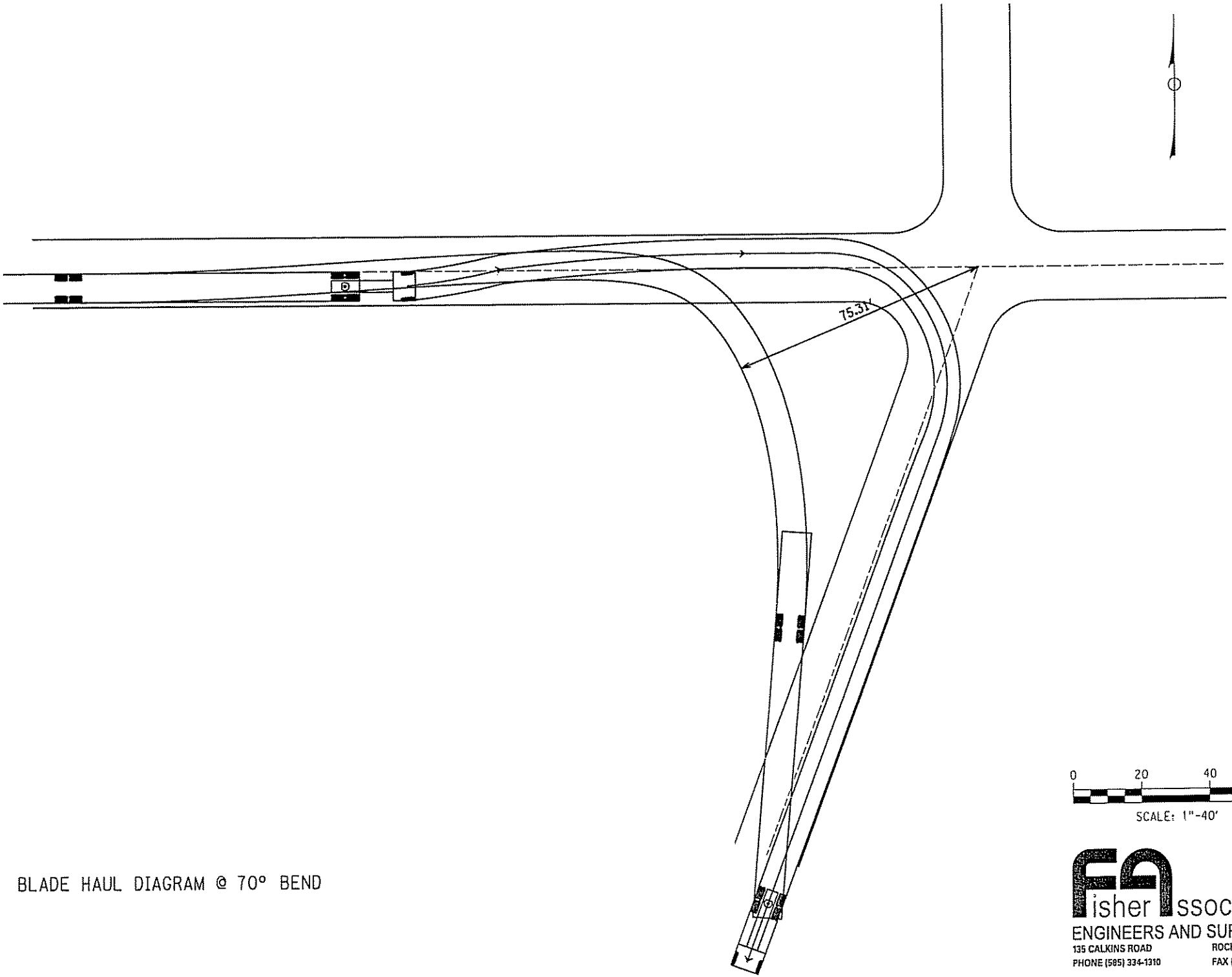

BLADE HAUL DIAGRAM @ 70° BEND

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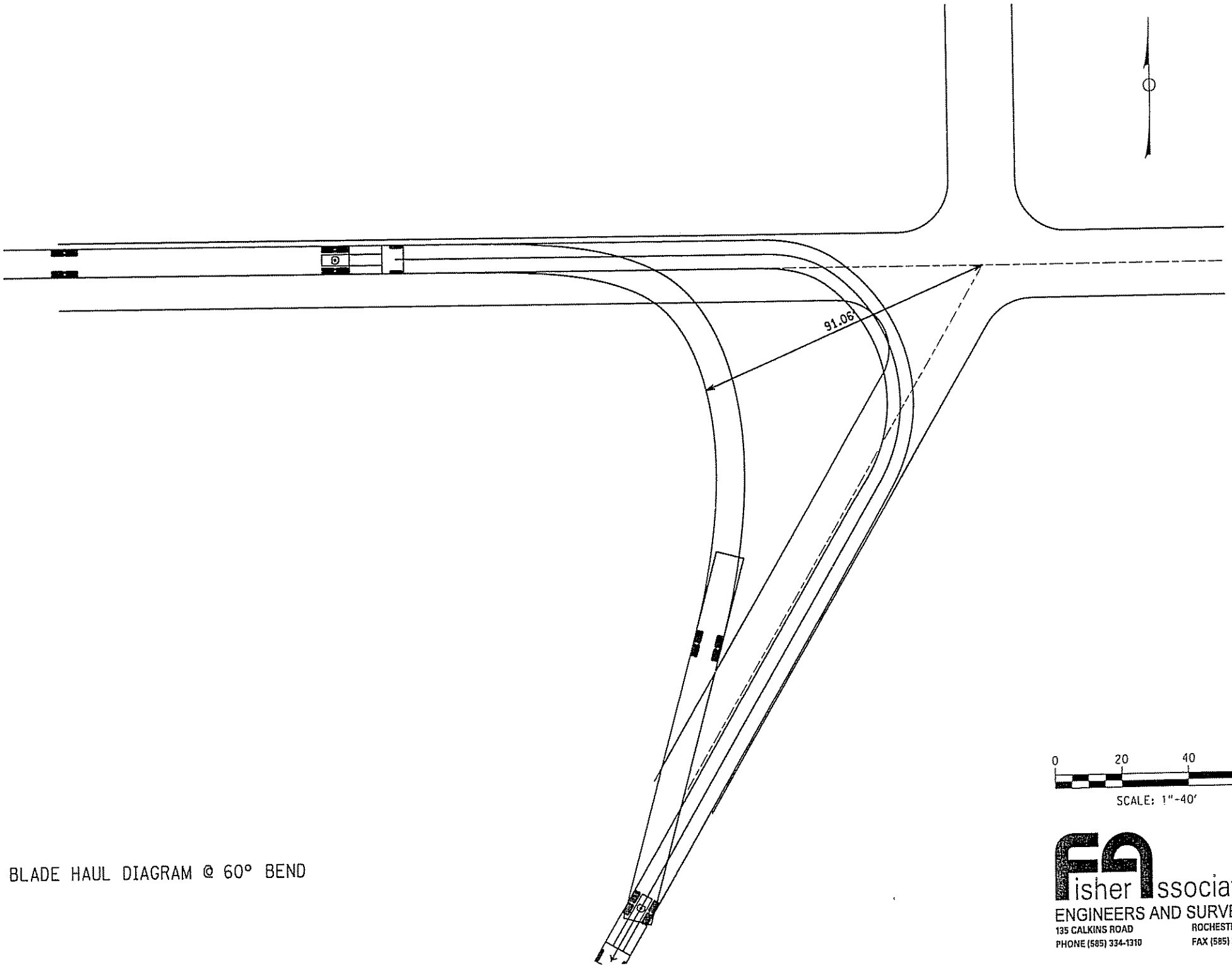


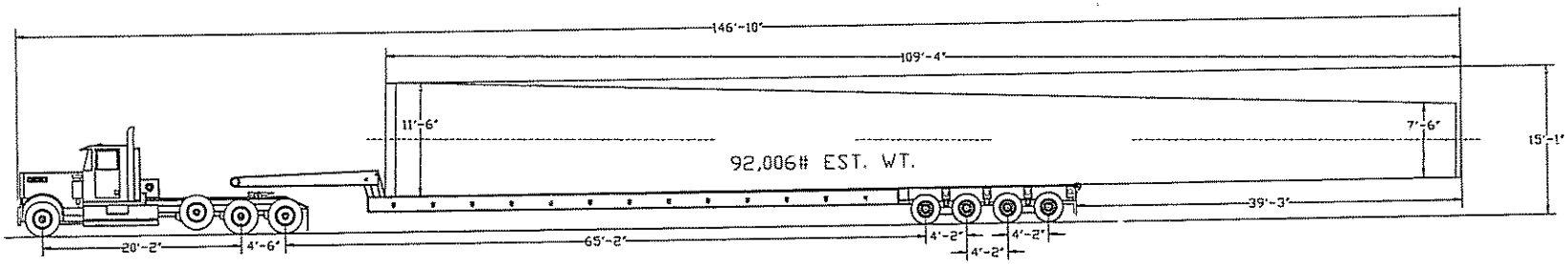
BLADE HAUL DIAGRAM @ 60° BEND

0 20 40 60

SCALE: 1"-40'

Fisher Associates
ENGINEERS AND SURVEYOR
135 CALKINS ROAD
ROCHESTER, N.Y. 1
PHONE (585) 334-1310
FAX (585) 334-1361

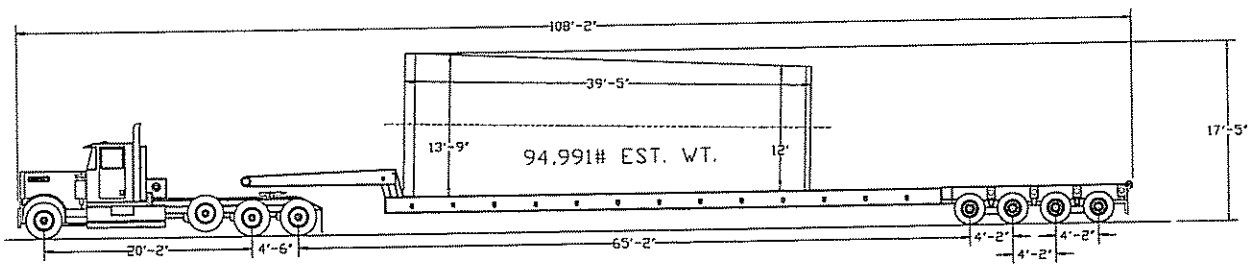
RevNo	Revision note	Date	Signature	Checked



TOWER TOP

OVERALL:

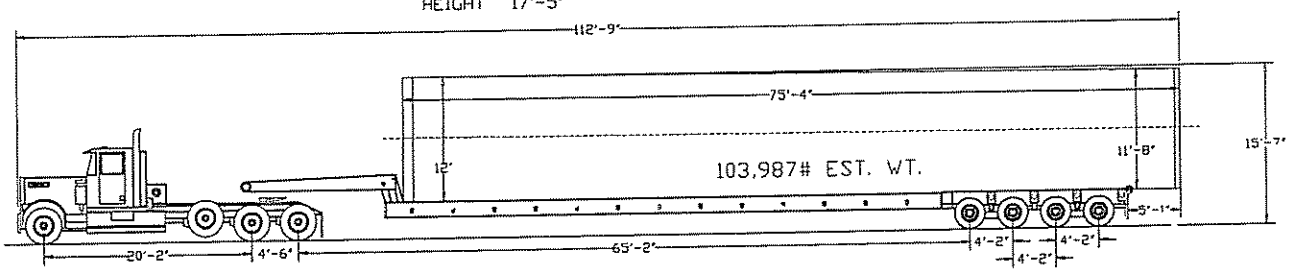
LENGTH	146'-10"
WIDTH	11'-6"
HEIGHT	15'-1"



TOWER BASE

OVERALL:

LENGTH	108'-2"
WIDTH	13'-9"
HEIGHT	17'-5"



TOWER MID

OVERALL:

LENGTH	112'-9"
WIDTH	12'
HEIGHT	15'-7"

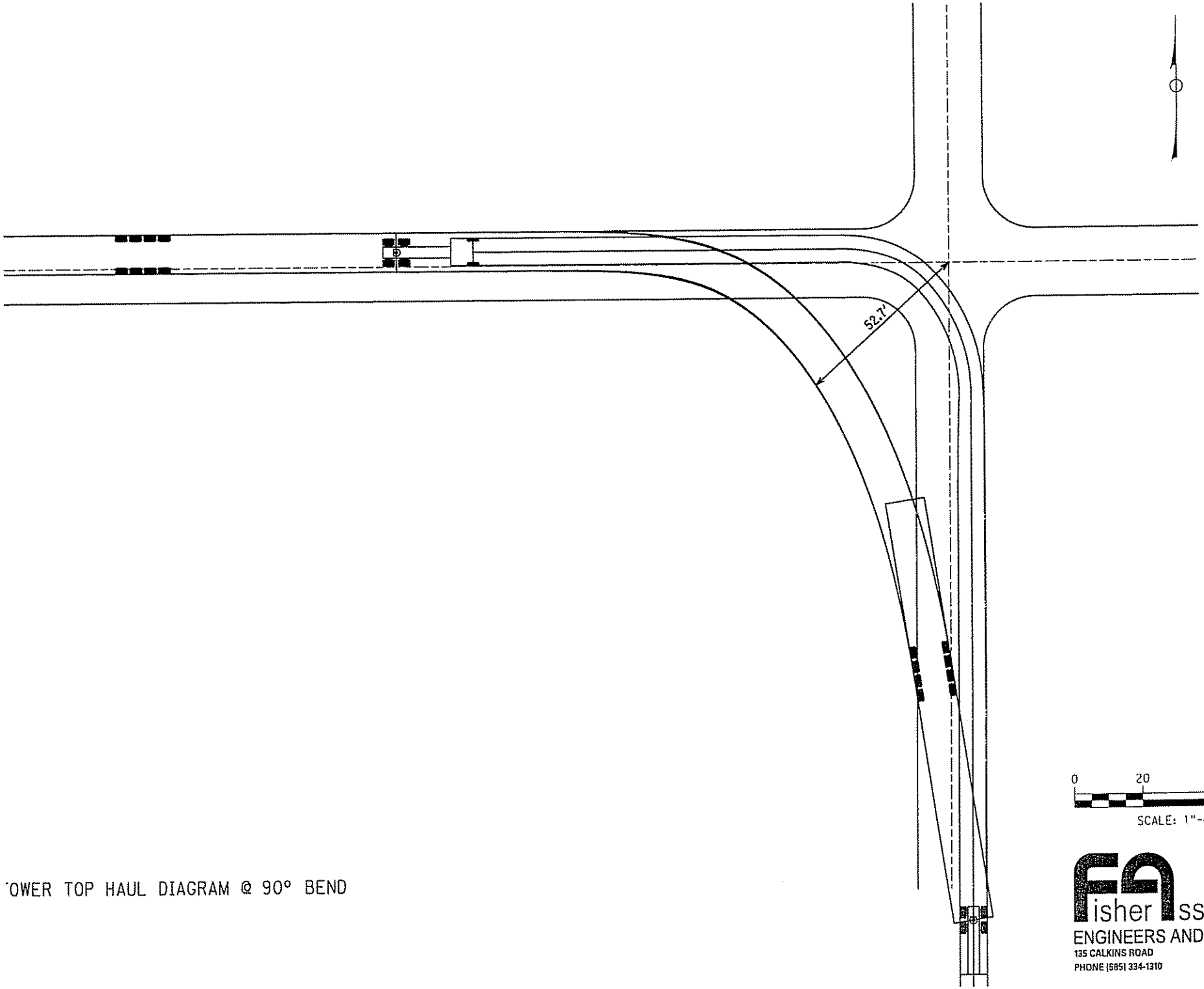
Itemref	Quantity	Title/Name, designation, material, dimension etc			Article No./Reference	
Designed by: JW		Checked by	Approved by - date: JV	Filename: NEG REV 2	Date: 05-15-03	Scale: N/A

LONESTAR TRANSPORTATION
HEAVY HAUL DIVISION
1360 MOSS LAKE ROAD
GAINESVILLE, TX. 76240
800-899-5744

ITEM NO.

N-E-G MICON

Edition | Sheet

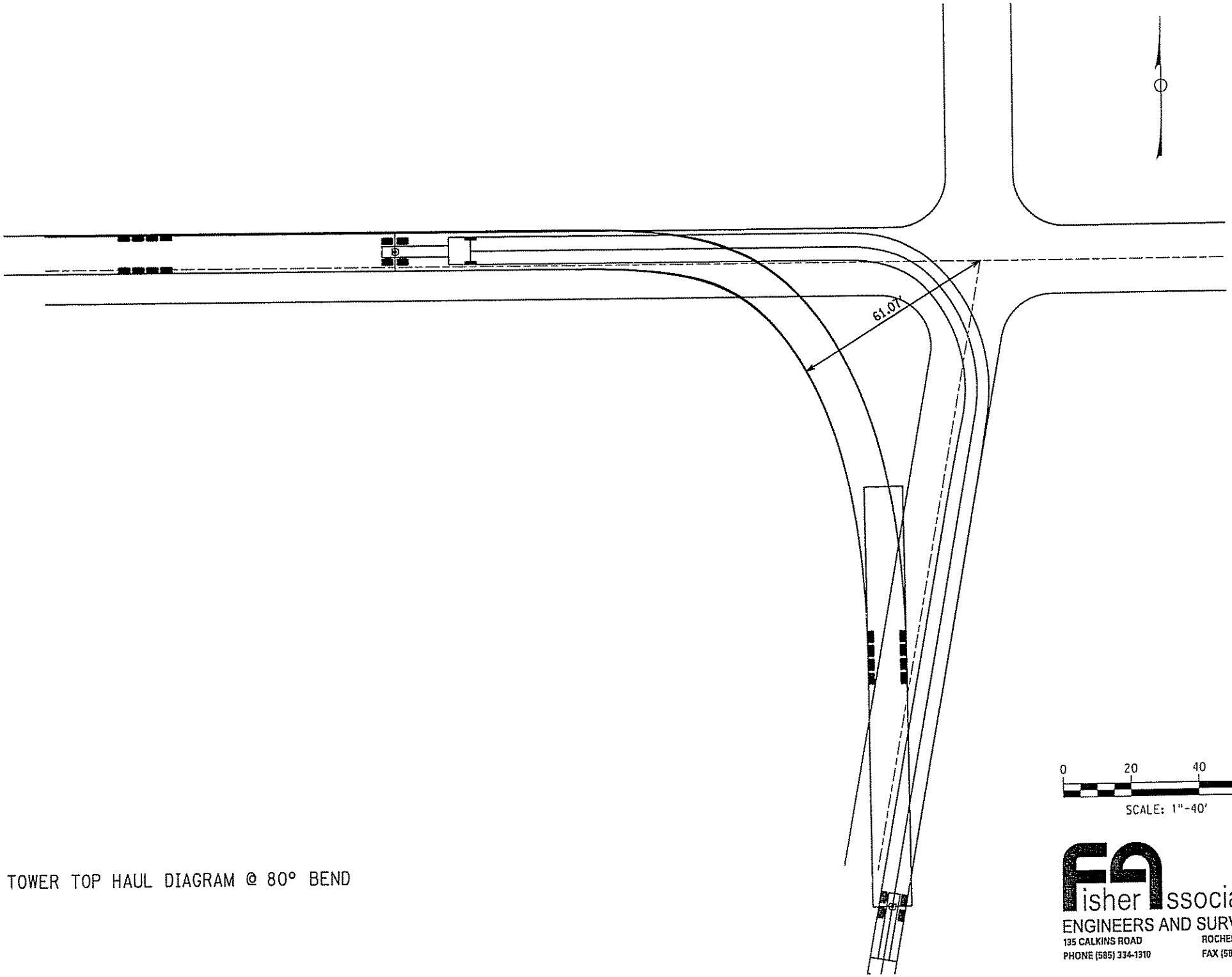


'OWER TOP HAUL DIAGRAM @ 90° BEND

0 20 40 60

SCALE: 1"=40'

Fisher Associates
ENGINEERS AND SURVEYORS
135 CALKINS ROAD
ROCHESTER, N.Y. 146
PHONE (585) 334-1310
FAX (585) 334-1361



TOWER TOP HAUL DIAGRAM @ 80° BEND

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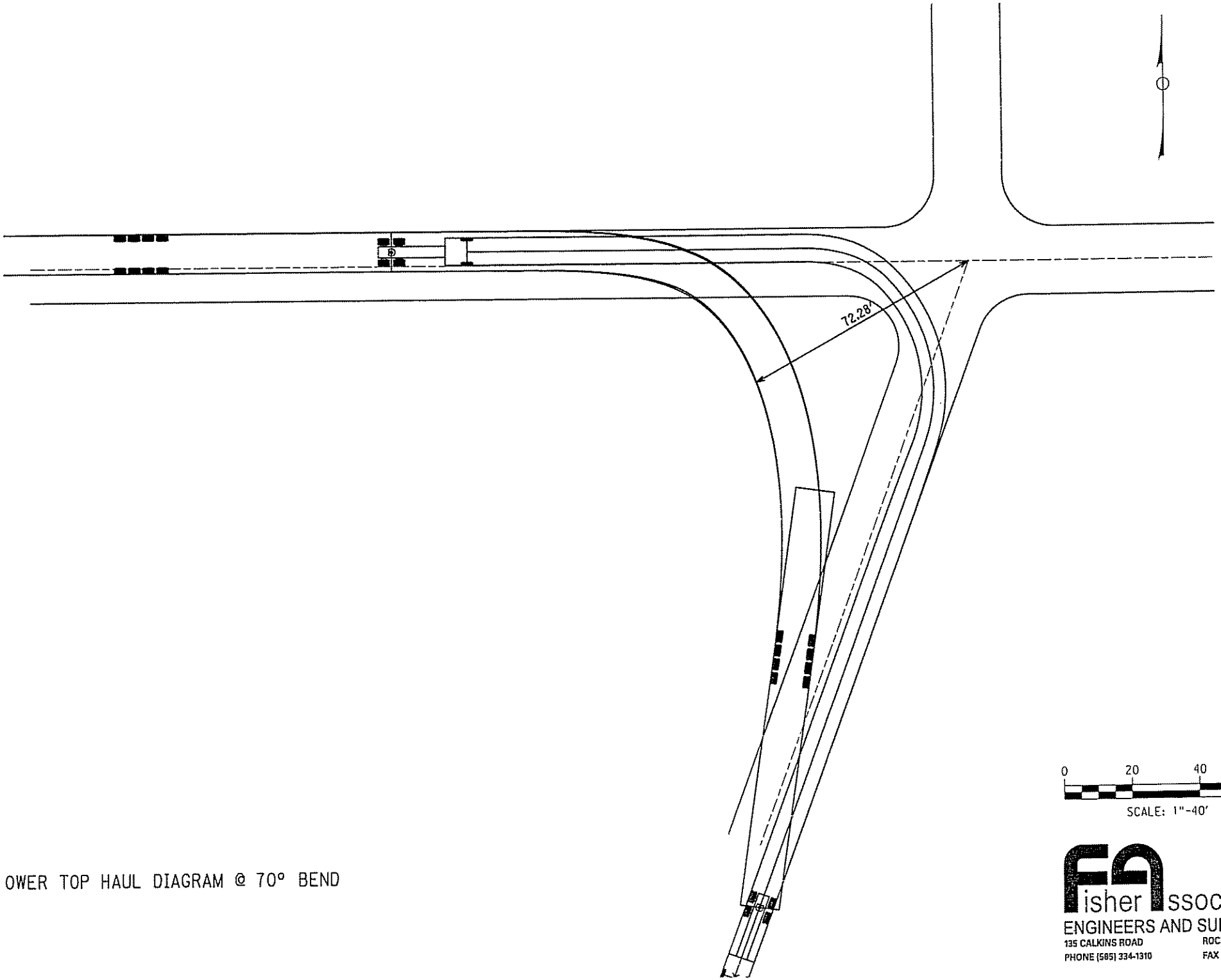

OWER TOP HAUL DIAGRAM @ 70° BEND

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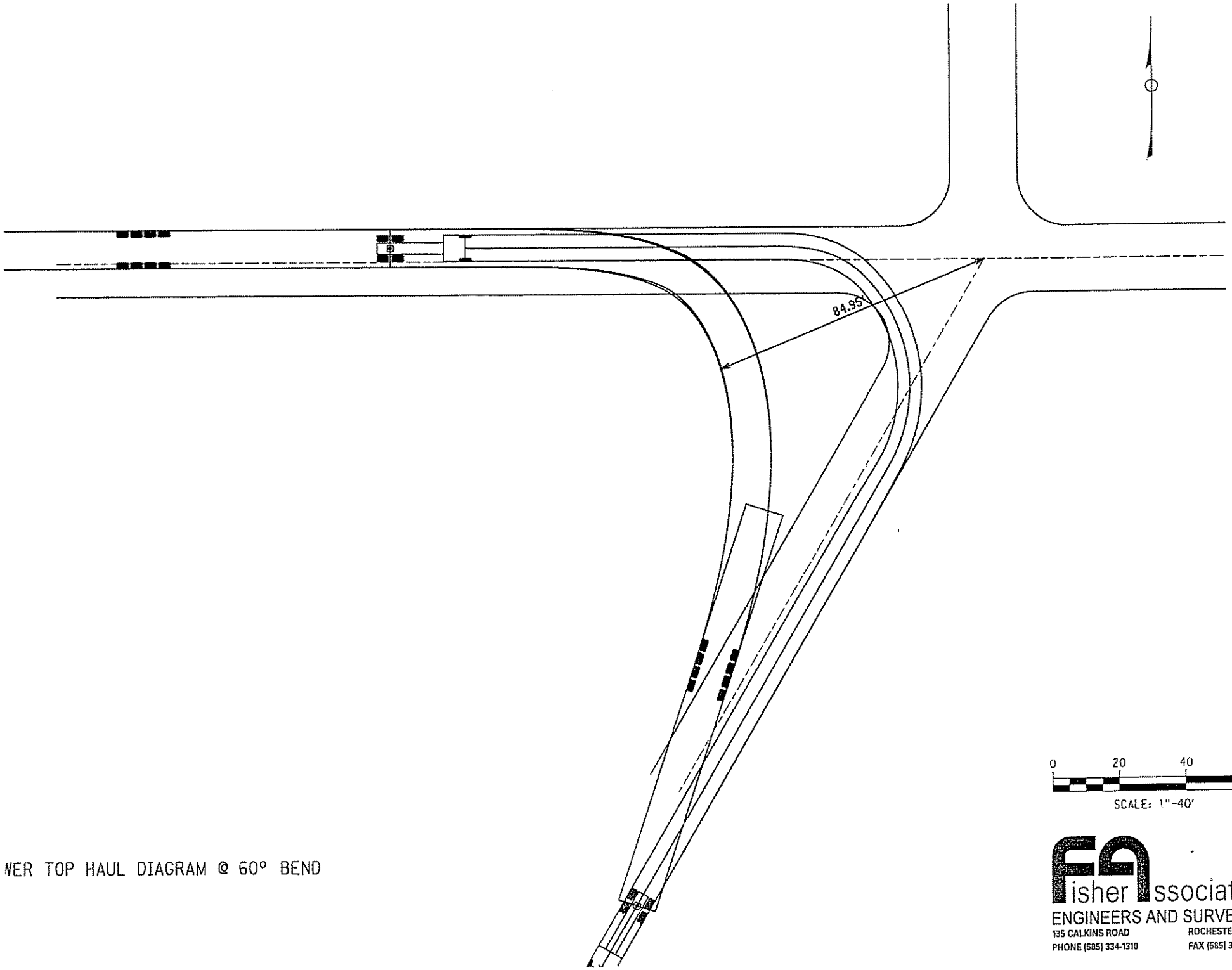

NER TOP HAUL DIAGRAM @ 60° BEND

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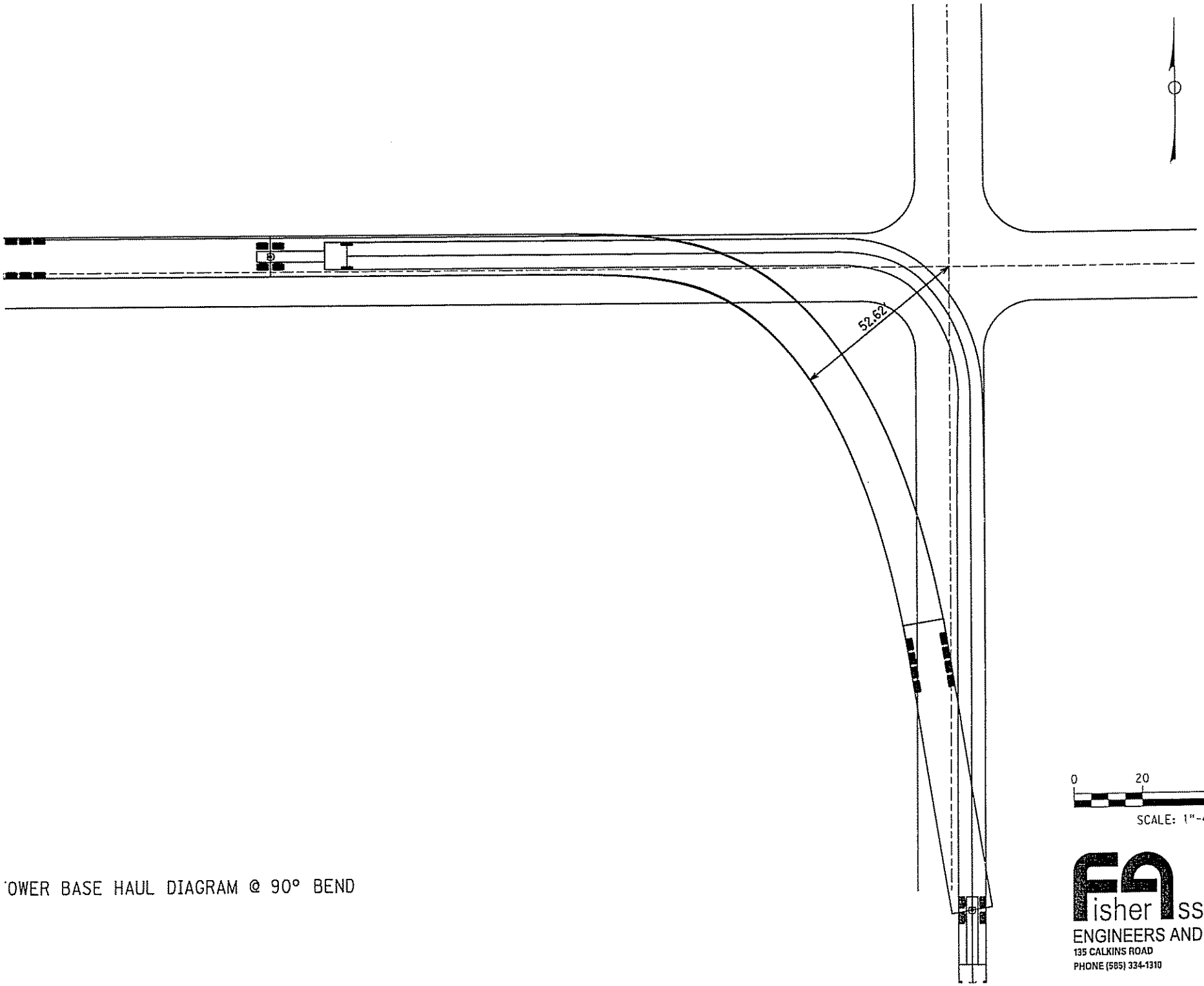

'OWER BASE HAUL DIAGRAM @ 90° BEND

0 20 40 60

SCALE: 1"=40'

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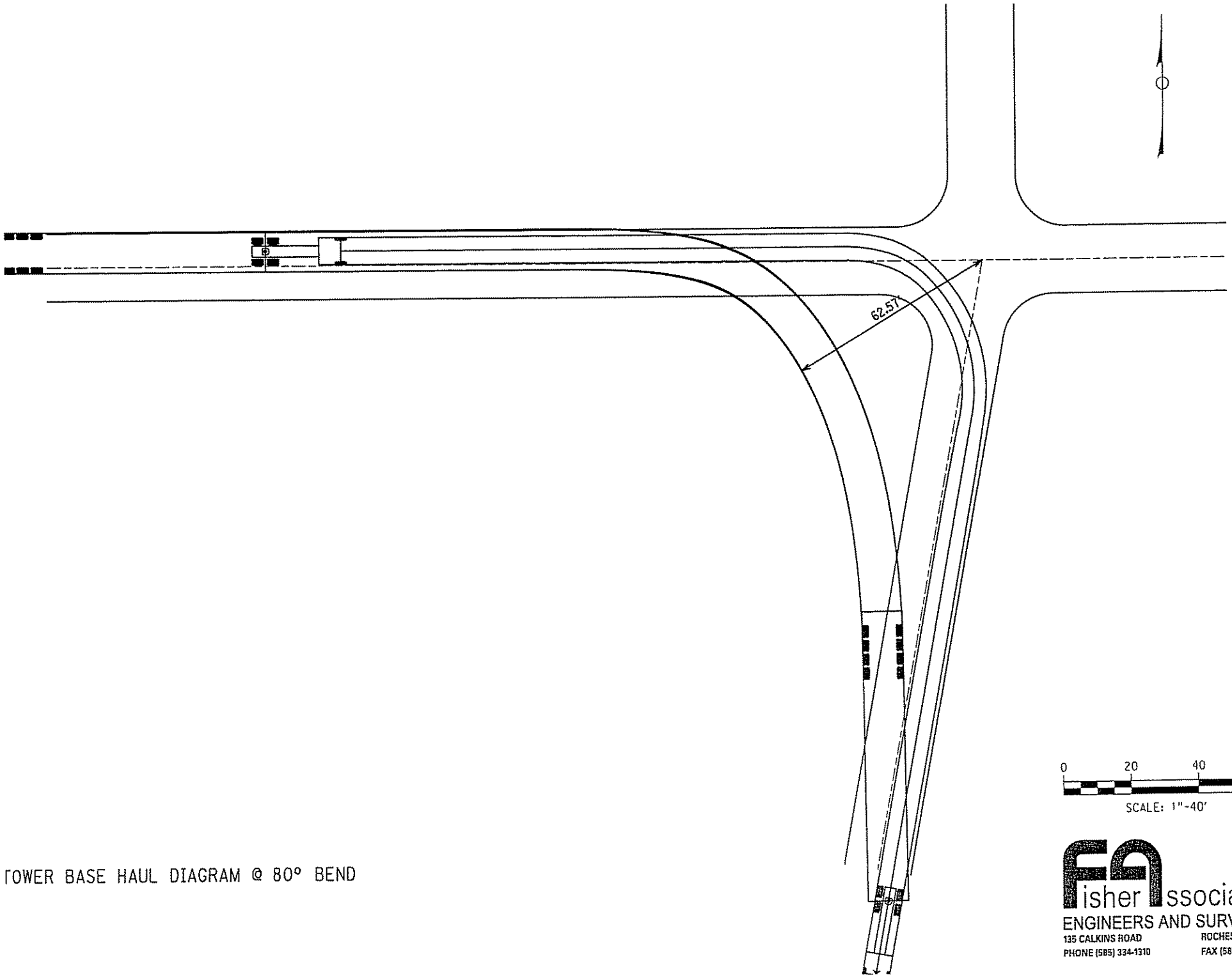

TOWER BASE HAUL DIAGRAM @ 80° BEND

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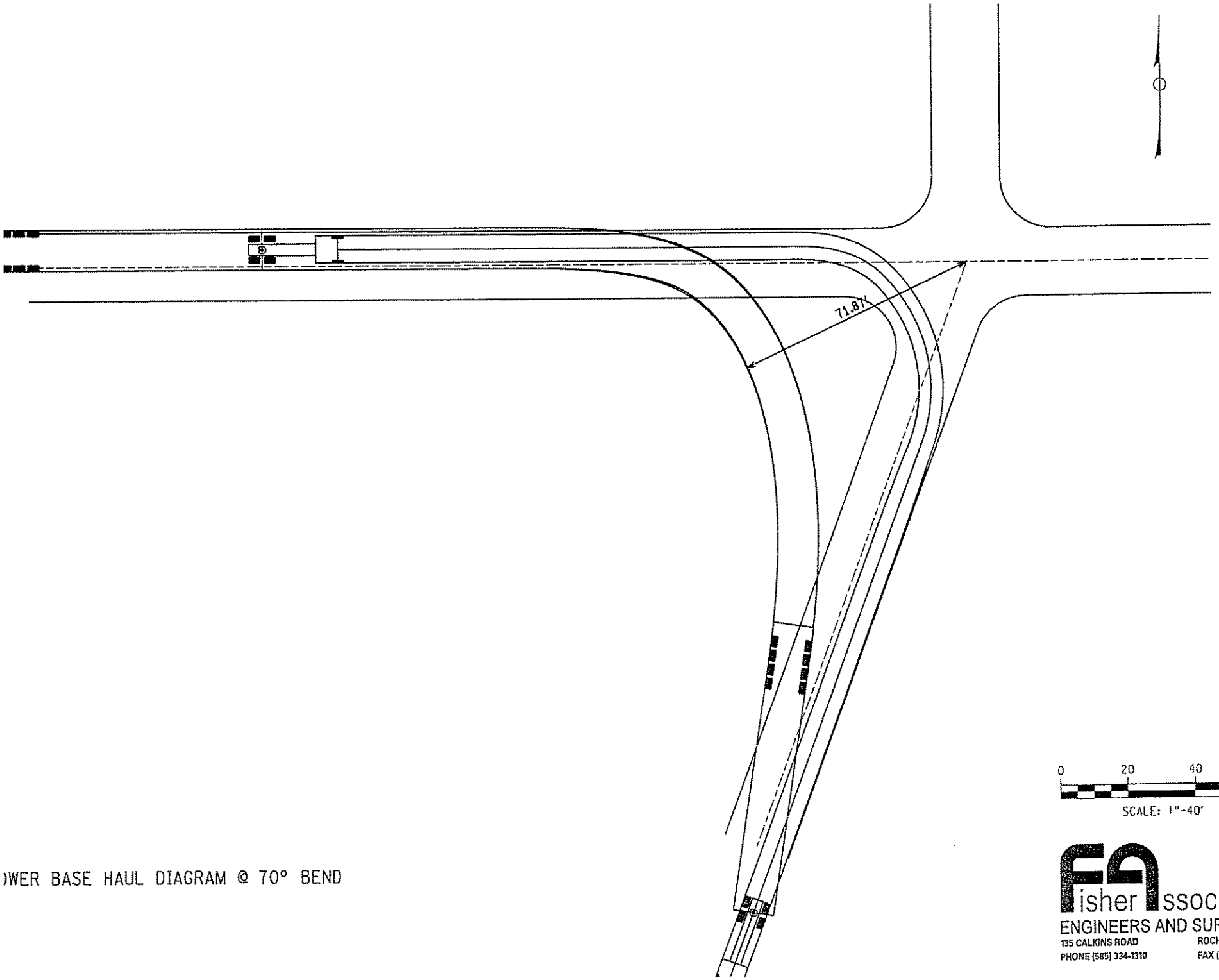

)WER BASE HAUL DIAGRAM @ 70° BEND

0 20 40 60

SCALE: 1"=40'

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ROCHESTER, N.Y. 146
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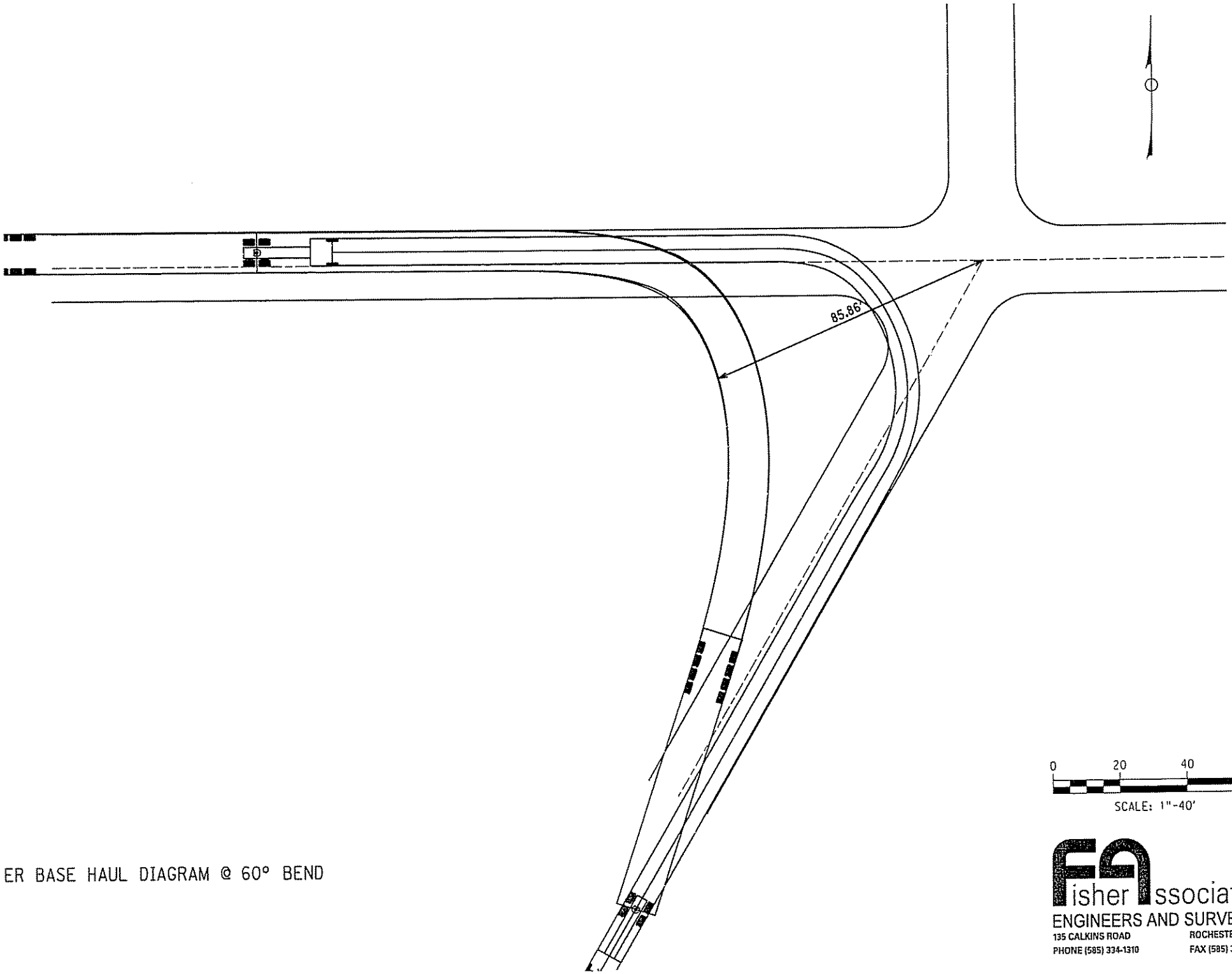

ER BASE HAUL DIAGRAM @ 60° BEND

0 20 40 60

SCALE: 1"=40'

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ENGINEERS AND SURVEYORS
135 CALKINS ROAD ROCHESTER, N.Y. 146
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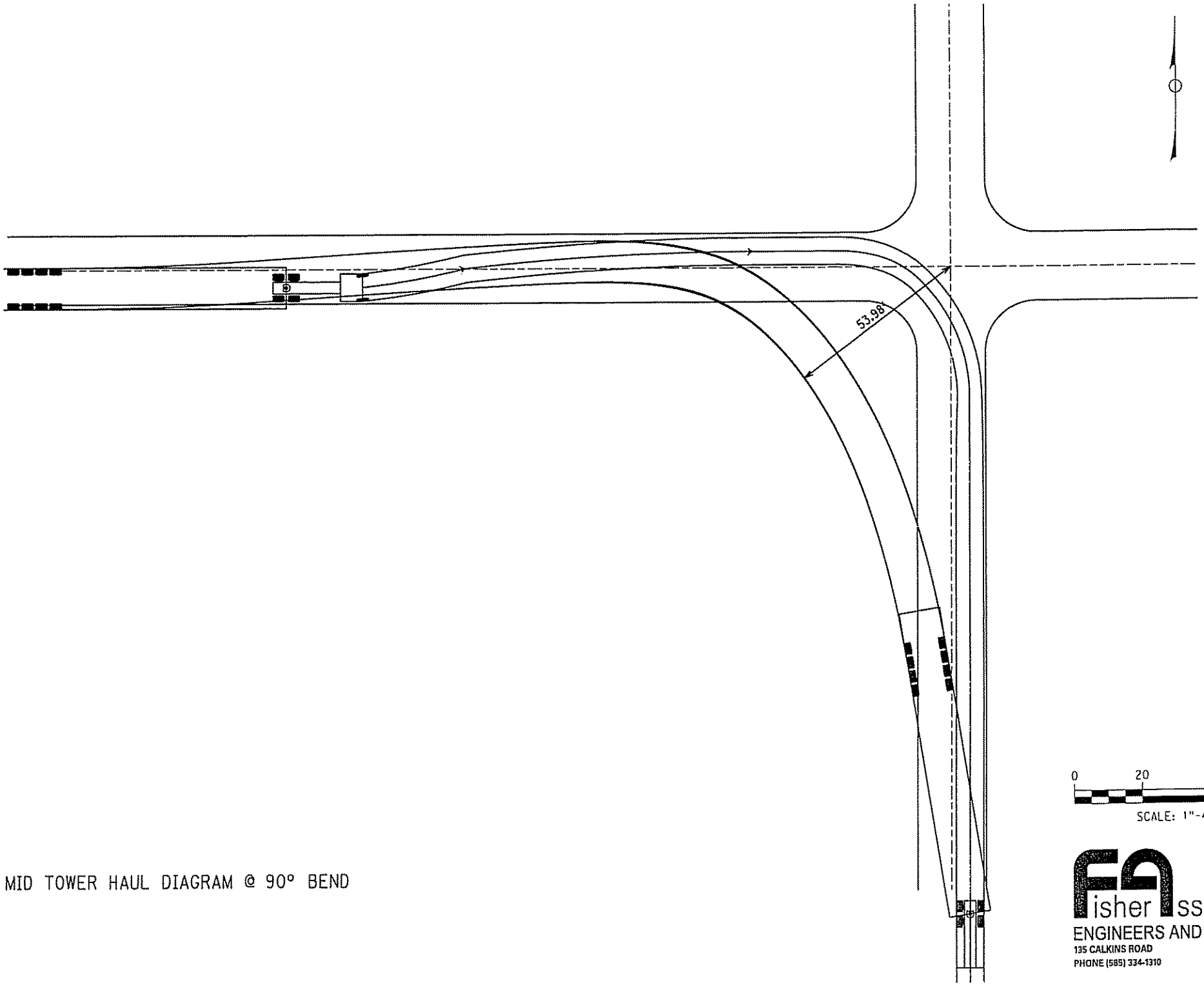

MID TOWER HAUL DIAGRAM @ 90° BEND

0 20 40 60

SCALE: 1"=40'

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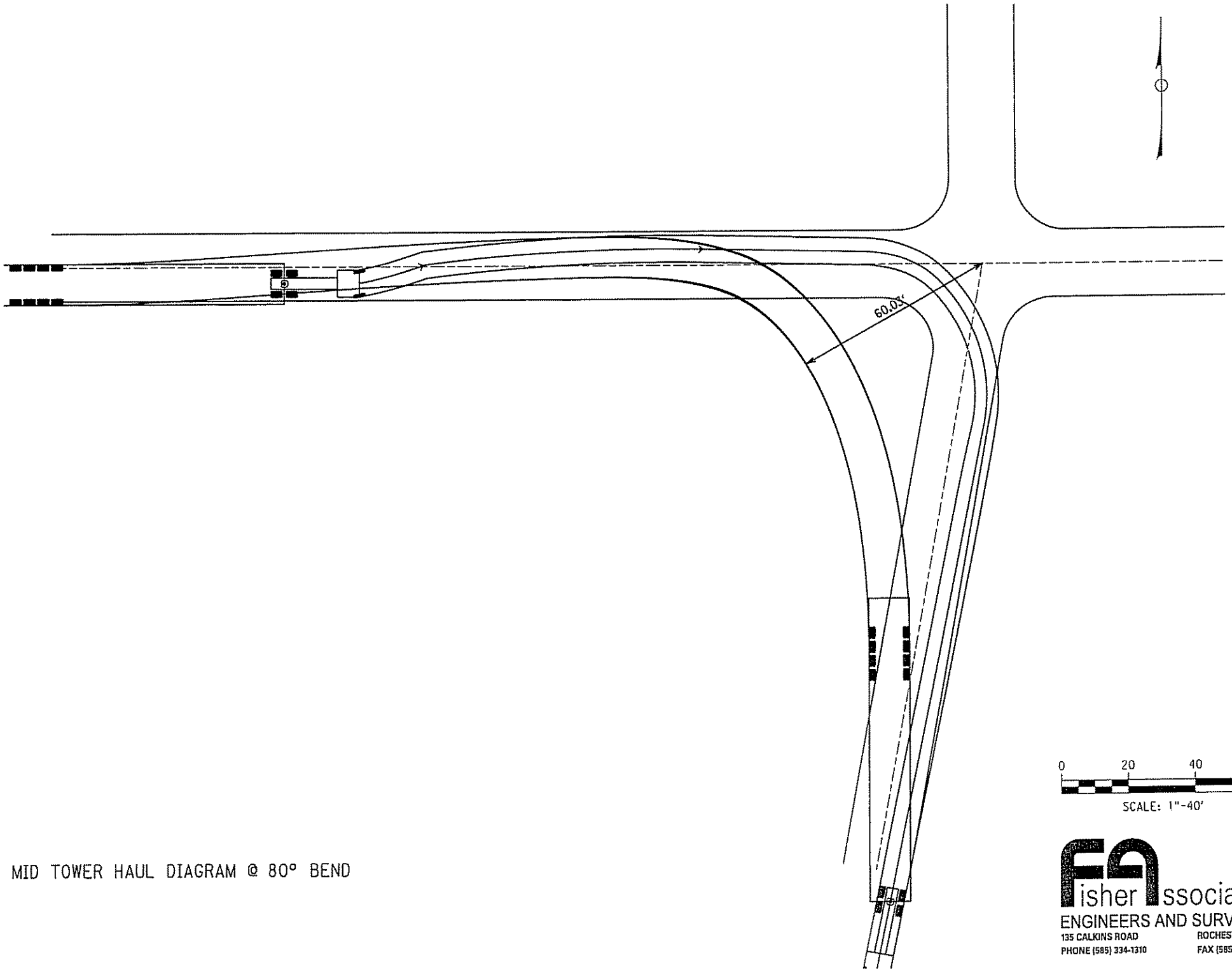
PHONE (585) 334-1310 FAX (585) 334-1361



MID TOWER HAUL DIAGRAM @ 80° BEND

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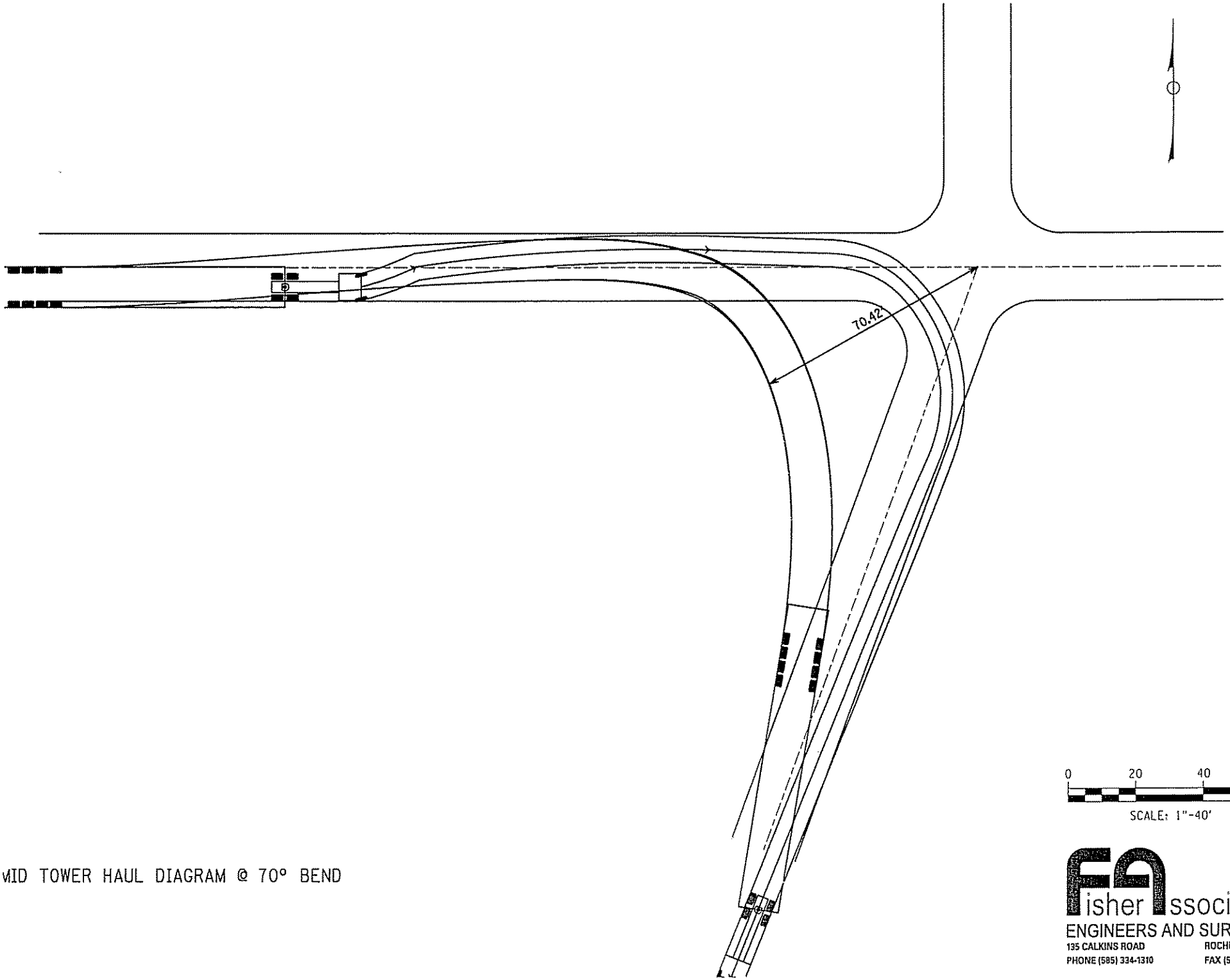

MID TOWER HAUL DIAGRAM @ 70° BEND

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135 CALKINS ROAD ROCHESTER, N.Y. 14
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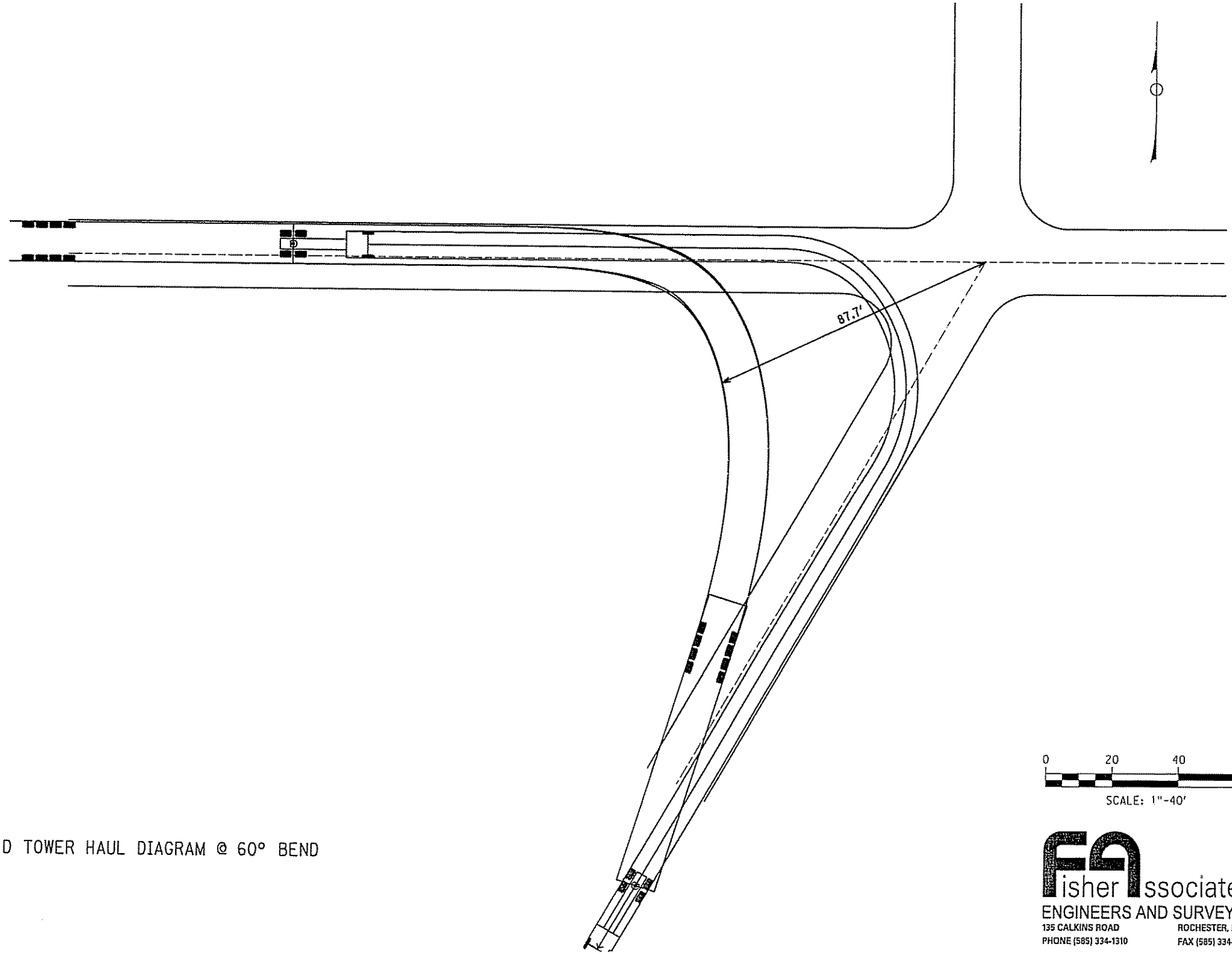

D TOWER HAUL DIAGRAM @ 60° BEND

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Cohocton Wind Power Transportation:

The turbine components will likely arrive at the project area from Interstate 390 through Exits 1, 2, or 3. Exit 1, south of the project area, provides access to Michigan Hollow Road then to Route 415, near Avoca. Traffic exiting at this location would then travel north on Route 415 into the project area. Exit 2 is immediately adjacent the project area, providing access through the Village of Cohocton. Traffic exiting at this location would have to maneuver through the Village streets to the project area. Exit 3 is west of the project area and provides access to Route 21. Traffic exiting at this location would travel on Route 21, to County Route 36, through the Villages of North Cohocton and Atlanta, into the project area.

A preliminary review of Exits 1, 2, and 3 was completed to determine the feasibility of each exit for construction related traffic. Exit 1 appears to accommodate construction traffic with improvements to the ramp intersection turning radii and a structural analysis of, and potential improvements to, the bridge over I-390. Exits 2 & 3 will require turning radii improvements at the exit ramps and likely require the turbine components to arrive on I-390 North due to bridge height restrictions at the exits. Should the components arrive on I-390 South, the maximum height of the delivery vehicles will need to be 14-feet 4-inches at Exit 3, and 14-feet 3-inches at Exit 2 due to the clearance limitations for the vehicles to travel under I-390.

Once beyond Exits 1, 2, or 3 of Route 390, the local roadway network will also require improvements in the form of turning radius improvements (200-foot radius to accommodate the length delivery vehicles), bridge, pipe, or culvert upgrades (to accommodate the weight of the delivery vehicles and other construction traffic), and/or general roadway widening (to a minimum of 16-feet to accommodate delivery and construction vehicles and/or to maintain two-way traffic).

A preliminary review of the project area roadway geometry and the pipes, bridges, and culverts was completed to determine where radii improvements and pipe, bridge, and culvert upgrades may be necessary to accommodate construction traffic. The criteria for roadway geometry improvements were any locations with radii less than 200-feet or roadway widths less than 16-feet.

All bridges will need detailed analysis and potential upgrades to accommodate construction traffic. For purposes of this DEIS, the criteria for pipe and culvert improvements are all bridges and any pipes or culverts with less than one-foot of cover. Note that all pipes and culverts will structural analyzed during the Final Roadway Improvement Plan for the project to verify structural capacity for construction traffic.

The following tables present the locations of roadway geometry and pipe, bridge, and culvert improvements for vehicles originating from I-390 Exits 1, 2, and 3. Refer to the Transportation Study, Drainage Structure Key Map for the bridge, pipe, and culvert locations.

Vehicle Origination - I-390 Exit 1

Improvement Type	Location / Culvert ID	Notes
Radius	I-390 NB off-ramp	SW intersection quadrant
Radius	I-390 SB off-ramp	NW intersection quadrant
Bridge	Michigan Hollow Road over I-390 / ID 133	
Bridge	Michigan Hollow Road over Railroad / ID 134	
Radius	Michigan Hollow Road / NY Route 415	NE intersection quadrant
Bridge	Route 415 of Cohocton River / ID 135	
Bridge	Route 415 over Neil Creek / ID 136	
Bridge	Route 415 of Cohocton River / ID 137	
Bridge	Route 415 under I-390	15 feet maximum clearance
Bridge	Route 415 over Twelve Mile Creek / ID 129	
Radius	Route 415 / Wentworth Road	SW intersection quadrant
Bridge	Wentworth Road over Cohocton River / ID 130	
Bridge	Wentworth Road over I-390 / ID 131	
Bridge	Wentworth Road over I-390 / ID 132	
Radius	Wentworth Road / Flint Road	SE intersection quadrant
Radius	Brown Hill Road / Fairbrother Road	SE intersection quadrant
Radius	Fairbrother Road	Curve south of Brown Hill Road intersection
Radius	Fairbrother Road / Van Auker Road	NW intersection quadrant
Culvert	Fairbrother Road / ID 96	
Radius	Van Auker Road	Several curves throughout length of Van Auker Road
Pipe / Culvert	Van Auker Road / ID 94	
Pipe / Culvert	Van Auker Road / ID 93	
Pipe / Culvert	Van Auker Road / ID 92	
Radius	Route 415 / Hill Street	SE intersection quadrant
Radius	Hill Street / Lent Hill Road	SE intersection quadrant
Radius	Lent Hill Road / Mann Road	NW intersection quadrant
Radius	Lent Hill Road / Edmond Road	NW intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 46	
Radius	Mann Road	Several curves throughout length of Mann Road

Improvement Type	Location / Culvert ID	Notes
Radius	Edmond Road	Several curves throughout length of Edmond Road
Pipe / Culvert	Lent Hill Road / ID 52	
Pipe / Culvert	Lent Hill Road / ID 57	
Pipe / Culvert	Lent Hill Road / ID 58	
Radius	Lent Hill Road / Avery Hollow Road	SW intersection quadrant
Radius	Avery Road / McLean Hollow Road	NW intersection quadrant
Radius	Rynders Road / Cayward Road	SE intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 59	
Radius	Lent Hill Road / Mattice Road	SW intersection quadrant
Radius	Lent Hill Road / Lent Hill Road	NW intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 84	
Pipe / Culvert	Lent Hill Road / ID 82	
Radius	Lent Hill Road	90-degree bend in NE corner of project area
Radius	Kirkwood Road / Wheaton Road / Lent Hill Road	NE & SE intersection quadrants
Bridge	Route 371 over Cohocton River / ID 127	
Bridge	Route 371 over Cohocton River / ID 126	
Bridge	Route 371 over Kirkwood Creek / ID 125	
Radius	Route 371 / Kirkwood Road	SE intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 113	
Pipe / Culvert	Kirkwood Road / ID 111	
Pipe / Culvert	Kirkwood Road / ID 110	
Radius	Kirkwood Road / Pine Hill Road	NW intersection quadrant
Radius	Kirkwood Road / Deusenberry Road	NW intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 87	
Pipe / Culvert	Kirkwood Road / ID 73	
Radius	Pine Hill Road	Series of curves north of Kirkwood Road
Pipe / Culvert	Pine Hill Road / ID 121	
Pipe / Culvert	Pine Hill Road / ID 120	

Vehicle Origination - I-390 Exit 2

Improvement Type	Location / Culvert ID	Notes
Radius	I-390 SB ramp / CR 121	NE intersection quadrant
Bridge	Loon Lake Road under I-390	14-foot 3-inch vertical clearance
Radius	I-390 NB ramp / CR 121	SE intersection quadrant
Radius	CR 121 / Route 415	SE intersection quadrant
Bridge	Route 415 over Cohocton River \ ID 128	
Radius	Route 415 / Cohocton Road	NW intersection quadrant
Radius	Hill Street / Lent Hill Road	SW & SE intersection quadrant
Radius	Warner Avenue / Route 371	SE intersection quadrant
Radius	Route 415 / Wentworth Road	NW intersection quadrant
Bridge	Wentworth Road over Cohocton River / ID 130	
Bridge	Wentworth Road over I-390 / ID 131	
Bridge	Wentworth Road over I-390 / ID 132	
Radius	Wentworth Road / Flint Road	SE intersection quadrant
Radius	Brown Hill Road / Fairbrother Road	SE intersection quadrant
Radius	Fairbrother Road	Curve south of Brown Hill Road intersection
Radius	Fairbrother Road / Van Auker Road	NW intersection quadrant
Culvert	Fairbrother Road / ID 96	
Radius	Van Auker Road	Several curves throughout length of Van Auker Road
Pipe / Culvert	Van Auker Road / ID 94	
Pipe / Culvert	Van Auker Road / ID 93	
Pipe / Culvert	Van Auker Road / ID 92	
Radius	Lent Hill Road / Mann Road	NW intersection quadrant
Radius	Lent Hill Road / Edmond Road	NW intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 46	
Radius	Mann Road	Several curves throughout length of Mann Road
Radius	Edmond Road	Several curves throughout length of Edmond Road
Pipe / Culvert	Lent Hill Road / ID 52	
Pipe / Culvert	Lent Hill Road / ID 57	
Pipe / Culvert	Lent Hill Road / ID 58	
Radius	Lent Hill Road / Avery Hollow Road	SW intersection quadrant
Radius	Avery Road / McLean Hollow Road	NW intersection quadrant
Radius	Rynders Road / Cayward Road	SE intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 59	

Improvement Type	Location / Culvert ID	Notes
Radius	Lent Hill Road / Mattice Road	SW intersection quadrant
Radius	Lent Hill Road / Lent Hill Road	NW intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 84	
Pipe / Culvert	Lent Hill Road / ID 82	
Radius	Lent Hill Road	90-degree bend in NE corner of project area
Radius	Kirkwood Road / Wheaton Road / Lent Hill Road	NE & SE intersection quadrants
Bridge	Route 371 over Cohocton River / ID 127	
Bridge	Route 371 over Cohocton River / ID 126	
Bridge	Route 371 over Kirkwood Creek / ID 125	
Radius	Route 371 / Kirkwood Road	SE intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 113	
Pipe / Culvert	Kirkwood Road / ID 111	
Pipe / Culvert	Kirkwood Road / ID 110	
Radius	Kirkwood Road / Pine Hill Road	NW intersection quadrant
Radius	Kirkwood Road / Deusenberry Road	NW intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 87	
Pipe / Culvert	Kirkwood Road / ID 73	
Radius	Pine Hill Road	Series of curves north of Kirkwood Road
Pipe / Culvert	Pine Hill Road / ID 121	
Pipe / Culvert	Pine Hill Road / ID 120	

Vehicle Origination - I-390 Exit 3

Improvement Type	Location / Culvert ID	Notes
Radius	I-390 SB ramp / Route 21	NW intersection quadrant
Bridge	Route 21 under I-390	14-foot 4-inch vertical clearance
Radius	I-390 NB ramp / Route 21	NE intersection quadrant
Radius	Route 21 / CR 36	SE intersection quadrant
Pipe / Culvert	CR 36 / ID 5	
Radius	CR 36 / Route 415	NW intersection quadrant
Pipe / Culvert	CR 36 / ID 14	
Pipe / Culvert	CR 36 / ID 15	
Pipe / Culvert	CR 36 / ID 16	
Bridge	CR 36 over Cohocton River / ID 123	
Radius	CR 36 / Maple Road	SE intersection quadrant
Radius	Maple Road / Route 371	SW intersection quadrant
Radius	Route 371 / Pine Hill Road	NE intersection quadrant
Radius	Pine Hill Road	Curve immediately west of Route 371
Radius	Route 415 / Wentworth Road	NW intersection quadrant
Bridge	Wentworth Road over Cohocton River / ID 130	
Bridge	Wentworth Road over I-390 / ID 131	
Bridge	Wentworth Road over I-390 / ID 132	
Radius	Wentworth Road / Flint Road	SE intersection quadrant
Radius	Brown Hill Road / Fairbrother Road	SE intersection quadrant
Radius	Fairbrother Road	Curve south of Brown Hill Road intersection
Radius	Fairbrother Road / Van Auker Road	NW intersection quadrant
Culvert	Fairbrother Road / ID 96	
Radius	Van Auker Road	Several curves throughout length of Van Auker Road
Pipe / Culvert	Van Auker Road / ID 94	
Pipe / Culvert	Van Auker Road / ID 93	
Pipe / Culvert	Van Auker Road / ID 92	
Radius	Warner Avenue / Route 371	SE intersection quadrant
Radius	Lent Hill Road / Mann Road	NE intersection quadrant
Radius	Lent Hill Road / Edmond Road	NE intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 46	
Radius	Mann Road	Several curves throughout length of Mann Road
Radius	Edmond Road	Several curves throughout length

Improvement Type	Location / Culvert ID	Notes
		of Edmond Road
Pipe / Culvert	Lent Hill Road / ID 52	
Pipe / Culvert	Lent Hill Road / ID 57	
Pipe / Culvert	Lent Hill Road / ID 58	
Radius	Lent Hill Road / Avery Hollow Road	SE intersection quadrant
Radius	Avery Road / McLean Hollow Road	NW intersection quadrant
Radius	Rynders Road / Cayward Road	SE intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 59	
Radius	Lent Hill Road / Mattice Road	SE intersection quadrant
Radius	Lent Hill Road / Lent Hill Road	NW intersection quadrant
Pipe / Culvert	Lent Hill Road / ID 84	
Pipe / Culvert	Lent Hill Road / ID 82	
Radius	Lent Hill Road	90-degree bend in NE corner of project area
Radius	Kirkwood Road / Wheaton Road / Lent Hill Road	NW & SW intersection quadrants
Bridge	Route 371 over Cohocton River / ID 127	
Bridge	Route 371 over Cohocton River / ID 126	
Bridge	Route 371 over Kirkwood Creek / ID 125	
Radius	Route 371 / Kirkwood Road	SE intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 113	
Pipe / Culvert	Kirkwood Road / ID 111	
Pipe / Culvert	Kirkwood Road / ID 110	
Radius	Kirkwood Road / Pine Hill Road	NW & NE intersection quadrant
Radius	Kirkwood Road / Deusenberry Road	NW intersection quadrant
Pipe / Culvert	Kirkwood Road / ID 87	
Pipe / Culvert	Kirkwood Road / ID 73	
Radius	Pine Hill Road	Series of curves north of Kirkwood Road
Pipe / Culvert	Pine Hill Road / ID 121	
Pipe / Culvert	Pine Hill Road / ID 120	